Innovation, Technology, and Knowledge Management

Manlio Del Giudice
Maria Rosaria Della Peruta
Elias G. Carayannis

Knowledge and the Family Business

The Governance and Management of Family Firms in the New Knowledge Economy

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Manlio Del Giudice
Faculty of Economics
Second University of Naples
I-81043 Capua (CE), Italy
manlio.delgiudice@unina2.it

Maria Rosaria Della Peruta
Faculty of Economics
Second University of Naples
I-81043 Capua (CE), Italy
mariarosaria.dellaperuta@unina2.it

Elias G. Carayannis
School of Business
George Washington University
Washington, DC 20052, USA
caraye@gwu.edu

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Series Foreword

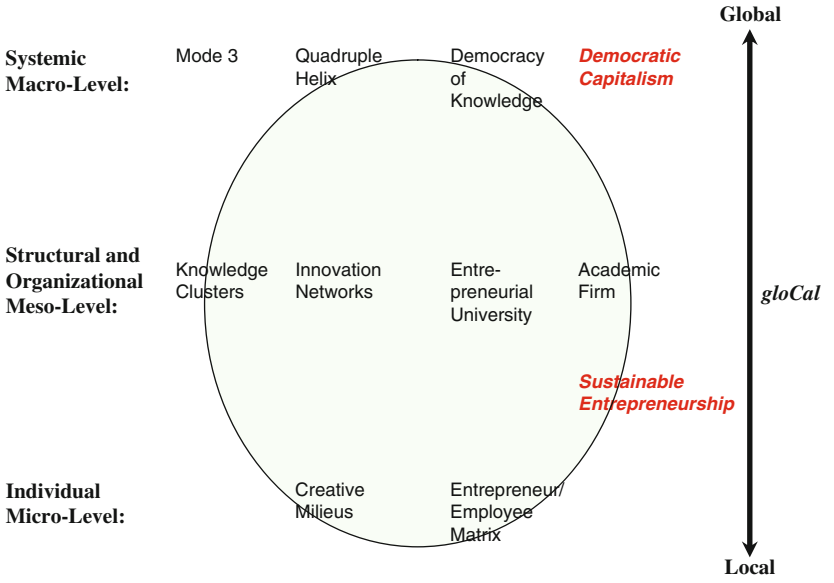
The Springer Book Series on Innovation, Technology and Knowledge Management was launched in March 2008 as a forum and intellectual, scholarly "podium" for global/local (glo*C*al), transdisciplinary, transsectoral, public–private, leading/"bleeding"-edge ideas, theories and perspectives on these topics.

The book series is accompanied by the Springer *Journal of the Knowledge Economy* which was launched in 2009 with the same editorial leadership.

The series showcases provocative views that diverge from the current "conventional wisdom", which are properly grounded in theory and practice, and which consider the concepts of *robust competitiveness,*[1] *sustainable entrepreneurship*[2] and *democratic capitalism,*[3] central to its philosophy and objectives. More specifically, the aim of this series is to highlight emerging research and practice at the dynamic intersection of these fields, where individuals, organizations, industries, regions and nations are harnessing creativity and invention to achieve and sustain growth.

Books that are part of the series explore the impact of innovation at the "macro" (economies, markets), "meso" (industries, firms) and "micro" levels (teams, individuals), drawing from such related disciplines as finance, organizational psychology, R&D, science policy, information systems and strategy, with the underlying theme that in order for innovation to be useful it must involve the sharing and application of knowledge.

Some of the key anchoring concepts of the series are outlined in the figure below and the definitions that follow (all definitions are from EG Carayannis and DFJ Campbell, International Journal of Technology Management 46: 3–4, 2009).



Conceptual profile of the Series on Innovation, Technology and Knowledge Management

- *The "MODE 3" Systems Approach for knowledge creation, diffusion and use.* "Mode 3" is a multilateral, multinodal, multimodal and multilevel systems approach to the conceptualization, design and management of real and virtual, "knowledge-stock" and "knowledge-flow", modalities that catalyze, accelerate and support the creation, diffusion, sharing, absorption and use of co-specialized knowledge assets. "Mode 3" is based on a system-theoretic perspective of socioeconomic, political, technological and cultural trends and conditions that shape the co-evolution of knowledge with the "knowledge-based and knowledge-driven, gloCal economy and society".
- *Quadruple Helix.* Quadruple Helix, in this context, means to add to the triple helix of government, university and industry a "fourth helix" that we identify as the "media-based and culture-based public". This fourth helix associates with "media", "creative industries", "culture", "values", "life styles", "art", and perhaps also the notion of the "creative class".
- *Innovation Networks.* Innovation Networks are real and virtual infrastructures and infra-technologies that serve to nurture creativity, trigger invention and catalyze innovation in a public and/or private domain context (for instance, government-university-industry public-private research and technology development co-opetitive partnerships).
- *Knowledge Clusters.* Knowledge Clusters are agglomerations of co-specialized, mutually complementary and reinforcing knowledge assets in the form of

"knowledge stocks" and "knowledge flows" that exhibit self-organizing, learning-driven, dynamically adaptive competencies and trends in the context of an open systems perspective.

- *Twenty-first Century Innovation Ecosystem:* A twenty-first century Innovation Ecosystem is a multilevel, multimodal, multinodal and multiagent system of systems. The constituent systems consist of innovation meta-networks (networks of innovation networks and knowledge clusters) and knowledge meta-clusters (clusters of innovation networks and knowledge clusters) as building blocks and organized in a self-referential or chaotic fractal knowledge and innovation architecture, which in turn constitute agglomerations of human, social, intellectual and financial capital stocks and flows as well as cultural and technological artifacts and modalities, continually co-evolving, o-specializing and co-opeting. These innovation networks and knowledge clusters also form, re-form and dissolve within diverse institutional, political, technological and socioeconomic domains including government, university, industry, non-governmental organizations and involving information and communication technologies, biotechnologies, advanced materials, nanotechnologies and next-generation energy technologies.

Who is this book series published for? – The book series addresses a diversity of audiences in different settings:

1. Academic communities: Academic communities worldwide represent a core group of readers. This follows from the theoretical/conceptual interest of the book series to influence academic discourses in the fields of knowledge, also carried by the claim of a certain saturation of academia with the current concepts and the postulate of a window of opportunity for new or at least additional concepts. Thus it represents a key challenge for the series to exercise a certain impact on discourses in academia. In principle, all academic communities that are interested in knowledge (knowledge and innovation) could be tackled by the book series. The interdisciplinary (transdisciplinary) nature of the book series underscores that the scope of the book series is not limited a priori to a specific basket of disciplines. From a radical viewpoint, one could create the hypothesis that there is no discipline where knowledge is of no importance.
2. Decision makers – private/academic entrepreneurs and public (governmental, sub-governmental) actors: Two different groups of decision makers are being addressed simultaneously: (1) private entrepreneurs (firms, commercial firms, academic firms) and academic entrepreneurs (universities), interested in optimizing knowledge management and in developing heterogeneously composed knowledge-based research networks; and (2) public (governmental, sub-governmental) actors that are interested in optimizing and further developing their policies and policy strategies that target knowledge and innovation. One purpose of public knowledge and innovation policy is to enhance the performance and competitiveness of advanced economies.

3. Decision makers in general: Decision makers are systematically being supplied with crucial information on how to optimize knowledge-referring and knowledge-enhancing decision-making. The nature of this "crucial information" is conceptual as well as empirical (case study-based). Empirical information highlights practical examples and points towards practical solutions (perhaps remedies), conceptual information offers the advantage of further-driving and further-carrying tools of understanding. Different groups of addressed decision makers could be decision makers at private firms and multinational corporations responsible for the knowledge portfolio of companies; knowledge and knowledge management consultants; globalization experts, focusing on the internationalization of R&D, S&T and innovation; experts in university/business research networks; and political scientists, economists, business professionals.
4. Interested global readership: Finally, the Springer book series addresses a whole global readership composed of members who are generally interested in knowledge and innovation. The global readership could partially coincide with the communities, as described above (''academic communities,'' ''decision makers''), but could also refer to other constituencies and groups.

Notes

1. We define *sustainable entrepreneurship* as the creation of viable, profitable and scalable firms. Such firms engender the formation of self-replicating and mutually enhancing innovation networks and knowledge clusters (innovation ecosystems), leading towards robust competitiveness (EG Carayannis, International Journal of Innovation and Regional Development 1(3): 235–254, 2009).
2. We understand *robust competitiveness* to be a state of economic being and becoming that avails systematic and defensible "unfair advantages" to the entities that are part of the economy. Such competitiveness is built on mutually complementary and reinforcing low-, medium- and high-technology and public and private sector entities (government agencies, private firms, universities and non-governmental organizations) (EG Carayannis, International Journal of Innovation and Regional Development 1(3): 235–254, 2009).
3. The concepts of *robust competitiveness* and *sustainable entrepreneurship* are pillars of a regime that we call *democratic capitalism* (as opposed to "popular or casino capitalism") in which real opportunities for education and economic prosperity are available to all, especially – but not only – younger people. These are the direct derivatives of a collection of top-down policies as well as bottom-up initiatives (including strong R&D policies and funding, but going beyond these to include the development of innovation networks and knowledge clusters across regions and sectors) (EG Carayannis and A. Kaloudis, Japan Economic Currents, January 2009, pp. 6–10).

Washington, District of Columbia Elias G. Carayannis

Contents

Chapter 1
Introduction: Mapping the Paths Through the Handbook

Manlio Del Giudice, Maria Rosaria Della Peruta, and Elias G. Carayannis

For long time management and organizational research ignored family firms, even if they were dominant in many national economies. Only in the last decade the importance of the question was increasingly recognized. Apart from the fundamental research stream that aimed to understand the definitive essence and nature of family firms and how they differ from non-family firms, researchers were also interested in approaching practical managerial issues and real strategic matters. The study of family business management started from modest origins, as the limited content of a general management course in business schools, but has now acquired the value of a well-established field in the study of business and organizations. Over a brief period of time, the number and variety of topics and research methods employed in this field has grown considerably.

While the increase in topics and methods is commonly regarded as a positive fact because it expresses the vitality of the field, rebuilding of the methodological and ideological coordinates in which the various contributions that have written the history of this young subject are inscribed is a very difficult task. Many have attempted, but their outcomes have almost always been compromised by the noble yet unrealistic ambition of adjusting, simplifying and enclosing in matrix various research projects, labelling, classifying and embalming them. Rather than continuing in this sterile exercise of exhausting research of theoretical reference models, it would be desirable to maintain a constructive exchange of ideas, in which you try to learn from one another, discover an intimate understanding of the theoretical processes and of the vast mass of empirical evidence that has been accumulated over time. We have tried to seize this invitation, pointing out those contributions that have seemed more meaningful to us, without the pretension of being exhaustive and devolving their examination upon authors of various origins, without precluding any schools or viewpoints and without being concerned about not reaching an overall consistency.

The handbook starts from a series of contributions of economic formulation, which have undeniably represented an advancement not only of both thinking and, in some ways, business practice but also of the enhancement of a certain "enlightened" vision, in which knowledge and organization are essentially treated as a "deterministic" phenomenon that sends back to the observation of several real cases.

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Part I, which is directed at recognizing factors and conditions that shape organizational learning in family business, aims at offering a theoretical reference frame that allows to bind and understand knowledge properties that govern its production and transfer, as well as the institutional conditions that determine knowledge management in a family business. What we mean when referring to knowledge is basically an attribute of cognitive ability: who has it is given the ability to act, physically or intellectually (Chapter 2). Knowledge transfer is a critical process, because cognitive abilities are difficult to articulate explicitly and transfer to others. Consequently, the reproduction of knowledge has been based, for long time, on the relationship between master and apprentice (in which the competencies of a youngster were developed through observation, imitation, listening) or on the transactions among members of the same community or profession. These means of reproduction are still significant in many professions and traditions, but they can easily fail, at the time that social bonds deteriorate, when contacts between old and new generations become rarer and when professional communities lose their ability to stabilize, preserve and transfer knowledge. In these cases, reproduction halts and there is the risk that the knowledge in question is lost and forgotten.

Even if organizational learning occurs, by definition, within an organizational context, that context has not always been suitably considered (Chapter 3). The social constitution of the organizations within which these processes occur fosters moulds and limits learning and knowledge creation. In short, distinct organizational elements, such as departments or hierarchical levels, are characterized by a diverse structuring of roles, interests and power: this causes many paradoxes and tensions that activate a series of dynamics which have an effect on learning processes. These dynamics are closely connected to the sense of social identity people have and can generate intense emotions: according to the type of emotion and the typical context involved, learning may be encouraged or prevented. As a consequence, we can assert that significant successes and failures organizations may have experienced in the past do not offer a secure learning basis.

Therefore, we can assume that the study of the processes by which organizations learn and the study of leadership are connected by the need for organizations to adjust to environmental change and leaders must play their part in encouraging organizational learning (Chapter 4). In a balanced family system, instead, leadership is more open and communicative, roles are shared and more distinctly established. Decisions are made on an open basis and interpersonal exchange is essential. This type of system will ensure devotion and gratification. A predominant focus on leadership as a key attribute in management of the family business is not unreasonable to expect, given that the literature has identified leadership as a critical variable of the often difficult and detrimental process of transferring power from one generation to another in the typical family business.

Chapters 5 and Chapters 6 originate from the consideration that in a large number of recently industrialized countries, the traditional family firm – in which property and control are closely connected, family members make decisions at all levels and the firm follows a dynastic line – represents the strategic element. This is also true

in the old industrialized countries, and in a great number of sectors, from the labour-intensive and craft-based to specialized suppliers.

Since the beginning of the new millennium, the number of family businesses in most European industrialized countries has always been noteworthy; in Japan family firms represent the absolute majority and also in the USA, especially if we consider traditional sectors, the number of family businesses remains high.

In particular, our analysis focuses on the entrepreneurial reality of family businesses in Italy (Chapter 6), and Italy becomes the scenario to which we must refer the interpretation of the nature and problems of the enterprises and in which their life is expressed in the present historical period, characterized by a number of political, social, cultural and economical elements, etc. In some cases, we are talking about small and very small enterprises that can barely be distinguished from artisan businesses; in other cases we are talking about firms that gradually acquire a medium or big size. Besides the self-made men, a group of entrepreneurs with a family tradition in the world of production behind them has established itself, and in the most famous cases has given birth to long-lasting industrial dynasties. The fact remains that today the decisive match, on which an authentic entrepreneurial culture, up to the challenges of our times, is moulded, is played on research valorization and continuous innovation; on the creation of human capital and on the ethics of social responsibility, as well as the ability of joining together the rooting in the territory of belonging and the competitiveness in the international market circuits.

Part II (Chapters 7, 8 and 9) concerns diversity and heterogeneity in knowledge-based family businesses, that is businesses which are small and medium size, technology-based or technology-driven (but not technology-neutral), that we view as complex, adaptive, non-linear, learning knowledge systems.

In the introduction (Chapter 7), we recognize that a knowledge system implies the existence and interactions of input, process and output factors in the knowledge society and economy expressed via co-existence, competition, co-evolution and co-specialization processes. Moreover, we have analyzed and discussed the ways and means that diversity and heterogeneity – two fundamental properties of the knowledge system – determine how knowledge is created, diffused and used. Our argumentation of knowledge systems is aimed to be open-ended. We therefore try to offer an emerging conceptual framework which can be used as the "intellectual sandbox" and "creative whiteboard space" of the mind's eyes of the family business owners and operators who we view as "knowledge weavers" (Wissensweber) as they try to face the twenty-first century challenges and opportunities for socioeconomic wealth and cultural revival based on knowledge and innovation.

As an effect of the globalized character and dynamics of state-of-the-art specialized knowledge, one needs to handle and influence two mutually – reinforcing and complementary trends:

(a) Micro–Macro – the synergy and co-development of top-down national and multinational public policies in the fields of technology, science, and innovation and technological patterns and institutional complementarities beside bottom-up technology progress and knowledge attainment private initiatives, and

(b) the levelling of the competitive field through countries worldwide via technology circulation and selection guided and completed by the creation and intensification of multidimensional, multilateral, multimodal and multinodal divides (cultural, technological, socioeconomic, etc.. . .)

The knowledge management paradigm (Chapter 8) provides information regarding the study of cooperative activity and management of research collaboration. If intellectual capital is the fundamental origin of wealth to come, then enterprises will have to be able to access that capital in every way possible.

A case study approach is required to acquire both prescriptive and descriptive technology transfer effectiveness information that can be utilized to rearrange technology transfer processes. This approach can even offer valuable qualifiers that place available quantitative factors into their right frame of reference.

In the light of the findings from the seven case studies presented, in which this approach is articulated, we recommend (Chapter 9) using a hybrid portfolio approach in evaluating the success of technology transfer and commercialization efforts. This approach embodies both quantitative and qualitative measures and is flexible in its application, and it should have foundations in basic raw data and facts not economic models which announce levels of doubtfulness and can be easily criticized (Tables 1.1 and 1.2).

Table 1.1 Theoretical frameworks

Theoretical frameworks	General approach	Implementation in family business governance
Agency theory	Minimization of problems caused by the separation of ownership from control	Effects of the separation of ownership from managerial control
Transactions cost economics	Selecting governance structures that minimize transaction costs	Firm boundaries; ownership and financing structures
Evolutionary approaches	Population, organization, and intraorganizational level conditions and outcomes of evolutionary processes	Factors promoting and inhibiting survival of family firms
Resource-based view	A firm is seen as a bundle of tangible and intangible resources rather than as a product-market position	Family-related resources leading to sustained competitive advantage
Resource dependence theory	Political approach to manage interdependencies between organizations	Power and resource aspects of relationships in family firms
Social capital theory	Socially constructed reality creates resources embedded in relationships	Effects of resources embedded in relationships

Source: Adapted from Mustakallio M (2002); Mustakallio M, Autio E, Zahra SA (2002)

Table 1.2 Definitions of the family business in the literature

References	Definition
Alcorn (1982)	A profit-making concern that is a proprietorship, a partnership, or a corporation. If a part of the stock is publicly owned, the family must also operate the business
Astrachan and Shanker (2003)	An organization in which a family controls ownership and management and intends to pass these elements to the next generation
Babicky (1987)	The kind of small business started by one or a few individuals who had an idea, worked hard to develop it, and achieved, usually with limited capital, growth while maintaining majority ownership of the enterprise
Barnes and Hershon (1976)	Controlling ownership is rested in the hands of an individual or of the members of a single family
Bernard (1975)	An enterprise which, in practice, is controlled by the members of a single family
Birley and Godfrey (1999)	It is clear that family businesses comprise a very significant proportion of business throughout the world. Family businesses can range in size from a small corner store to a large multinational corporation
Carsrud (1994)	Closely held firm's ownership and policy making are dominated by members of an "emotional kinship group"
Chua et al. (1999)	A business owned and managed by a nuclear family is a family business
Churchill and Hatten (1993)	What is usually meant by family business is either the occurrence or the anticipation that a younger family member has or will assume control of the business from the elder
Davis (1983)	Are those whose policy and direction are subject to significant influence by one or more family units. This influence is exercised through ownership and sometimes through the participation of family members in management
Davis and Tagiuri (1985)	A business in which two or more extended family members influence the direction of the business
Distelberg and Sorenson (2009)	All individuals related by blood, marriage, or adoption are typically considered family. But individuals not related through blood, marriage, or adoption but who share goals, resources, and a commitment to the whole may also be considered family
Donckels and Frohlich (1991)	If family members own at least 60 *percent* of the equity
Donnelley (1964)	When it has been closely identified with at least two generations of a family and when this link has had a mutual influence on company policy and on the interests and objectives of the family
Dreux (1990)	Are economic enterprises that happen to be controlled by one or more families (that have) a degree of influence on company policy and on the interests and objectives of the family
Gallo and Sveen (1991)	A business where a single family owns the majority of stock and has total control
Handler (1989)	An organization whose major operating decisions and plans for leadership succession are influenced by family members serving in management or on the board

Table 1.2 (continued)

Reference	Definition
Holland and Oliver (1992)	Any business in which decisions regarding its ownership or management are influenced by a relationship to a family or families
Lansberg et al. (1988)	A business in which members of a family have legal control aver ownership
Leach et al. (1990)	A company in which more than 50 percent of the voting shares are controlled by one family, and/or single family group effectively controls the firm, and/or a significant proportion of the firm's senior management is members from the same family
Lyman (1991)	The ownership had to reside completely with family members, at least one owner had to be employed in the business, and one other family member had either to be employed in the business or to help out on a regular basis even if not officially employed
Pratt and Davis (1986)	One in which two or more extended family members influence the direction of the business through the exercise of kinship ties, management roles, or ownership rights
Rosenblatt et al. (1985)	Any business in which majority ownership or control lies within a single family and in which two or more family members are or at some time were directly involved in the business
Stern (1986)	Owned and run by the members of one or two families
Welsch (1993)	One in which ownership is concentrated, and owners or relatives of owners are involved in the management process
Poutziouris (2001)	Family companies are reckoned as one of the engines of the postindustrial economy on the grounds that they are credited for nurturing entrepreneurial talents across generations, a sense of loyalty to business success, long-term strategic commitment, and corporate independence
Shanker and Astrachan (1996)	A family business should incorporate some degree of control over strategic decisions by the family and the intention to leave the business in the family

Source: Adapted from Chua et al. (1999)

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Part I
Family Businesses in the New Knowledge Economy: Governance and Management

Chapter 2
Knowledge Management and Family Business

Manlio Del Giudice

Abstract One of the most important discoveries of our time is that knowledge opens the way, not only to economic development, but also to business and corporate success. While a small group of academics and other scholars has always coherently emphasized the relevance of knowledge assets, only recently there has been general agreement upon the fact that this is the crucial issue. Actually, some may assert that it still has to emerge completely. The truth is that many have simply failed to offer a correct vision of the way firms and management are affected by the increasing importance of knowledge assets, so expectations are seldom satisfied and the common perceptions of their potential in family business are misleading. The rationale of our reasoning is that knowledge cannot be considered regardless of the process through which it is achieved. This premise needs to be integrated by the analysis of the cognitive capabilities of the agents and the organizational context in which they interact, as well as the different kinds of knowledge required to process knowledge itself.

2.1 Knowledge: Sources and Typologies

"Our knowledge has all kinds of sources, but none has authority [...]. *The basic mistake* epistemology[1] (Abbagnano and Fornero 1996, p. 8) as Popper explains has limited itself to give answers to questions such as which is the first source of knowledge?[2] (Sorge 2000; Habermas 1999), Intellect or senses? Well, as stated by Popper: this "innocent *of the philosophic theory of the primary sources of our knowledge consists in the fact that it doesn't distinguish with sufficient clearness between issues of origin and issues of validity*" (Popper 1972, p. 48). The gnoseologic problem roots back to the beginning of time, but the traditional question has raised intense disputes since the dawning of Western philosophy[3] (Nonaka and Takeuchi 1995), the hub of which was surely ancient Greece[4] (Abbagnano and Fornero 1996, p. 24).

Later flown together in the two main epistemologic traditions, rationalism and empiricism, which animated the debate in the seventeenth century, we find only at the end of the eighteenth century a first attempt at reassembling performed

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by the German philosopher Immanuel Kant. Plato, forerunner of the rationalist perspective,[5] stated that "what absolutely is, is absolutely cognizable, what in no way is, in no way is cognizable[6]" (Plato, Rep., 477 a). He suggested, *in primis*, an apologetic *revival* of Socrates' doctrine,[7] to elaborate, *in secundis*, the doctrine of the ideas[8] (Abbagnano and Fornero 1996, p. 233), namely immutable and perfect entities, situated far from the world of imperfection, changeability and opinion,[9] in order to not be contaminated by this, however maintaining, with the sensible world, a relationship of *mimesis*,*metessis* and*parusia*[10] that figures it as an image in a mirror deforming the perfection, immutability and eternity of the Hyperuranium.[11] Therefore, ideas are shapes perceived – perceivable only through the pure eye of the mind. So the gap between sensible knowledge (supposition and belief) and rational knowledge (rational knowledge and philosophic intelligence) is open; the first leads to the sensible world (shades of the things, sensible things), while the second to the ideal one (mathematical ideas, value ideas).

This first approach to the theory of knowledge is organically and completely expressed by *Meno*, under the name of anamnesis[12] (Popper 1972, p. 27) theory, according to which the soul[13] that lives in the Hyperuranium, undergoes a sort of resection of its cognition store, on introduction in the human body; therefore, truly speaking, we should talk about re-cognition, and not – *stricto sensu* – about knowledge. When we are born we forget, but we can reacquire memory and knowledge, even if only in part. For the author, to know meant assimilating the thinking to the thought, an all but instantaneous process, because it can be accomplished only by ascending through various levels[14] (Davenport and Prusak 2000) of knowledge (corresponding to as many levels of being), until reaching the idea of the ideas, that is the idea of Good (which isn't set yet as "Demiurge" of the other ideas); and the dialectic course that improves as it reaches the idea of the ideas. Later Plato must have been disillusioned; in fact, in *Phaedrus* and *the Republic*[15] the warning signs of a pessimistic epistemology[16] (Nietzsche 1992, p. 13) can be found, which is expressed in a complete way by the myth[17] of the cave in the Republic, and the myth of the winged chariot present in Phaedrus. In the famous myth of the cave, the philosopher expresses the impossibility of understanding the truth, because even if a prisoner managed to free himself from his chains, symbol of impossibility for *the mass*, to move away from the sensible and imperfect world (fully incarnating the aristocratic sense of culture, even before philosophy, meaning that will be eradicated only by the advent of the century of reason[18] (Geymonat 1970, p. 96) thanks to the work of Diderot, d'Alembert, Quesnay, Turgot, Montesquieu, Rousseau and others), couldn't he manage to see light without "his eyes hurting and wouldn't he escape turning towards the objects of which he can bear the sight? And wouldn't he really judge them clearer than the ones he had been shown?" (Plato, *Republic*, 514 d 515 c.).

In a similar way, in the myth of the winged chariot, two polar forces, embodied by the white horse – the irascible soul, that is the will submitted to the service of reason – and by the black horse – the appetitive soul, inclined to be submitted to wisdom – oppose themselves to the charioteer[19] reaching the region of authentic substance (Hyperuranium), allowing him to perceive it only for infinitesimal instants before being dragged down by the black horse.

Aristotle, despite being Plato's pupil, didn't hesitate to detect, with a critic and peremptory countenance, what he considered "the fault" of the Platonic system, that is the dualism between idea and shape; according to the Stagiritian, the idea, or to be more precise the shape, cannot be isolated from the physical content, as it cannot have existence independently from sensitive perception. Every existing thing is formed by a shape and a content or physical matter and knowledge of shapes constantly moves with sensitive perception (Nonaka and Takeuchi 1995). From sensitive perception derives what we call memory and from often-repeated memories of a same event experience develops. In conclusion, levels of knowledge aren't born into a preconceived shape, nor are developed starting from other higher levels of knowledge, but derive from sensitive perception.

The union between power and act seals the indissolubility of matter and shape, because by power we intend the possibility of matter to adopt a certain shape[20] (Abbagnano and Fornero 1996, p. 382), and the act is the historical/temporal antecedent of power.

By *substance* we mean the centre of imputation of the suitable predicates; substance is first the subject, the individual who knows, while by *matter,* we mean what forms the subject, i.e. its substrate. The *shape*, instead, is what grants the dialectic meaning to the sinolus and explains the change of things (the *panta rei* of Heraclitan matrix). The changeable shapes in which the being appears are enclosed in various classes: the being as an accident, the being as categories (or being for itself), the being as power and act, the being as truth. By categories, instead, we mean the structural and general features of the being (substance, quality, quantity, relation, acting, suffering, space, time, having and lying). Therefore, the main phases of the gnoseologic process are two: knowledge in a potential sense, that is mere possibility of knowing; and knowledge as act, that is the object of investigation itself.

Well, is this the forerunner for rationalism or empiricism[21] forerunner? Some consider that Aristotle is fully entitled to be situated among the rationalists; they emphasize how knowledge of the shapes and the relationships that intervene among them can be acquired only through logic argumentation (Nonaka and Takeuchi 1995); according to others, instead, mirroring the platonic outlining, the philosopher doesn't order but understands and describes why purpose of philosophic research and knowledge in general is no more the action[22] (Maruzzi 1988, p. 12) but the understanding of the rational structure, subtended to the variety of reality. A reality, Aristotle's, that is no more deceitful appearance, but privileged object of a knowledge that captures, through the single sciences, the principles and the essence of every sphere and, through philosophy, the universal rationality.

Aristotle re-evaluates the world of experience, attempting to reconcile the ideal of a universal and necessary knowledge, with the assumptions of his metaphysics, that postulated the immanence of the intelligible in the sensitive. Renaissance saw the old dispute about the sources of knowledge being enriched by new elements thanks to the "rediscovery" of the two sacred phenomena Plato and Aristotle, due to the diffusion of some translations of their writings, object of proper "interpretative *restylings* linked to modern requirements": the assertion of the rebirth of Christianity – to which Platonism was more suitable[23] on one side, and the assertion of investigation freedom closer to Aristotlism, dictated by the need to re-evaluate

human intellect capabilities[24] – object of denigration in the previous ages – on the other. After starting the requalification process, natural investigation is set as *conditio sine qua non* of the achievement of the gnoseologic finalities of man.[25] Bacon in the *Novum Organon* elaborated a theory of induction (as opposed to the one of deduction), distinguishing two methods: the *interpretatio naturae* and the *anticipatio mentis*, designating as valid the first, and focusing as false the second, proposing, moreover, to eradicate, from the mind of man, the synapsis generated by it: the *idòla tribus*, *specus*, *fori et theatri.*[26] Bacon's attacks against prejudice and traditional beliefs soon found the support of the headmaster of the Western rationalists of the modern epistemology course, Renè Descartes (Cartesius). He, attempting to reassign to man the prerogative of placing himself as undisputed owner of nature, built a methodical/procedural implant formed by four rules[27] (Cartesio 1997). But "the authentic *humus*" of the Cartesian method, that is what makes it issue convictions, is all enclosed in doubt, on condition, though, that we don't slip into the hyperbolic doubt.[28]

You must doubt everything the philosopher prescribes, as a cure to be effectively tried out against prejudice, traditional beliefs and *idòla*, preserving only those assumptions the validity of which has been experimented, so they can be placed as a cornerstone of the whole epistemologic system.

From the abovementioned, the methodical doubt draws its justification, but, at the same time, the gap between *res cogitans* and *res extensa* increases, and the "relationship of representation of the ideas with the things consequently becomes a relationship of representation as the one that links a landscape to a geographic map" (Dell'Anno et al. 2006).

Referring to Bacon and Cartesius, Popper points out the failure of their attempts to offer a probable solution to the basic problem[29] (Popper 1972, p. 33). Also the influential founder of English Empiricism, affluent of the modern epistemology course, Locke, wanted to go into the matter. Empiricism celebrated experience, brought by contact with the sensible world, as *archè* of the cognitive process, because the mind, before the empirical data is a *tabula rasa* (Hume), a white book in which innate ideas[30] (Abbagnano and Fornero 1996, pp. 461–462) or a priori schemes do not find place. Reason is nothing but a finished, imperfect and therefore fallible reality, anchored to what Kant named the *phenomenic* world (as opposed to the *noumenic* world).

Knowledge adopts a probabilistic meaning, confirmable or voidable according to the subsistence or not of conformity to the empirical data, or to the deposition of other men[31] (Dell'Anno et al. 2006, p. 14). Locke's thought developed with argumentations very close to those of Berkeley and Hume; the latter makes knowledge ensue from the agreement or disagreement among ideas, to which human intellect is theatre and from the relationships among which schemes are born. The relationships among ideas are based on the well-known principle of non-contradiction[32] and have in themselves the germ of validity because their contrary is unthinkable, therefore impossible. And let's arrive at the previously announced attempt to sort out the dispute between "the two rivals", operated by Immanuel Kant. With Kant, the origin of the dialectic-gnoseologic process was situated in the sensible world (empirical

data photographed through the pure a priori shapes of space and time sensitivity,[33] continuing in the intellect and ending then in the reason.

Sensitivity and intellect equally contribute to the determination of *knowledge*[34] which you reach thanks to the intervention of the thinking Ego (category[35] of categories), charged with reuniting, under a "unique flag", the results of scanning the object of knowledge, handing them over to reason at last.[36] What surely Popper appreciates about Kant is the validity of the critical approach, but he can't refrain from confirming that "our knowledge has all kinds of sources, but no one has authority (Popper 1972, p. 48), as follows: (1) There aren't primary sources of knowledge, every source [. . .] is open to critical investigation; (2) The adequate epistemologic matter doesn't regard the sources; (3) Every type of argumentation can be relevant for this exam; (4) [. . .] The most important source of our knowledge is tradition; (5) The fact that the greatest part of the sources of our knowledge comes from tradition condemns anti-traditionalism as pointless; (6) Knowledge can't start from nothing [. . .] from a tabula rasa, nor from observation; (7) The pessimistic and optimistic epistemologies are almost equally wrong; (8) Neither observation nor reason are authorities; (9) [. . .] Linguistic precision is a ghost; (10) [. . .] Our knowledge can only be finite, while our ignorance can only be, necessarily, endless".

The observations set out up to now, far from being purely academic, generated implications in the social-politic and economic sphere[37] (Nonaka and Takeuchi 1995), at all times[38] and everywhere. Alfred Marshall (1842–1924) thought of focusing his attention on the monad and synergistic reality (as Leibnitz) that at the time[39] was already widely spread: the firm[40] and the cognitive problems linked to it. Knowledge is the strongest motor of production, and organization favours knowledge (Marshall 1965). Therefore, his analysis is directed to distinguish the way by which demand and offer compete, freely playing in the mechanism of creation of the balance price, information that under the hypothesis of market perfection[41] (Sciarelli 2002, p. 39) is accessible to anyone: knowledge is unique, and the enterprise is not its added cause.

The Austrian Economic School[42] (Brosio 2003, pp. 90–91), that had among its famous promoters Frederich von Hayeck and J.A. Schumpeter, placed the accent on the subjective and indefinite origin of knowledge, postulated as process *in fieri*,[43] all but containable in a "unique dosage", though not paying any particular attention to its *sharing* with the other actors of the process,[44] but simply hoping for efficiency in its employment. Knowledge of the circumstances we have to use doesn't ever exist in an integrated or systematic form, but merely *sub specie* of scattered fragments of an incomplete and often contradictory knowledge deposited in the single individuals. Therefore, the economic problem for every society is not simply how to allocate the given resources, but rather the use of knowledge which on the whole doesn't belong to anyone (Hayek 1945, pp. 519–520). However, we wish to underline the importance of Hayeck's thought in order to distinguish between *tacit knowledge and explicit knowledge* (*Polanyi*). Schumpeter, instead, wanted to confirm the "apeironistic"[45] (Abbagnano and Fornero 1996, p. 32) character of explicit knowledge.

Apeironistic or not, knowledge together with experience is enumerable among the firm's resources, thanks to their capability to create mental schemes typical[46] (Roethlisberger and Dickson 1939; Brondoni et al. 2004, pp. 252–253) of their own environment (Penrose 1959). On the same side is positioned *the evolutionistic theory of economic and technological change*[47] (Winter 1988) proposed by Nelson and Winter (1982), that "seems to recall the Humean conception viewing the enterprise as a deposit of knowledge, stored under the shape of regular and foreseeable behaviour schemes, named routine by the authors".

Peters and Waterman have the merit of having elaborated a humanistic approach[48] to management, based on the observation that many successful firms had become so, because they had strived in every way to promote a sharing of values among their members, creating a unique *corporate* culture that defined its way of thinking and acting (Barnard 1938, pp. 303–306). Polanyi is the alchemist (with reference to his training as chemist and physicist) of the tacit dimension of knowledge.[49] Empirical knowledge tends to be tacit, while the rational one tends to be explicit. Therefore, we distinguish knowledge as tacit and subjective – that includes experiential or corporeal knowledge, simultaneous knowledge (here and now[50]) and analogical (practical) knowledge – from the explicit or objective one, that in its turn includes rational (mental) knowledge, sequential knowledge (there and then[51]) and digital (theoretical) knowledge. Tacit or implicit knowledge, instead, can be coined and diffused through appropriate supports. The explicit form of knowledge proposed itself to users as already coded and therefore ready to use. Examples of it are the experimental results of a biochemical laboratory collected and prepared for diffusion, or a new patent[52] (Campobasso 2004, p. 85; Silva and Ramello 1999, pp. 291–302) generated in the sphere of technology. Nonaka and Takeuchi[53] (1995) suggest a dynamic model of knowledge creation, based on the principle of non-ontologic heterogeneity of the two dimensions (tacit and explicit), that is founded, in its turn, on the basic assumption that knowledge is created and diffused through the social interaction between tacit and explicit knowledge (Table 2.1).

Table 2.1 SECI model

	Tacit knowledge	Explicit knowledge
Tacit knowledge	Socialization Transmission of tacit knowledge through experience and its sharing	Exteriorization Transformation of tacit knowledge in explicit concepts through dialogue and common meditation
	Sympathetic knowledge	Conceptual knowledge
Explicit knowledge	Interiorization Transformation of explicit knowledge in tacit knowledge at an individual level (incorporation)	Combination Creation of a system of knowledge through integration of parts of explicit knowledge
	Operative knowledge	Systemic knowledge

Source: Adaptation from Nonaka and Takeuchi (1995)

This interaction can be called knowledge conversion. The place – not necessarily physical – inside which such process occurs is named *ba*. It consists of a platform, structured on various levels[54] (Nonaka and Konno 1998, pp. 5–34) that allows knowledge creation; the different levels contribute to form the *basho*.

The socializing phase confirms the transit from a tacit knowledge to another tacit knowledge, implementing a process of sharing individual experiences and technical skills which are the object of co-participation. It is based on the assumption that an individual can acquire tacit knowledge from the direct relationship with others without intervention of language, but through imitation and practice, for example, in the on-the-job training. Socialization, *stricto sensu,* doesn't give birth to innovative processes; innovation emerges only from the interaction between tacit knowledge and explicit knowledge in a "continuous and dynamic" process of mutual interaction between them that generates a knowledge spiral; socialization produces sympathetic knowledge, mental models and shared technical skills.

Exteriorization is the process of expression of tacit knowledge through explicit concepts. Knowledge is coded[55] (Montale 1994) assuming the shape of metaphor, analogy, concept, hypothesis or model. Writing is an act of conversion of tacit knowledge into articulate language, examples of it are the discussions born in the teams who develop a project.

Exteriorization represents, more than the other conversion modalities, the key to the creation of knowledge, because it creates new and explicit concepts, starting from tacit knowledge. At this stage appears the problem of converting, in a correct and efficient way, tacit knowledge into explicit knowledge. As Nisbet noted, Polanyi's tacit knowledge is largely expressible – when it is – in the form of metaphor. Metaphor allows intuitive apperception of an object through symbolic imagination of another. With regard to innovation, it produces conceptual knowledge that together with sympathetic knowledge, the one of combination, will originate systemic knowledge. The combination witnesses the transit from one explicit knowledge to another, it consists of a process of systematization of concepts in a "long-range spreadable" knowledge *corpus*. Individuals exchange and combine knowledge by various means, such as documents, meetings, telephone conversations and information networks of communication. Reconfiguration of existing information through sorting, adding, combination and categorization of explicit knowledge can lead to new forms of knowledge.

Interiorization represents background to the transit from explicit to implicit knowledge, operation made easier when the first is well documented, verbalized or graphically represented in manuals and stories, allowing individuals to interiorize their experience and thus enrich their tacit knowledge. Acquisition of paper or magnetic supports allows the reader to re-experience it, although interiorization does not require, precisely, the true re-experience of someone else's experiences. From interiorization operative knowledge originates, that is set as an input to deploy a new spiral to restart the circuit.

Organization cannot create knowledge by itself. The fundament of the creation of organizational knowledge[56] is namely represented by individual tacit knowledge. It is logical to hypothesize that such spiral can moreover follow a "collision course"

onto other spirals, aggregating new elements, however knowledge is born from the intellectual effort of more individuals; in fact, knowledge managers are entitled to the difficult task of diffusing knowledge, in any form it appears, in "appropriate containers".

While doing this, they must apply the following principles: "(1) management must decide which are the aims that the codification process will have to commit itself to respect; (2) management must be able to identify knowledge in the various forms it occurs, in a coherent way compared to the aims to be reached; (3) with a view to codification, knowledge managers must evaluate knowledge in terms of utility and coherence; (4) codifiers must find a coherent medium for codification and distribution".

Investigation about the sources of knowledge seems, instead, desirable when the aim is to arrive at its codification. According to Sidney Winter, different dimensions in knowledge codification[57] (Davenport and Prusak 2000, p. 88; Winter 1987) exist, though he reaches the unfortunate conclusion that a potential conflict exists between the advantage of understanding the knowledge with the highest potential value for the organization and the difficulties of effectively representing it. The identification of a macro-category of knowledge to which you can assign, without any doubt, the highest degree of complexity in the codification, along with the tacit one, proves to be extremely intuitive. "When I used to attend the elementary school, I used to play baseball with my mates. In my class there were only nine males, so they invited me only to reach the number of players enough to form a team. Because of a problem I've suffered from since my birth I was surely the worst batter of the team. [...] When my father realized how unhappy I was, he gave me as a gift a copy of Ted Williams' book, *The Art of Hitting*. [...] Ted Williams had understood as nobody else the technique and the meaning of launching and he had written in that book everything he knew. I couldn't launch, but I could read and I read the book twice – I memorized it. Result: I still couldn't launch correctly. [...] I understood how it was impossible to teach how to launch through a book. The necessary competencies for those activities are too complex and sharp, too personal; the words used to explain it aren't of great use[58]" (Davenport and Prusak 2000, p. 89).

We can infer from the above-mentioned that having outlined the cognitive course and determined the sources does not imply the contextual possibility of adequately benefiting from it. Though, it is still a valid start. "A map is not a territory [...], but the map can influence the territory contributing to define it as well as describing it", and the more it (the map) is valid, the more it will submit itself to a desecrating logic of the hierarchical order impressed in the photographed structure. Primarily knowledge must be a value recognized as such by the members of the organizational structure.[59] The achievement of the knowledge map has to generate a widespread interest among the employees, directed towards the acquisition of "chirographed" positions in order to elaborate such a map (that "phagocytizes" the multitude of the possible individual maps); as we deduce from this not only the level of interest of the single individual to feel a part of the system, but also his/her level of awareness of the importance of storing the knowledge and the competencies of which they are "healthy carriers".

The latter are critical factors not only to accomplish a precise codification, but even more, for the possibility that under critical circumstances, everyone, independent of his/her canonical role, gives the best of himself/herself. And then, although tacit knowledge is difficult to codify, its consistent value justifies the effort, also oriented towards the aim of creating a valid assurance against the risk of losing part of it, when the individual who owns it decides to leave the firm, thus generating a discharge of *skills and capabilities,* volatility totally innate in the examined knowledge typology. Though, we'll not place useless hopes in the decisive efficacy of knowledge management (feeding the so-called knowledge management dream) which, in the attempt of implementing knowledge encyclopaedia, meets with[60] (Ghepardi 2003) (a) knowledge situated in the context and therefore contingent and emerging in relation to the practical scopes at which it is aimed; (b) knowledge situated in the experience and therefore also in corporality and emotionality; (c) knowledge situated in the local use and therefore also dependant on language, communication and participation in a community; (d) knowledge situated in a variety of interests and power relationships". From the point of view of tacit knowledge sharing, the diffusion of narrative material makes a move, opposed to the already obsolete exhorting videos "pronounced by a senior executive", by virtue of a recognized greater incisiveness of knowledge transmitted in a narrative key,[61] especially if mixed with the emotional component, which ensues from the developed sense of belonging to the territory, the map of which we wish to outline.

The meaningfulness of such knowledge is all collected, as Weick explains, in that "something which keeps plausibility and coherence, something that is reasonable and memorable, something that contains elements of the past experience and expectations for the future, something that creates a tune with the other people, something that can be built a posteriori but can also be employed in prospect, something that captures both emotiveness and rationality, something that allows an elaboration to satisfy actual needs, something fascinating to build. Briefly what is necessary to build a story" (Weick 1995). Therefore, knowledge does not pre-exist, waiting to be revealed, nor does it exist independently from the subject in charge of its investigation, but subject and object of knowledge define (and constitute themselves) reciprocally within the daily working practices.

A definition of knowledge as *organizational practice*[62] of heterogeneous elements such as people, knowledge, artefacts and technologies in a coherent set emerges. At this point, attention is drawn, in a parallel way, to the relationship that exists between performance improvement and knowledge management, always from the point of view of its tacit component[63] (Drucker 1993, p. 69). If the ultimate scope of codification is to impress in the achieved output the germs of a competitive advantage[64] spendable, in the age of globalization (Valdani and Bertoli 2006), in several markets, we will have to pay due attention to the so-called integrated knowledge (precisely the one allocated in products and services), that emerges after a process of exteriorization of the tacit one. Whoever is questioning himself/herself about the roles and competencies assignable to codification, even in a progressive key, will have presumably concluded to give it credit, on one hand, of awarding knowledge a corporeal character, in the absence of which it would result in being

"entangled" in the mind of the individual and, on the other hand, of overlooking the future, the role of "Demiurge" of more agile structures able to change with the same quickness and flexibility with which knowledge transforms.

In this manner, Sennet (1999) argues, "modern organizations and institutions announce to be non hierarchical, agile and flexible, whilst they are concentrated without being centralized". This is a management modality in which the command chain[65] hasn't anymore the linearity of the pyramid, but has become shorter and more complex. Concentration without centralization doesn't therefore mean a de-bureaucratization, but more articulate institutional forms that rely upon management ability to create sense and meaning,[66] to motivate workmen and manage systems of dispensed knowledge; this is the actual competitiveness arena.

2.2 Phenomenology of the Infra-organizational Cognitive Flows

Specification of knowledge as a primary resource[67] (Davenport and Prusak 2000; Drucker and Nakauchi 1998, pp. 96–97) of the organization[68] (Vicari 1991, p. 29) has encouraged the birth of new managerial practices[69] (Toffler 1990), actually the object of a fusion process oriented to give life to a new management paradigm[70] that by virtue of the implications at a logistic level assigned knowledge codification, tends to rise also as a new organizational protection. *Knowledge management* can be defined as a subject the object of which is the explicit and systematic management of knowledge, implemented by means of focused processes, addressed to encourage its creation/change, organization/selection, diffusion, retention/use (Del Giudice 2008). *Knowledge management* is born, essentially, as a winning answer to the challenge set by globalization.

The function ascribed to it is, therefore, to implement a series of organized actions oriented towards the management of the different phases of the knowledge cycle: generation-acquisition (acquisition, knowledge rental, dedicated resources, fusion of dedicated resources, assessment, knowledge networks)[71] (Pratico 1999; Montironi 2001; Pievani and Varchetta 1998), mapping-codification[72] and transfer (see further on). In the sphere of a process of knowledge creation, organization functions as a context inside which creation, build-up and sharing of knowledge can be determined not only at an individual level, but also at the collective level. After all, in the absence of a context one would have information and not knowledge[73] (Vicari 1991, p. 63; Boisot 1998, p. 12); equally *knowledge management* would lose its reason for existence if not supported by benefits to release it, exchange it and acquire it (*knowledge sharing*). A hypothetical process of knowledge creation assumes certain essential ingredients[74] (Maturana and Varela 1980) and can be articulated in the following five phases[75]: sharing of tacit knowledge, creation of concepts, justification of the concepts, building of an archetype and knowledge inter-levelling. There is no doubt that the cognitive processes have their matrix in the individual[76] (Druker 1993), because tacit knowledge – highly subjective, dependant

on impressions and intuitions, intimately linked to individual action and experience, made of mental models, beliefs and intuitions we take for granted, difficult to formalize and communicate – possessed by them represents the archè of the creation of organizational knowledge[77] (Davenport and Prusak 2000, pp. 6–7), the "final" output[78] of a process of emotions, feelings and mental models sharing, achieved by developing knowledge originated both *intra* and *extra moenia*.

The first stage of the model[79] recalls the socialization modality and consists in the diffusion inside the firm of the unexplored patrimony of individual knowledge, through methods based on the concepts of creative chaos and apprenticeship. The greater criticalities are represented by the psychological barriers and the use of the resources.

In the second phase the exteriorization modality is used to create new concepts (to this end it is convenient to think-rethink one's mental schemes, which mutually enrich themselves with the differences that characterize the group's members), which exploit tacit knowledge, using methods of communication and synthesis. The process of converting tacit knowledge into explicit knowledge is made easier by the joint use of reasoning methods such as deduction, induction and abduction (which avails itself of metaphors and analogies). Problems are usually represented by lack of time, the use of the resources and verbalization.

The third phase, which involves the top *management*, is needed by the organization to understand if the new formalized concepts respond to one's own long-term targets through the confrontation with the other divisions' reality (internal *benchmark*s). Although such process is, rigorously, of a *top-down*[80] type, especially with regard to the fixing of the evaluation criteria, the involvement of the results of further organizational units is always desirable. The greater difficulty will be represented by the creation of transversal synergies. Through the building of an archetype (prototype or operative scheme) that is substantiated with new and old explicit knowledge (recall the combination phase), we are about to identify a *modus operandi* that highlights the systematization/memorization of knowledge. To succeed in this phase it is necessary to employ an effective methodology and an appropriate technology[81] (Camussone 2000; Gouillart and Kelly 1995). In this case, the time factor is critical. The last phase is the one in which formalized/created knowledge is interiorized by the organization's members following both horizontal and vertical directions (*cross-fertilization*), in order to be later applied in the sphere of its own branch or the other branches or, even, of components external to the firm. The critical factors of success in this phase are represented by the existence of agile organizational structures, the firm's flexibility and the level of human resources' autonomy. Although knowledge holds more and more the role of a protagonist, undermining the traditional production *inputs* (capital and labour), despite repeated attempts to implement measurement techniques of its determinants, a method of evaluation and management of such a complex *asset* hasn't been prepared yet that has to be necessarily elaborated and employed internally. The genome of the knowledge creation process is formed by the *knowledge assets*, definable as strongly *firm-specific*[82] (Bijker et al. 1987) resources, linked to the tacit component of knowledge and essential for the creation of value. Their utility is centred on the structure and

sharing modalities among potential users and producers. Diffusion of the *knowledge assets* promotes the dimensional enlargement of the field inside which they can be shared; although some cannot be diffused everywhere because their cognitive contribution is intimately embodied in them, and so their reproduction wouldn't have the same effectiveness. The *knowledge assets* are described by a considerable dynamism, that if, on the one hand, assures the heterogeneity of the cognitive spirals – of which they represent both *inputs* and *outputs*[83] (Brondoni et al. 2004, p. 3), on the other makes the process of measurement, evaluation and management of the same even more difficult. To understand how the *knowledge assets* are produced, acquired and exploited, they can be classified into in four categories (Nonaka et al. 2000, pp. 5–34).

Tacit knowledge is created and shared by the members and stakeholders of the organization. *Skills* and *knowhow*[84] (Guida and Berini 2000) (gestuality, enthusiasm, improvisation), acquired and accumulated by the individuals in the working environment, combine to form the *experiential knowledge assets*. The tacit nature of such *assets* makes their perception, evaluation and marketing complex, and at the same time – by virtue of such distinctive features – it makes them a valid support of a competitive advantage. The *conceptual knowledge assets* are formed by explicit knowledge transfused in images, symbols and language. Examples of such assets are *brand equity*, ideas and product *design*. The "visibility primacy" pertains to *systemic knowledge assets*. They present themselves in explicit forms such as, cards regarding clients, manuals, patents and licences; because they are easily transferable (through transaction, but also lend themselves to furtive subtractions), they are not suitable to claim competitive advantages. The *routine*[85] (Nelson and Winter 1982) *knowledge assets* are represented by tacit knowledge absorbed by the context and become praxis.

The continuity of the creation process of organizational knowledge is assured by the fact that the *experiential knowledge assets*, shared within the socialization process, and articulated through externalization, take the shape of *conceptual knowledge assets.* In order to manage the cognitive flows inside an organization, cataloguing alone of the knowledge existent *intra moenia* is not sufficient – which would anyway always be unreliable because of the changeability embedded in such *assets* (*dynamic knowledge assets*) – instead, a mapping of the assets (*knowledge mapping*) is desirable, especially if the purpose is its retention/use or its diffusion/transfer (Maggioni and Del Giudice 2008a). Moreover, mapping requires the localization of knowledge; according to Blacker, it finds collocation in the bodies, in the mind, in the *routines*[86] (Nelson and Winter 1982; Ghepardi and Nicolini 2004) and the symbols. The need for such representation involves investigation of the cognitive structures[87] (Harbid 1992, p. 30) at an individual, group and organizational level. For this purpose we can validly try different *knowledge-capturing* techniques, but only focus on the most significant in order to transmit knowledge in a generational key: the biography method, cognitive maps, *storytelling*, simulation methods, *protocol analysis*, *script* analysis (Maggioni and Del Giudice 2008b; Del Giudice 2008). The biography method aims at revealing the representation modalities of knowledge on behalf of the individual, outlining its cognitive

biography i.e. our mind's identity that comes out when we are questioned on it. This model assumes the sedimentation of knowledge not only through cognitive mechanisms and operations, but also on the basis of influencing factors of affective, emotional and sensorial matrix, highlighting the circumstances that have encouraged or hindered the learning itself, the so-called "life stories". Cognitive maps[88] (Cannon-Bowers and Salas 1993, pp. 9–28; Sutanto et al. 2004; Crowston and Kammerer 1998, pp. 227–245; Espinosa et al. 2001; Dougherty 1992, pp. 179–202) are representations of the individual or collective cognitive structures, formed on the basis of verbal and documentary cognitive material (corporate reports, autobiographic diaries). The creation of a map prefigures the production, codification and definition of relationships among the cognitive concepts that form it. A collective map can be determined both *ex ante*, and further to aggregations, *ex post*, by the plurality of individual maps. They are particularly effective in the emergence of individual and group explicit knowledge, localized in the cognitive structures. *Storytelling*[89] (Boyce 1996; Bronwynne and Severtsen 2001, pp. 180–192) is oriented towards the interpretation of the events we arrive at through the building of stories, a valid medium for emotionality and *sensemaking*. Narration can take place both in an individual and collective key, and allows the emergence of tacit knowledge. Simulation methods (Bass 1964, pp. 545–556; Bettman 1975, pp. 169–177; Burgess 1991, pp. 174–195; Chang 2003, pp. 358–366; Cohen and Cyert 1965, pp. 305–334; Cohen and Rhenman 1961, pp. 131–166) exploit *role playing* and *business games*, the participants of which are asked to act as if there was no simulation; the aim is the emergence of a situated-type collective knowledge, especially of implicit matrix. *Protocol analysis*(Foster and Kesselman 1999; Uschold and Gruninger 1996) exploits the *talk-aloud* and the *think-aloud*: the subject is encouraged to verbally comment on the operations he accomplishes in the course of a certain activity, and every sort of thought that appears in his mind, allowing the emergence of individual tacit knowledge, both localized in the cognitive structures, and distributed in the interactions of the individual with the external world. *Scripts*[90] (Levitt and March 1988, pp. 314–340; Levitt et al. 1999, pp. 1479–1495; Del Giudice 2008) allow the extrapolation of individual knowledge placed in the individual-context interactions, both implicit and explicit, causing the emergence of the cognitive system beneath the operations. Such methodology exploits sketches that generally exceed the verbalization capabilities of the subject to whom they refer (Penteland and Rueter 1994). They describe sequences of observable events, recurrent activities and interaction models typical of the environment in which they are generated. Gioia and Poole (1984) distinguish among *cognitive, behavioural* and*protoscripts.* The first consist of well-known action paths among which the subject can choose in a certain situation where, instead of elaborating *ex novo* complex reasoning, he will be able to restrict himself to accomplishing the corresponding *script.* The choice of a path among the possible ones gives rise to a *behavioural script.* Such action paths can be stereotyped in *protoscripts* so as to allow their use in an inductive key, committed to manage not only "familiar" problems, but also the least recurrent ones, because they can be activated despite the absence of detailed information or exhaustive analysis of the problem under discussion.

2.3 Family Business and Knowledge Transfer

It appears indubitable that the propelling boost towards knowledge transfer, inside the organizations, finds its catalyst in naturalness[91] (Davenport and Prusak 2000, p. 112) and, although *knowledge management* seems affected by a sketchiness trend,[92] such non-governed nor governable dimension, named *knowledge transfer*, imposes upon it a "partial recovery", giving him recognition of the only function of "goader" of such spontaneous phenomena, ascribing to him the task of creating the conditions of physical proximity and virtual herald of such virtuous processes.

We assume that families are unique among social systems in that they are permanent, based more on obligation than contractual agreement, and membership is often determined by biology.

Learning is generally associated with living, biological entities that have some form of intelligence and nervous system that process and store information. Attaching the organization as a subject to the verb "learn" attributes to organizations an inherent capacity that is not self-evident. Just as individuals have brains and beliefs, families (organizations) have "cognitive systems and memories . . . world views and ideologies" (Hedberg 1981).

The conceptual jump from the idea of learning by individuals within organizations to the view that organizations themselves actually learn has raised "the problem of anthropomorphism" (Kim 1993).

This approach, using individual learning as a model or metaphor for understanding organizational processes that constitute learning, views families (organizations) as "systems of interpretation" whose very essence is the ongoing making of meaning and its enactment in organizational behavior (Daft and Weick 1984).

The foregoing discussion reflects a potential confusion between two common uses of individual learning in discussion about organizational learning. In certain contexts discussions of individual learning focus on the roles individuals play as agents of the organizational learning process (Argyris and Schon 1978); at other times individual learning is used as a model for understanding organizational learning itself.

In recent decades two important issues have caught the attention of many scholars: the modalities by which individual learning can become an organizational property and how the founding dynamics of organizations influence internal learning.

The complexity regarding knowledge management appears even clearer in the generational transfers, where knowledge migration from *senior* to *junior* is oriented to the minimization of *know-how* loss, to benefit the existence for a *long time* of the firm's reality referred above. Arranging by levels of increasing complexity, at the first stage we place codified knowledge transfer becoming part of the organizational system. More complex appears the transfer of that part of knowledge that, only on the formal level, is codified, which though, to assume a strategic relevance, needs the conviction of the security, of the initiative of the receiver who has to assimilate it, share it and let it become a patrimony from which you can draw on to solve problems. Considerably complex appears, instead, the outflow of the personality's determinants, as well as the *senior* entrepreneur's charisma, which at times have

represented the key to the firm's success. The receiver, either humble or, more often, over-confident, may not be able to exploit such knowledge. The research of information in an organizational memory begins as imbalance factors of internal or external origin occur. According to Huber, in all probability, the organizations haven't awareness of the knowledge present in them (Huber 1991), basically because immaterial resources, that substantiate themselves of knowledge and trust[93] (Busacca 1994; Fontana and Caroli 2003; Vicari 1998), have the ability of self-alimenting and reproducing themselves, in a self-poietic view (Vicari 1991; Maturana and Varela 1980).

Knowledge in the firm can be easily diffused/shared only if the single workman perceives such activity on a level with "classic duties", and therefore even convenient for his own specific activity. What pushes workmen to use their knowledge to benefit the organization they belong to is the identification with the *vision,* the *mission* and the firm's values (Brönn et al. 2004). Knowledge and identification represent the enzymes of the firm's production processes, and belong respectively to the firm's intellectual and social capital (Nahapiet and Ghoshal 1998, pp. 242–266).

The existence of organizational wealth conditions is fundamental for the community that is situated inside it (Golinelli 2002); psychological, organizational, relational, aesthetic and socialization implications (Barone and Fontana 2005; Legrenzi and Arielli 2003; Quaquarelli and Paletti 2003) concur with the definition of such conditions.

Only in family businesses family members are active simultaneously in the family and the business, so they significantly influence knowledge integration processes in positive and negative ways. In family firms they are the result of the family-specific factors generated by idiosyncratic practices that recombine and manipulate knowledge and their peculiar configuration (Le Breton-Miller et al. 2004).

Nonetheless some individuals may appear reluctant to share/communicate their knowledge, afraid of seeing their inherent value diminished, but the relevance of the communication processes, authentic forges of knowledge creation, fully justifies the appeal to motivational investment[94] (Pekala 2001; Quaglino 1999).

These elements concur with the transit from passive adherence to a certain organization to the proactive one, which contributes to its overall success. Bypassing the impasse of communicational reluctance, it is convenient to appeal to those factors that can facilitate knowledge flow inside the firm, i.e. shared language,[95] common cognitive spaces, high-intensity contexts of potential relationship, which aren't yet immediately repeatable in complex interorganizational environments.

Davenport and Prusak, sure that knowledge can be validly transferred also through direct meetings using narrative techniques, discover in the conversations[96] that take place in working intervals the genes of knowledge diffusion, whereas the non-structurability of the process causes the impossibility of evaluating, *ex-ante*, the effectiveness of such practice. Alan Webber stated that "in the new economy, conversations represent the most important form of work" (Webber 1993, p. 28). Thus coffee rooms, *talk rooms*, recreational halls, knowledge fairs, forums, brief pro-*learning* environments, provide that – let it be clear – such places are coherent with the organizational culture. In fact, they have to be provided with meaning for those who attend them. Knowledge transfer requires the use of a spontaneous

type of interpersonal approach that establishes the so-called transfer relationship (Davenport and Prusak 2000, p. 121) inside which also explicit knowledge can be effectively conveyed. Bettetini concurs to corroborate such thesis, asserting that the efficacy in transmitting a message, functionally established, is enclosed in three elements: *ethos*, meant as credibility of the speaker; *pathos*, meant as propulsion of the passions; and *logos*, meant as organization of the reasons (Bettetini 1993, pp. 13–15). In Japanese firms the one-on-one training of young and old employees is frequent, having the target of establishing the "cognitive transaction", object of which are the "ripe fruits" of years of experience; the relationship is made firmer by a link of responsibility of the elder about the work of the young apprentice[97] (Rajan et al. 1999; Teece et al. 1997; Rogers 1982).

After all, "learning *performance* increases when transferred information is already well-known by the subject who uses it[98] (Cohen and Levinthal 1990; Nasbeth and Ray 1974).

Mere transmission doesn't entail knowledge transfer[99] (Druker and Nakauchi 1998, pp. 98–101), which improves when the organization manages to receive a benefit in terms of *improving*[100] (Davenport and Prusak 2000, p. 128). Factors that hinder the use of the new knowledge can be feelings of pride, stubbornness, lack of time and opportunities, reluctance to assume risks and responsibilities and the attached coercive implications foreseen by the organization. Finally, there are factors attributable to the transfer method that weigh on its effectiveness: in fact, knowledge acquired through an *on-line* database[101] is certainly more fluid and better interiorized compared to the apprenticeship techniques.

The principles of internal advancement and attachment to the enterprise had actually created a "communion of destinies" between the worker and the family business. At that point, knowledge of the individual became rightfully part of the stock of business activities. Recent developments towards higher turnovers, mobility and flexibility urge the invention of new modalities to maintain and transfer knowledge within the enterprise.

The richer and more implicit knowledge appears, the more technology[102] should be used to let people share it.

Case Study: Wal-Mart and Information Technology

Wal-Mart Stores, Inc. (branded as Walmart) (NYSE: WMT) is an American public corporation that runs a chain of large, discount department stores. In 2008 it was the world's largest public corporation by revenue, according to the Fortune Global 500 for that year. The company was founded by Sam Walton in 1962, incorporated on October 31, 1969, and publicly traded on the New York Stock Exchange in 1972. Wal-Mart is the largest majority private employer and

the largest grocery retailer in the USA. It also owns and operates the Sam's Club retail warehouses in North America. Wal-Mart needs to define in detail sales data and purchase patterns, because these are important when related to customer satisfaction. Thus, the company has invested in information technology, coining the term "knowledge colony", in order to defend such investment: a knowledge colony is based on research and exchange of information, which is fundamental to make strategic decisions when inventory management is pursued on a regional basis; its methods include information tutoring, simulations, decision systems, assessments, reward solutions, best practice circles. Therefore, Wal-Mart's goal is to strengthen localization within its business system.

The company has highly invested in IT since its birth and has always interacted with its partners by exchanging explicit knowledge. Dating back to 1997 we can recall the installation of NCR equipment, which increased dramatically data transfer, creating the ideal environment for processing sales data and offering the management the possibility of analyzing systematically explicit knowledge. Every Wal-Mart store has been provided with about thirty hand-held terminals, which use bar-code technology, and help to keep track of the sales of every single item and uncover potential problems.

Nowadays, Wal-Mart is surely the leader in its sector for the use of high-level information technology, which has allowed the company to activate a virtuous asset management and be fast in responding to the different demands. Now Wal-Mart is trying to maximize efficiency by integrating its information systems and automating decision-making processes. Wal-Mart's aims are always getting more complex and vast, and the only way of achieving them is to centralize those processes. Managers try to discover within the mass of data at their disposal a significant pattern that could help them reach their targets and they usually focus on trend analysis, customer behaviour analysis and inventory management: they concentrate on the sales of the single items in the various stores, compare the data from previous years and outline patterns and trends. Data analysis is extremely thorough, because, thanks to the IT solutions that are employed, management is able to know when and where a particular item was purchased and how much is left in stock; they can define seasonal trends, better understand future needs and plan the purchase strategy.

All this makes it possible for Wal-Mart to manage effectively a huge offer of different items and, at the same time, reduce costs. An efficient inventory management is fundamental for Wal-Mart that has coined in this view the term "just-in-time" replenishment, which, of course, would be impossible without the use of high-level conversion-support tools. Information technology applications are important not only internally, but also for the relation between Wal-Mart and its suppliers, on one side, and its customers, on the other. For instance, it is valuable for a customer to check a price by passing an item on the bar code reader, but it is also important for a supplier to interact with Wal-Mart through an automated system that makes testing of new products easier.

By using IT systems, data is processed a lot faster and reaches the managers promptly: the most important IT application fields at Wal-Mart are monitoring the supply chain and integrating product and store analysis. Retail Link is vital for

supply management, because it allows the search for all possible data and patterns: it is a systemizing ba, by which knowledge is mutually transferred between sellers and buyers, in order to monitor sales, customize assortment and optimize inventory. Wal-Mart is very active in sharing knowledge and addresses with its partners in its IT system applications, by offering training courses and on line help to every newbie too.

Wal-Mart accumulates and combines the explicit knowledge of customers, interacting with it, but the amount of data available is so large that it is only partially used and generally for inventory management purposes, although some conversion-support tools make the elaboration of new hypotheses easier.

ART systems articulate the transfers between conversion modalities, by strengthening organizational culture, stimulating the process of action and reflection, and encouraging programming that leads to beginning or ending such process. Besides the definition, ART systems at Wal-Mart are reduced to gathering the data, rather than suggesting new hypotheses, and anyway only regional and top managers are required to develop new ideas: so automatisms prevail and the machines divide action from reflection, reducing the role of people.

Wal-Mart needs to support a strong corporate culture because it has to concentrate on regional areas in order to compensate the centralization linked to its information system. From this viewpoint we can well understand the function of the famous Wal-Mart cheer or of corporate broadcasting, which spread organizational culture among the members. Information technology is crucial in the company's view, but the motto "one store at a time" is still valid: Wal-Mart remains a large-scale retailer capable of satisfying local needs and the idea of knowledge colonies summarizes such a concept.

Regional managers go physically to the stores in their areas and hold regular meetings with the local managers, then they collect the information and process it when they all get together at the headquarters, in order to formulate new ideas regarding possible reactions to changes in customer behaviour. ART systems play a decisive role in starting and completing combination exactly as programmed. Wal-Mart has created a sort of automated circuit that involves data collection and its utilization, in which human intervention is minimum, thus partly internalizing beginning and end of combination. To sum up we can affirm that internalization is activated by IT on a programmed basis and considering the patterns that are acquired, although patterns in local knowledge are hard to outline, so they don't have a persuasive impact on organizational members. However, in order to become more sensitive, Wal-Mart has phased in new formats, such as neighbourhood stores (Fig. 2.1).

In conclusion, there are three phases by which Wal-Mart starts up the processes of action and reflection: using IT the company obtains a considerable amount of data and searches for consistent patterns that trigger the combination of ideas; patterns gathered from collected data are the basis for experimentation in specific areas; automation is encouraged by the use of IT and the processes of knowledge conversion are sped up, so efficiency is enhanced. At Wal-Mart conversion-support tools receive more consideration than ART systems: managers focus on efficiency and

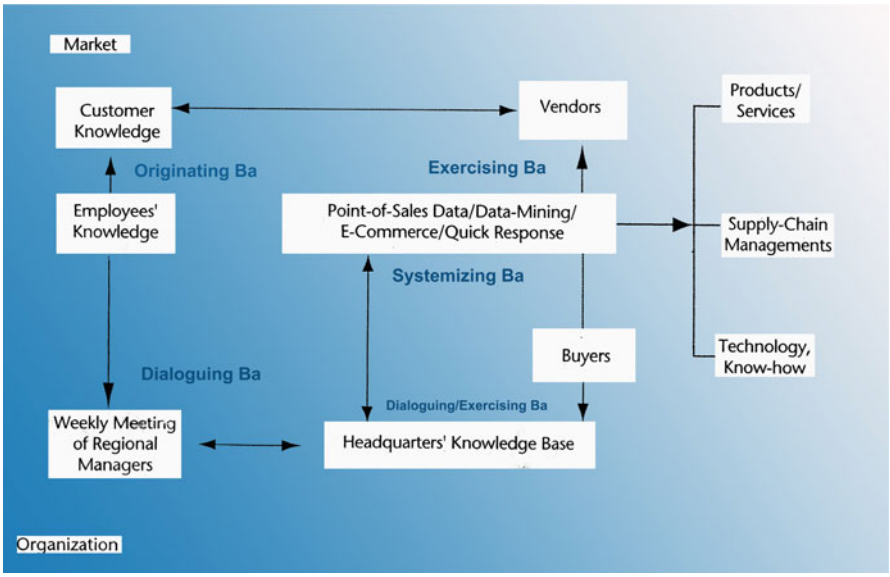

Fig. 2.1 Conversion-support tools, action-reflection-triggering systems, and platforms of knowledge work (ba) at Wal-Mart. *Source*: Reinmoeller et al. (2001)

rapidity because they believe there is a negative connection between human actions and redundancy and variation, but the deficiency of these and of creative interaction can even determine a stronger insistence on being efficient.

Case Study. Ikea: Interaction Patterns Between PIA and the Surrounding Resources

IKEA (Ingvar Kamprad Elmtaryd Agunnaryd) is a privately held, international home products retailer that sells flat pack furniture, accessories and bathroom and kitchen items in their retail stores around the world. The company, which pioneered flat-pack design furniture at affordable prices, is now the world's largest furniture retailer. It was founded in 1943 by 17-year-old Ingvar Kamprad in Sweden. Currently, the company is owned by a Dutch-registered foundation controlled by the Kamprad family. IKEA is an acronym comprising the initials of the founder's name (Ingvar Kamprad), the farm where he grew up (Elmtaryd) and his home parish (Agunnaryd, in Småland, South Sweden).

IKEA is characterized by the presence of many companywide IT systems, differing by function and size, which allow to track data and store information regarding all those processes that utilize resources at all levels. PIA (Product Information Assistance) plays a fundamental role in the IKEA IT system, but it is rarely

used by IKEA's product developers and only for very specific and important projects.

It is interesting to point out the reason and detect the factors that are responsible for PIA's underuse in IKEA's product development.

In this connection, it is better to focus on the resource network in which products are developed and the PIA system is utilized rather than discuss the internal functionalities of IKEA. To understand how PIA is used and why it contributes only marginally to product development, we must comprehend how it is embedded or disembedded in the network of resources in which it should promote and drive development.

It is essential to realize the opportunities and obstacles for PIA, which are linked to all its possible connections and functions, and all its various types of users: but, in doing so, we must remember that PIA isn't a motionless reality, it evolves continuously; and we must also bear in mind that it is impossible to take account of PIA's total utilization throughout an entire development project.

2.3.1 Interaction Patterns Between PIA and the Surrounding Resources

Our aim is to understand PIA's interaction patterns with the surrounding resources. Following the scheme proposed by Baraldi and Waluszewski (2005, pp. 1251–1260), we must consider four resource items around which PIA patterns are defined: products, facilities, business units and relationships.

- PIA products: PIA only represents products, it does not make products emerge and is not responsible for their future development.
- PIA facilities: as for the products, PIA only represents production facilities and is fundamental only for a limited number of other IKEA IT facilities to which it is connected, such as IKEA Intranet and IKEA Internet, for instance.
- PIA – IKEA-oS: PIA only reproduces the behaviour of the business unit IKEA-oS, such as the guide to the development of new products. Only PIA-based news is a precondition for the launch of the products in the retail stores. In this case, PIA achieves a higher level of importance and a more powerful embedding factor for PIA in the unit IKEA-oS can be observed. This is when IKEA-oS' staff has to manually input data, but PIA, in exchange, does not give IKEA-oS product developers valuable output data, so we can assume that PIA depends very much on the IKEA-oS unit rather than the opposite.
- PIA – other IKEA business units: in order to acquire information regarding the products, they are selling or willing to order, retail units use PIA-borne TEDs and news. PIA is also essential for the production of material needed in the stores to address customers, such as price tags and displays. It is because of PIA's embedment in other resources that IKEA-oS product developers manage to produce all the sales and information material required by the stores; and also the IKEA catalogue is the result of the use of PIA-based information. The IKEA business units under discussion simply utilize PIA, but do not contribute to its functioning.

- PIA – external business units: here the interaction is simply based on reporting the names of the most important suppliers, without offering representations: in fact, PIA does not send any relevant information to these suppliers and is, therefore, totally irrelevant for these external business units. However, these units could offer useful technical information to PIA.
- PIA relationships: there isn't any tangible connection between PIA and IKEA's business relationships. PIA reports contracts to suppliers, but only to the extent of their technical specifications, and this is not enough to let us affirm that these relationships are represented by it.

After analyzing the interaction patterns between PIA and the surrounding resources, our aim is to understand how PIA is used and what the results of such utilization are. The modalities by which interaction and embedment are expressed make us aware that PIA is utilized by and is essential only for a few surrounding resources. IKEA-oS product developers simply acquire representations of resources related to the overburden of data entered in the system.

Furthermore, IKEA-oS does not make concrete use of these representations, because the fundamental decisions regarding product development are not made on the basis of this information, but are made externally.

Finally, it is useless to enter data into PIA at the stage of product development, because the concerned resources do not receive any tangible value from it: nonetheless, the above mentioned representations are important at the retail stores for the sales material and the launch of new products. External units may offer an effective contribution related to technical issues, but they do not interact with PIA.

We can now understand why, for product development, PIA is not considered an active factor, but a neutral resource: it does not speed up project development and is not decisive for its success, because such results are related to more extensive dynamics that involve IKEA's entire business network.

On the contrary, we must acknowledge that application of strict routines and stiff controls, which derive from total compliance with PIA's requirements, may have negative effects on the flexibility and creativity of IKEA's development projects.

This is why IKEA-oS is approaching PIA in a different way: PIA cannot be used as an all-embracing management tool for product development, but it must play the role of document administrator. Thus, rigidities will be avoided and will not be a deterrent to innovation. Product developers will not have to insert all the data regarding the projects they are working on, there will be less bureaucracy and a more intense motivating force towards innovation.

Notes

1. By *Gnoseology* (from gr. gnôsis, "knowledge" and lôgos "speech"), we mean the part of philosophy that is concerned with the problems regarding the origin, the nature and the validity of knowledge, while by *Epistemology* (from gr. Epistēmē and lògos, study), we mean the general theory of knowledge that establishes the validity criteria of scientific

knowledge and can be considered the essential part or actually synonym of science philosophy, that investigates the problem of knowledge in its methods and its historically concrete techniques, and not in its universal and necessary forms (Gnoseology).

2. Knowledge is a set of connected information acquirable on a logical and experimental level. Knowledge is the thread the subjects use to weave their relationship with the world: in this sense it doesn't only define the external world, but also the identity of the subject who lives it and his possibility of relationship with the world described by the adopted knowledge schemes.
3. Western epistemology is rich in opposite argumentations about three main problems: (1) nature of knowledge; (2) its origin; (3) its reliability.
4. Distinguishing by problems object of research, it is possible to mark out indeed five periods: cosmologic, anthropologic, ontologic, ethical and religious.
5. That will base itself on the homogeneity of reality and reason [...]. In the history of Western philosophy the term indicates, in particular, the direction issued by Descartes and followed by Spinoza and Leibniz, which aimed to interpret reality on the base of rationally deductible principles and was often in conflict with empiricism.
6. Cf. Parmenides from Elea: the Being is and can't not Be; the non-Being is not and can't Be, coincidence of the three levels: logic, ontologic and linguistic, pioneer of the principle of identity and non-contradiction (A=A), (A≠B).
7. Aristotle described his attitude with these words: "Socrates brought up issues, but didn't give answers; in fact, he confessed he didn't know them" (Aristotle's *Sofistic Confutations*, 183 b 7, and Theaetetus 150 c–d, 157c, 161b).
8. *Idea*: (from gr. idos, figure, appearance form) distinct, immutable and eternal ontologic reality, that serves as unique and perfect model of the numerous and imperfect things of this world. According to Popper, ideas are designations, or terms or concepts, that can be synthesized in assertions or theories or propositions, expressible in words or assertions, that can have a meaning, and therefore generate assertions or theories or propositions, which are true and, through definitions, herald derivations, respectively leading up to indefinite concepts and primitive propositions. A theorization will be considered valid according to the degree of resistance to its forgery. The procedure for suppositions and confutations encloses both the inductive approach, of empiricist imprint, and the deductive one, of rationalist matrix; repairing the fracture between the two approaches (empiricist and rationalist), to which, Immanuel Kant addressed himself.
9. Term translated for the first time by Parmenides, in opposition to alètheia (the truth), cf. Senophanes and Zenon.
10. By *mimesis* we mean the imitation by the things of the perfection of the ideas; by *metessis* we mean the circumstance for which sensible things participate in the essence of the ideas, proportionally to their ontologic value. By parusia we mean the active presence of the ideas in the things: "Nothing else makes a thing beautiful, but the presence of beauty itself" (Plato, *Fedon*, 100 d).
11. Figurative place, beyond the sky, where ideas live.
12. It contains, I think, not only the germ of Descartes's intellectualism, but also those of Aristotle's induction theory and, above all, of Bacon's one.
13. By soul Plato means an ontologic reality, a simple and incorporeal substance, not only capable of living by itself, but also of giving life; in fact, the Greek "ànemos" means vivifying breath. It results in three, *rational*, *appetitive* and *irascible* soul, respectively resident in the brain, the chest and the belly. The first, the rational one, has wisdom as a virtue, and is at an upper-level compared to the others; the second is the irascible or impulsive one and has courage as a virtue; the third, instead, has moderation as a virtue, that is, the submission of appetites (broadly speaking) to wisdom.
14. When knowledge stops evolving, it becomes *opinion* or *dogma*.
15. Meno, Phaedrus and Republic are some of the platonic dialogues fullest of contents, considering the analysis perspective we have adopted.

16. Initializer of the philosophic relativism has usually been considered Protagora, assertor of the relativity of knowledge contents and ethic values (man is measure of everything, of the things that are because they are and of those that are not, because they are not), so every man is measure of truth. In the ancient world relativistic positions were also held by the sceptical schools (e.g. Pirron and Sextus Empiricus), with argumentations devaluating knowledge, widely reconsidered by empiricism and Hume. Kant's reduction of knowledge only to the phenomenon field, excluding the noumenic one, leads to the relativist current; relativism can be considered every form of agnosticism, i.e. declared impossibility of knowledge of the Absolute (e.g. Spencer and Mill). According to Schopenhauer investigation about the phenomena world leads to mere representations (*Vorstellung* = representation), because the eyes of the mortals are restrained to the knowledge of the thing itself, because of the interposition of Maya's veil. Through the veil, in fact, they can observe *a world* and not *the world,* that we cannot say exists or doesn't exist because the representation is assumed as subjective, and so, changeable. The representative and the represented are indissoluble elements of knowledge in a representative key; in this manner, Schopenhauer criticizes both the materialistic approach and the idealistic (Fichte): the first because, in a specular way, leads the subject back to the object and the second because it leads the object back to the subject (the I places the non-I, i.e. what is other from self). Moreover, to relativism we can approach some epistemologic positions, especially referred to Albert Einstein's relativity theory. The concept of relativism can be approached in a more convincing way with some aspects of Nietzsche's thought, according to which all the life is a recall to appearance, art, illusion, the need of mistakes. The philosopher's criticism towards metaphysics and science is drastic, in favour of the affirmation of life and instinctual will. For Nietzsche, not only the terms of common language, and science, but also art, religion and moral were mere creations of will power, that is the life which affirms itself, in a constant creative performance of shapes, without meaning, truth and scope. "How much truth can a man *bear*, how much truth can he *dare*? This has become my true unit of measure, always more. Mistake (the faith in the ideal) is not blindness, mistake is *cowardice* . . . Every result, every step forward in knowledge *is a consequence of courage*, of the toughness with oneself . . . I don't want to confute ideals, I simply treat them with gloves . . . *Nitimur in vetitum*: in this sign 1 day the victory of my philosophy will come, because till now truth has been always prohibited, on principle".
17. We can say that the myth in Plato has two fundamental meanings. First, the myth is a tool used by the philosopher to communicate his own doctrines to the interlocutor in a more accessible and intuitive way. From this point of view the myth is a didactic-expositive device programmed to be conceived for intellectual communication. In a second, deeper, sense, the myth is a means utilized by the philosopher to be able to talk about realities that go beyond the limits reachable by a rigorously rational investigation.
18. Sophistic has been defined as a sort of Greek illuminism, indeed because of the historic importance that was covered by the displacement of the philosophic speculation axis from the external world (research of the first principle or *archè,* cf. Taletes, Anassimander, Anassimenes, Pitagorics and Heraclitus) to man, "it cannot be considered secondary or inferior to the original research, because the ages richest in intellectual energy (as for example the eighteenth century) have always been ages when the total importance of publication has been acknowledged and the most prepared people have committed to it a great part of their precious activity. In fact, you cannot deceive yourself to seriously enhance research without enlarging the recruitment field of the researchers and to do so you have to start attracting to cultural interest the widest number of active people in the society. Also under this point of view the work accomplished by the Sophists must be considered as one of the most meritorious for the development of Greek society.", this without obfuscating the sense and the importance of illuminism . . . *Ubi maior minor cessat*!
19. That is the rational soul situated in the brain and, therefore, enabled to contemplate the truth.

20. The great Michelangelo Buonarroti defined sculpture as "the art of taking away the redundant", so the sculptor's only role is to "help" matter become what it already is in itself. As Leibniz says, the image is somehow born into it: "the soul, the philosopher writes, is similar to a block of marble in which are impressed some veins that draw out Hercules' image, so that you need only a few hits of a hammer to take away the excess marble and allow the appearance of the statue".
21. We usually define *empiricist* those doctrines that allow the derivation of all knowledge from experience and consider the experienced and the experimentable as impassable limits of human knowledge. It is frequently confused with sensism, the classical formulations of which derive from Condillac and Locke. The deep difference between the two lies in the fact that sensism is essentially a psychological doctrine, while empiricism is above all a methodological attitude.
22. Aristocratic Plato, descendant from kings and legislators, had made philosophy the powerful tool which guaranteed the philosopher not only the possession of the ideas, that is the knowledge of true reality, but it was also fundamental to the ethical-political excellence compared to those who remained anchored to empirical knowledge. The platonic philosopher was king just because he was philosopher: the possession of true knowledge would have entitled the philosopher, and only him, to rationally exercise command, that would, in this manner, substitute itself to the demos' arbitrary decisions.
23. The birth of man and the simultaneous loss of previous knowledge can, with extreme likelihood, be re-led to the loss, on behalf of man, of the state of grace, preceding the episode of the banishment of Adam and Eve from terrestrial paradise.
24. Manifesto of renaissance humanism can be defined by Giovanni Pico della Mirandola's discourse on the dignity of man: dignity traced in the freedom that characterizes the human person. For Pico man is at the centre of the universe, characterized by the same hierarchy of beings determined in the Middle Age, but with a new meaning, because the Middle Ages placed the accent on the top of the hierarchy, i.e. God, while now the accent is placed on the central element, i.e. man, whose value is not only in his configuration as copula mundi, i.e. the conjunction ring between inferior world and superior world, but also and above all in his freedom to determine his course in one or the other direction. Pascal later said, "man is not angel or beast, it depends upon him to be the first or the latter".
25. After completing the process of creation, God wanted the existence of a creature capable of knowing, understanding and admiring the beauty of Creation, so He assigned to man "who nothing could give of his own", i.e. that it didn't already pertain to other creatures, "everything He had individually assigned to the others [. . .]" (cf. Giovanni Pico Della Mirandola, *Oratio de hominis dignitate*).
26. The *idòla tribus et specus* are common to all men; the *idòla specus* are just of the single individual [. . .], almost as if every man had inside him a cavern or cave that reflects and deforms the light of nature. The *idòla fori et teatri* derive from language [. . .] so verbal disputes are born, names of existing things, but confused and badly determined.
27. (1) never accept anything as true that you aren't sure of by proof; (2) divide every single problem to be studied in various minor parts, as many as possible and necessary to better solve it; (3) lead your thoughts with order, starting with the simplest objects to know, slowly increasing by levels up to the knowledge of the most complex; (4) everywhere make such complete enumerations and such general revisions that you'll be sure you haven't neglected anything.
28. Doubt is a knowledge technique and finds its culminating moment in the hyperbolic doubt – when, placed the hypothesis that "an evil, very powerful, sly, deceptive genius who has made every effort to deceive me" – doubt extends to everything and becomes absolutely universal, to which only one certainty can be opposed, that is the existent self-evidence of the thinking subject (*cogito ergo sum*, cf. S. Agustin: *si enim fallor, sum*), the indubitable certainty the subject has of himself, being a thinking substance: if he thinks

"the evil genius will deceive me, there's no doubt I am; and he'll deceive me as long as he likes, but he won't be able to make me nothing, until I shall think of being something (Meditations, II, 1); and here I discover that thinking is a quality that belongs to me: it only cannot be separated from me. I am, I exist: this is sure . . . therefore I am nothing but [. . .], a thinking thing (*res cogitans*), that is a spirit, an intellect, a reason".

29. Nonetheless, whatever was the reason, they were surely not able to give up thinking in terms of authority, however they strongly desired to. [. . .] Everyone appealed to a new authority: first to the authority of senses and second to the authority of intellect. This means they didn't manage to solve the big problem: how can we recognize our knowledge to be a human matter – even too human – without alluding that it is due to caprice and individual arbitrariness?
30. By idea Locke means, in a Cartesian way, anything that is the object of the intellect when a man thinks. Innate ideas should be known by every man in the same way. This doesn't happen (as shown in the case of the children, idiots and the savage) and we have to conclude that such ideas don't exist. In fact, because for an idea to exist and be thought is the same thing, ideas don't exist when they are not thought. In other words, to say that a notion is impressed in the spirit, and at the same time to say that the spirit ignores it and hasn't realized it yet, means making this impression void. Not knowing how to imagine the way these simple ideas are passively received by internal and external experience, we get used to supposing that there is some *substratum* where they exist and from which they result, which we therefore call substance. Nonetheless, of such *substratum* we don't possess any clear and verifiable notion.
31. So Locke recognizes in the confrontation with the other men a moment of confrontation aimed to assess the truth, and not as in Cartesius "isolating man in the impenetrable loneliness of his interiority".
32. Cf. Plato and Parmenides.
33. Measure, respectively, of external sense and internal sense.
34. It's not the mind that moulds itself passively on empirical data, but reality that moulds itself on the a priori shapes through which we perceive it.
35. Categories are the a priori shapes of intellect. They are quantity, quality, modality and relation.
36. The explanation of how a priori concepts can refer to objects represents what I name transcendental deduction of the same.
37. With regard to knowledge: the way we consider this factor changes according to the importance assigned to it from time to time, the type of knowledge examined and the modalities of use and acquisition.
38. During the Middle Ages economic activity was organized around the feud, a widely self-sufficient economic unit that allowed the improvement of people's life conditions. The first attempts of economic theorization date back to the twelfth or thirteenth century. Prior to this we find only Aristotle's theories, and in particular the concepts of "natural crematistic" (art of enriching by producing only goods useful to life), and "non-natural crematistic" (enrichment that derives from exchange and wear).
39. "We are in full Industrial Revolution". Arnold Toynbee uses for the first time the term "Industrial Revolution" in the sense of an abrupt fracture, a continuity jump in the development process, at the Conference on Industrial Revolution in England, London 1884.
40. The firm is the set of goods organized by the entrepreneur for the performance of enterprise business, article 2555 of the Italian Civil Code.
41. Perfect competition is based on four fundamental conditions: (a) atomization of the offer; (b) homogeneity of products and sellers; (c) transparency of the market; (d) freedom of entry in the market.
42. The Neoclassic economic schools are basically three: the English school that leads to Alfred Marshall, the Austrian school (F. von Wieser and E. von Böhm-Bawerck) and Losanna's school (L. Warlas and V. Pareto). The interest in the problems of balance, trust in

the capitalistic regimen and free competition have always been present in the economists of these three schools, for whom real economy is definitely distinct from monetary economy. Dynamic analysis of economic phenomena, realistic study of the various market forms, the acknowledgement of the social purposes that economic activity cannot ignore, and the consideration of inefficiency of the actual structures, have put in a critical position, over the last years, the neoclassical economic thinking. According to Paretus an economic system is efficient, that means it reaches an optimal in the Paretian sense, if it is not possible, through a change in it, to increase the wealth of an individual without reducing somebody else's wealth. It seems likely that a foundation of a Paretus-efficient allocation is placed in the *choice* of the quantities to be produced and distributed inside the economic circuits. In order to underline the osmosis present between the philosophic theories and the prevalently economic ones, we point out that the problem of the choice, although in its existentialistic meaning, has a Kierkegaardian matrix. According to Kierkegaard, to exist means to choose and the choice is not a simple display of personality, but it represents the personality itself, that chooses by living or lives by choosing. In other terms, the individual is not what he is, but what he chooses to be. It's so true that even resigning to choose is a choice, although from such typology of choice derives to man the renunciation to assert himself as I: "choice is conclusive for the personality's content; with the choice it sinks into the chosen thing and, if it doesn't choose, it withers in consumption".

43. Cf. Plato, Heraclitus.
44. Cf. "cognitive isolationism" in Cartesius and Locke's relative position.
45. *Apéiron*, term introduced by Anassimander (Ionic School of Miletus) to point out a mixture, the elements of which aren't yet distinguished, and, therefore, as well as being endless is also indefinite or indeterminate.
46. In the sphere of the management and organizational theories Hawthorn's experiments demonstrated the positive impact on production of social factors such as moral, the sense of belonging to a work group and interpersonal ability to understand human behaviour. As an example we report the following: "Benetton's Internet website offers itself as a sort of window of the virtual world with an essential image, which transmits the characters of the brand image. What appears immediately evident in the home page is, in fact, the colour, fundamental element of the brand identity. [...] The logo's exposition, the on-line exposition of the themes of the communication campaigns carried out off-line, and of the prevailing colours in the group's mega-stores, cover an important function of identification of the offer in the virtual world, also playing an important role of communication integration. The language prevalently used in the site is English, choice on the base of which they have probably wanted to underline the international vocation of the firm and brand".
47. Fundamentally, economic firms are organizations that know how to do things [...] and effectively [...] a single firm in a particular moment is the depositary of an absolutely specific range of production knowledge, range that not rarely implies features of its own, for which it differs from apparently co-similar firms in the same production area.
48. We have previously retraced, in broad outline, the dispute between Rationalists and Empiricists; in other fields, we now assist, instead, the clash between the promoters of the humanistic approach to management (e.g. Mayo, Weick) – that is affected by Cartesian influence, about the division between subject and object, and highlights the subjective-humanistic element – and, on the other side, the promoters of the scientific approach (e.g. Taylor, Simons e Drucker), oriented to the codification of experiences and workmen's technical abilities objectivated in appropriate formularies. On the wave of "historic courses and recourses" (as in G.B. Vico), the role of peacemaker, elsewhere assumed by I. Kant (and afterwards by Popper), lies now with Barnard. Barnard has meant to harmonize "the logic and non-logic processes of which human activity consists, the behaviour and scientific aspects of knowledge, as well as the management and moral functions of the co-workers. Though, because the creation of knowledge is not at the centre of his interests, he has only dealt in general terms with the role of the co-workers in the creation of

knowledge, without explaining in a satisfying way such organizational process". He makes a "distinction between logic and non logic mental processes. The logic processes concern conscious thinking and reasoning modalities expressible in the shape of words and signs. The non logic processes concern mental events inexpressible as evaluations, decisions or actions taken in practical life. Such processes are unconscious and originate a behavioural knowledge".

49. Polanyi declares that "the human beings create knowledge through interaction with the objects or in other terms through involvement and diligence of oneself, that he named indwelling (to live in) [. . .] indwelling breaks the classical opposition between mind and body, subject and object" (cf. Aristotle, Cartesius and Kant). "Therefore, scientific objectivity is not the only source of knowledge. Or rather, our knowledge is largely the result of international acts that we accomplish as we relate ourselves to the world".
50. Simultaneous elaboration of the complex aspects of the themes shared by the individuals.
51. Explicit knowledge concerns past events and objects.
52. Juridical protection of the invention has both a moral and a property content. The inventor is entitled to be recognized as author of the invention and such moral right he acquires for the only fact of the invention. Moreover, the inventor has the transferable right to obtain the patent (namely patent right), which has a constituent function in order to acquire the right to the exclusive economic utilization of what has been discovered. Many philosophers from Plato to Popper have considered ideas or some categories of ideas and/or their creation process as a patrimony of knowledge and human activity, which has an absolute value. Also scientists, nowadays, talk about a scientific community within which it is convenient for the progress of knowledge that ideas can freely circulate [. . .] On the other hand, novelty must concern something which doesn't pertain to the field of obvious, attainable from what already exists and is available, and must present a potential application. The latter requisite highlights the *market-oriented* nature.
53. According to them, the firm's knowledge becomes the fundamental principle of the firm's competitiveness; the constant interaction between the formalized-generalized knowledge of the firm and the informal knowledge, which dwells in the single individuals, is at the base of the creative process and innovation. The latter receives its impulse from zeal and individual motivation, which in their turn presume trust as a necessary condition to start up the mechanisms of cognitive inter-exchange. Besides appealing to trust, Marx would add, it is convenient to remove the causes of *alienation* (about the concept of alienation cf. Rousseau, Hegel, Feuerbach), that is the historic status of the workman in the capitalistic society, in which the wage-earner finds himself split or divided both from the product of his activity (that belongs to the capitalist) and from the product of his own activity (that assumes the form of a coercive job where he becomes a tool of purposes unrelated to him); he is in a condition of dependence with regard to a power (capital) that he himself continuously produces with his work and at the same time "opposes himself to it as an alien being, as a power independent from who produces it" (Marx, 2004).
54. The market is the *ba* for the organization, the organization is the *ba* for the team, the team is the *ba* for the individual.
55. Thus Popper introduces the problem of knowledge codification: "Considered under a logic point of view, a word is a conventional sign; considered under a psychological point of view it is a sign the meaning of which is fixed by use, habits or association. Logically considered, its meaning has truly been fixed by an initial decision – something such as a primary definition or convention, a sort of original social contract; and, psychologically considered, its meaning was fixed when we originally learnt to use the word; when we formed for the first time our linguistic associations". How much power must we devote to knowledge, under whatever shape, without risking a fall in the abyss of the gnoseologic scepticism, which however finds its appropriate setting in philosophical debates, but surely not in the economic ones – *stricto sensu* – ; where you cannot manage without "[. . .] asking yourself which worlds the formula could open, [. . .] yet some twisted syllable and dry as a branch. [. . .]".

56. See infra § 2.3.
57. Tacit/Articulatable; Non-Trasmissible/Trasmissible; Non-Articulate/Articulate; Non-observable in use/Observable in use; Rich/Schematic; Complex/Simple; Non-Documented/Documented.
58. Episode lived in the childhood by Larry Prusak.
59. As a token of this, if politics doesn't have any role in the sphere of a knowledge management initiative, it is sure that the organization perceives the absence of value.
60. In what, in the same article, is represented as knowledge management disillusion.
61. Result of the ability of putting in contact people physically distant, rather than creating places where you can preserve knowledge by giving common access to it.
62. Even I will assume a vision of knowledge – both scientific and technological, and daily – as a social practice.
63. Challenge number one managers in the industrialized countries have to confront is the productivity increase of the operators assigned to the development of knowledge and services. This challenge that will still stand out for a few decades in the management's agenda will decide in ultimate analysis the firm's competitive performance, but above all it will represent the true forge of society and will determine life quality in every industrialized nation.
64. The knowledge-based perspective recognizes in the research of knowledge resources necessary to compete, in the presence of an environment which offers increasing levels of complexity, the main explanation of the recourse to cooperation and the organization's relational behaviour. [. . .] You can access tacit knowledge, by means of agreements that don't require substantial interaction contents among the parts. Nonetheless, so that it can be effectively internalized and shared among the partners, repeated interaction among the members of the involved firms is necessary, and, more widely, among the respective organizations, in order to give rise to a true learning by interaction (learning by interacting).
65. With the regard to the organizational analysis of the business system.
66. Cf. Frederick Herzberg with regard to the motivation theories. American researcher, who divided Maslow's scale in the two categories of context needs or hygienic spurs, and those of content or motivational desires, where differentiation appears through a word game: the first are the ones the accomplishment of which doesn't produce motivation, but their unfeasibility produces demotivation; the latter are instead those the accomplishment of which produces motivation and their unfeasibility produces non-motivation.
67. As knowledge s becoming the main resource of a modern economy, constant updating is fundamental. Knowledge, considering its own definition, becomes obsolete year by year, thereby the so-called "knowledge workmen" have to necessarily go back to school. [. . .] We will be compelled to accept the fact that, in the society of knowledge, learning lasts a lifetime and doesn't end after the degree, but starts right then.
68. If we intend life as self-production of biochemical components, social systems cannot be considered living, but if by life we mean more correctly the production of components by means of components, then there's no doubt that self-poietic non-biologic systems exist.
69. Thus knowledge is elected as source of the power and money of which it becomes the true essence; it follows that for the modern firm economic and productive power is situated in the intellectual abilities of its members and no longer in those of service deriving from *hardware* components.
70. The theory of the firm based on the resources represents by now a consolidated paradigm in the studies of economy and management of the firms and strategy, definitely differing from the more traditional structure-behaviour-performance theory, which instead brings back the profitability differentials of the competitive firms to the structural features of the competitive environment of reference, although certain scholars affirm the existence of a complementarity between the two theories, highlighting the difficulties of both in demonstrating empirically and in an exclusive way the relationships between the independent variables and the performances. Barney, Amit, Schoemaker, Henderson, Mitchell, Troilo have written in this connection.

71. *Acquisition* represents the most immediate way of generating knowledge: it consists in hiring a worker, or in a process of fusion with an organization headed for the incorporation of the knowledge it contains. It is moreover possible *to lease* knowledge, that is to address oneself to external counsellors; use *dedicated resources,* namely the units of the Research and Development department (in this case you take the risk of excessive isolation from the rest of the organization to the extent that it represents a threat to diffuse the acquired knowledge). *Fusion of dedicated resources* pursued by means of isolation from the rest of the organization, especially if it schedules the assistance of people with different perspectives, can be useful in order to introduce factors such as diversity, complexity and conflict, functional cases, in Nonaka's and Takeuchi's point of view, for the creation of knowledge. *Adaptation* is the boost towards innovation pursued through simulation of possible future crisis. *Knowledge networks*, informal networks and practice communities able to generate knowledge with reference to practice communities.
72. Codification is based on the explication and structuring of knowledge. For this purpose it is necessary to have the use of a map that shows which knowledge is available inside the organization and in which places it is accumulated. The complete map aggregates the plurality of partial maps (see above §2.1), being accessible and usable by anybody who needs it, also through network-linked computers; without meaning by this that it is possible to complete an exhaustive mapping. With regard to this, Davenport and Prusak warn us against the risk of incurring an excess of structure that could "kill knowledge".
73. Difference exists with regard to the concepts of data, information and knowledge. Data represents the state of the event and is therefore a feature of the event itself. This doesn't mean that it is objective, as pointed out by Vicari, because the data is collected by the subject and collection activity is however provided with subjectivity. Information, as suggested by Boisot, is a relationship established between the event and the subject and the event. In other words it is a datum to which a shape is assigned, to which a meaning from the subject's point of view is associated. Knowledge, instead, consists of the integration with the information previously achieved by the subject and set up in a system: therefore, it is a set of organized information.
74. "Five are the phases that originate organizational knowledge, meant as a result of *organizational intentionality,* of which the latter is the first condition and is definable as the aspiration of the organization to the achievement of its targets. Usually, in the economic sphere, the efforts to acquire intentionality take the shape of a strategy. Whereas for strategy, to say it as Mintzberg would, we intend the attitude the firm has towards the market. The second condition capable of starting-up the knowledge spiral is *autonomy*. All the members of an organization should be able to act, in the measure allowed by circumstances, in an autonomous way. Allowing the autonomous action of the individuals, the organization can increase the probability of generating unexpected opportunities. The organization that creates knowledge assuring autonomy can be assimilated to a self-poietic system. Similarly to a self-poietic system, the single individuals and the active groups in an organization that creates knowledge fix by themselves the limits to their tasks, with the aim of pursuing the final target expressed by the maximum intentionality of the organization". The third organizational condition capable of starting up the spiral is a condition of *fluctuation and creative chaos* that stimulates the interaction between the organization and the external context. Fluctuation in an organization breaks the routines, the habits and the cognitive reference frames of its members. A similar process requires a deep personal involvement by the individual. Chaos generates naturally, when the organization confronts itself with a real crisis, but it can however be intentionally generated, for example through the leader's attempt to raise a sensation of crisis among the organization's members, with the proposal of challenge targets. The fourth condition is *redundancy*. With this term, we intend here to refer to that information which goes beyond the immediate operative requests of the organization's members. Moreover, to share additional information helps people understand their position in the organization. Hence, redundancy of an information offers the organization a self-control mechanism that allows it to keep the set route. Fifth

and last condition that encourages the start-up of the knowledge spiral is the *minimum requested variety*. The organization's members can respond to the change in the circumstances if they possess the variety necessary to it, which can be increased combining the information in a different, more flexible and fast way, and granting every sector of the organization the same possibilities of accessing information.

75. The five-phase model of the process of organizational knowledge creation.
76. The individual asserts himself as knowledge workman.
77. Knowledge is a fluid combination of experience, values, contextual information and specialist knowledge that offers a reference frame for the evaluation and assimilation of new experiences and new information. It originates and applies through the connoisseurs. In the organizations, knowledge is linked not only to documents, but also to the procedures and organizational processes, practices and rules.
78. In reality a cognitive process can't ever give rise to a final output – *stricto sensu* – because it never ends; the process of an output functions as an input of new cognitive spirals.
79. Such a model consists in an elaboration of the SECI process at an organizational level.
80. With regard to the innovative processes of *top–down* or *bottom–up* matrix, see also the application of the analysis model of the change in the services' supply system.
81. In the information society the ability of adequately using information technologies is by now a necessary condition. Recent studies performed in Northern Europe have confirmed what had already been highlighted in the American context: information ignorance has a high cost for the firms. They lose productivity if who works with the PC isn't able to be autonomous. Information society is a social-economic context in which the new information and telecommunication technologies (*Information and Communication Technology*, ICT) undertake a fundamental role in the development of human activities. These technologies are useful to produce, in a digital form, messages, pictures, texts, music, videos and so on. In more general terms, we can say that a great part of the information and knowledge of mankind can be reproduced, or generated, in a digital way with a cost reduction, unimaginable up to some time ago. This fact has produced various consequences: for example, it has originated a new economic sector, the one of production and marketing of information technology and digital communication. It has encouraged the growth of the demand of information by the firm's users causing an increase in the complexity of the computerized information systems in the firms. Availability of well-timed and reliable information has determined the revision and simplification of many processes internal to the firms, and among the firms, with an increase of the total efficiency and productivity. Finally, information has become in many sectors a decisive production resource, such as the raw materials for the transformation firms. ICT contribution to the growth of the Gross Domestic Product (GDP) is, without doubt, one of the positive aspects of information society. According to the elaborations performed by the US Trade Department, in that country the information and digital transmissions sector has grown to such an extent that it generates around 8% of the entire GDP of the nation. Moreover, the ICT sector is the one that contributes to the GDP dynamics, the continuous growth of which in the last decade has to be assigned, for over a quarter, to the decisive contribution of this sector. As already observed, the diffusion of the use of these technologies, in every economic sector, services or products is enriched by information Moreover, the widespread use of Internet as a communication tool among the firms has changed the inter-firm processes, allowing a higher efficiency in the productive chain formed by more operators.
82. The potentialities of a *knowledge asset* are widely a function of how it is used and of the context in which it is employed. Thus, an adequate knowledge of the social or other context becomes essential for a correct application of the technique.
83. The intangible assets represent the set of knowledge accumulated by the firm and are characterized by a double nature, of input (information flows deriving from the environment), and of output (information flows conveyed by the firm towards the external environment).
84. Tacit knowledge is defined as *know how* or procedural knowledge (Holsapple and Singh 2001). It concretises in mental schemes, opinions and practical competencies, i.e. abilities

and *skills*, for the activities' management and problem resolution. Lubit (2001) identifies four categories of tacit knowledge: (i) *know how*, the informal *skills* of the individuals, the technical component of tacit knowledge that is knowledge that can be observed only in its applications and acquired by the means of practice and experience; (ii) mental models, i.e. the cognitive dimension of tacit knowledge that helps us give a sense to the mass of data which confront us, extract the relevant parts, give meaning to events, establish cause-effect connections (*relational knowledge* or *know with*), formulate a comprehension of the problem, find solutions; (iii) ways of facing the problems; (iv) organizational routines. According to Guida and Berini, in its turn tacit knowledge is made of two dimensions. The first is the *technical* one that includes the set of abilities, informal forces difficult to catch that are identified with the "know-how" of a business. The second is the *cognitive* one that is represented by the set of schemes, mental models, beliefs and perceptions, related to reality and the surrounding world, so consolidated that they have become axiomatic.

85. In time knowledge converts into *routine:* so, placed in front of a problem they have already experimented, the subjects immediately apply the solution kept in memory.
86. Routines are continuously emerging systems with internal structures and dynamics. The internal structure of a routine can produce a wide range of different outcomes on the continuum between "very stable" and "constantly changing", depending on circumstances. Organizational routines have been likened to individual habits, computer programs and DNA.
87. By cognitive structures, we mean the various forms through which an individual organizes in his mind the data issued from the environment; the cognitive scheme, in fact, is the representation unit of the world by one person.
88. Cannon-Bowers and Salas define them as "knowledge structures held by members of a team that enable them to form accurate explanations and expectations for the task, and in turn, to coordinate their actions and adapt their behaviour to demands of the task and other team members". Research suggests that shared mental models help improve performance in face-to-face and distributed teams. Shared mental models can enable teams to coordinate their activities without the need for explicit communications. Without shared mental models, individuals from different teams or backgrounds may interpret tasks differently based on their individual backgrounds, so making collaboration and communication difficult.
89. Storytelling is a traditional and even ancient means of passing on wisdom and culture. Yet in organizations – particularly business organizations – what is most explicitly valued are harder forms of knowledge that can be classified, categorized, calculated and analyzed. In recent years, however, there has been increasing attention by organizations and their leaders to the role and value of narrative and anecdotal information conveyed in the form of stories. This renewed interest in an ancient genre of communication is perhaps a result of the realization of the importance of knowledge in organizations and the recognition that knowledge cannot be completely abstracted into categorical and analytical forms and is inadequately conveyed in such forms. Instead, organizations seek communicative forms that synthesize rather than analyze. Stories are such a communicative form.
90. According to a few scholars, at the base of routines, and therefore of the scripts, we can find a sort of behaviour code that functions as common thread of the changeable tasks performed by the individual.
91. Spontaneous knowledge transfer, depending on a non-structured logic, represents a central factor for a firm's success.
92. Well-known knowledge transfer techniques exist – a lot has been said or written about it. MCC, among the rest, has appealed to reports, mandates, seminars, training, technical accounts, external licences, product realization and support (as opposed to prototypes). Once again we can conclude that, on the basis of the results achieved, the approach defined by these techniques hasn't been successful.
93. The presence of trust, inside the organization, reduces the time of problem solving and encourages the determination of a climate suitable to knowledge sharing. Knowledge

resources are based on learning, while trust resources are founded on the validity of the other subject's cognitive schemes.

94. For this purpose it is possible to use the people value proposition that is divided into the following phases: belonging, i.e. the choice of going to be part of the organization; involvement, described as the will to adopt an active role in the organizational complex. Engagement, that provides for the identification between individual advantage and the firm's advantage. The engagement phase puts on psychedelic tones, assuming the availability to express its values, its creativity and its opinions, empowerment which, instead, implies the research of excellence, self-strengthening and strengthening of others.
95. Individuals cannot share knowledge without speaking the same language. British Petroleum, for example, employs advisors to translate the observations expressed on the platforms in the North Sea by the workmen responsible for the extraction in a conceptual language that the managers in London can better understand.
96. The debate over communication has very ancient origins (cf. Plato's *Cratilus*, Aristotle's *De interpretatione*, St. Agustin's *De Doctrina Christiana*).
97. Knowledge transfer can have as an object single individuals, groups or the whole organization in such case setting the goal of strengthening its learning ability. The process starts when an actor-source, holder of the knowledge object of transfer, begins to interact with the actor-recipient. Its outcome is influenced by the possession of *similar competencies* by the *compatibility*, which influences the absorption in the light of the recipients' existing values, of experiences and needs. The greater or minor difficulty encountered in its absorption determines the *complexity* level associated with knowledge. *Experimentability* represents the suitability of certain knowledge to be tested on a small scale. *Observability* is measured by the usability (visibility/communicability) of the object of transfer. *Uncertainty*: transferred knowledge is uncertain if the information transfer is not qualitatively/quantitatively in line with the real communication. Moreover, you can also incur in *ambiguous interpretations*, minimizable risk if the actors share the same cultural *background*.
98. The knowledge transfer is a process type phenomenonwhich is divisible into stages:

    1. *KNOWLEDGE STAGE.* It is linked to the consciousness of the existence of a new idea: with regard to it, knowledge transfer reduces the degree of uncertainty.
    2. *PERSUASION STAGE.* The new idea triggers a race to hoard information oriented to the reduction of uncertainty on the implications linked to such idea, and for the purpose of reaching an evaluation of the effects that it can explicate on an individual level.
    3. *IMPLEMENTATION STAGE.* It derives from a phase of apperception of the idea, and it consists in its application/objectivation. Knowledge transfer, although it is essentially a theoretical process, is also characterized by practical implications, because it is substantially oriented, *in secundis*, to put the innovation to use.
    4. *CONFIRMATION STAGE.* Acquired knowledge has to be confirmed; this phase can give rise to a full acceptance of a new idea, or a state of cognitive dissonance. The last two stages represent the *feedback* of the process under examination.

99. P. Drucker defines "an educated person" as he/she who is able to apply his knowledge in his job or in his own personal growth. [. . .] The challenge we face consists in rendering knowledge a role in human progress, in going beyond knowledge seen as a tool and in regaining the concept of education as a way to reach wisdom. [. . .] An important challenge for truly prepared men is to collect all the complex of knowledge acquired by them, both on the professional and intellectual level, and use it in their own job and shape their personality: thus they can contribute to mankind's development.
100. Transmission and reception together haven't enough value if the new knowledge doesn't lead to a behaviour change or to the development of new ideas that allow to activate a new behaviour.

101. Integrated information systems, such as for example the *Enterprise Resource Planning*, represent the way out from a state of high operational and management complexity: information and process integration that represents a logical basis of these systems is accomplished already in the projecting and development phases, combining technical and organizational competencies with the aim of creating value for the firm. Some authors use the term *hollow corporation* (empty firms), highlighting the externalization process of operational activities and in particular of "physical" activities that make the firm light and with a high content of relational, communication and cooperative resources.
102. Progress in science, informatics and telecommunications inexorably presses, reducing the distances and undermining the national borderlines, giving life to a new "industrial revolution": because information is "all that can be digitalized", even knowledge becomes a good to be exchanged on the market, generating the information economy or even *new/net economy*. Information markets, although they suggest again situations and problems appeared in the past or present in more traditional markets (for example, the implications they have on the firm's strategies, in particular on the price policies and the introduction strategies of new products), have, in the laws that regulate them, distinctive and innovative signs. Consequently, the speed and direction of this revolution involve entire social, political and economic systems, creating "more frequent and devastating breaches than what the previous technologies did" (see Toffler's concept of future shock). Digitalization allows • an elaboration capability and a wide size of communication bands, in order to permit a large use that forces the organizations to transfer high-intensity information activities also in public networks, open data bases and cooperative environments, where the new economy multiplies the value (Moore's Law); •personalization, caused by the decrease of information costs, that makes it possible to think and measure daily operations as a series of unique transactions (Coase's Law and of the firm's contraction); •through Internet, the creation of a market open to everyone, remorselessly competitive, in which the processes of purchasing, selling, producing and distributing are computerized and the new products, standards and information can reach every place and return to the starting point in a minimum time.

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Chapter 3
Learning Processes and Social Implications in Family Organizations

Maria Rosaria Della Peruta

Abstract This chapter proposes to answer important questions: (1) how do institutionally constrained individuals recognise a need for change and decide to act upon this need, i.e. how does the decision for intervention materialise; (2) how do these individuals give form to institutional change, i.e. how do individuals actually intervene in particular institutions which are constituted by (accounting) rules and routines; (3) how does institutional overlap between family and firm generate conflicts in the organization, i.e. how may conflicts and learning require changes in the ways individuals and groups understand themselves and relate to the family organization as a whole; (4) how do limits of rule-based learning manifest themselves, i.e. how the same mechanisms of organizational learning and rule following that lead to improvements could also destroy.

3.1 Individual and Organizational Learning

Family enterprise has been normally viewed as a combination of two overlapping and interacting systems: family and business. According to Dunn (1995), the most common opinion is that the relationship between family and business could be explained as a theoretical continuum, with two extremes. At one end, the process of management and governance is taken in by the family, and all decisions are subject to the family philosophy. At the other end, the business philosophy prevails. We are convinced that research has reached the point that we could avail ourselves of a holistic approach when examining the family enterprise, considering both family and business.

Consequently, the nature of the family business and the way it functions naturally depend on the relationship that ties family and business, which is expressed by the combination of family enterprise strategy, governance, human resources and succession. Thus, firms are organizations that possess specific knowledge, and a large part is obtained from training and experience in distinct contexts,[1] the most significant of which are organizational contexts.

The context is creative because it is through the interaction of organizational members that the generation of shared languages and meanings proceeds.

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In Europe, Shell has become well recognized for its ability to utilize creatively tacit knowledge. In its Deepwater Division, cooperative problem-solving meetings are held by engineers and coordinated by a general supervisor. These engineers, engaged in deepwater drilling, are a group of experts bound by the strong attachment to their job and the sharing of professional background: together they form a community of practice. They confront themselves through a common forum, in which they try to find adequate solutions to the various problems they have to deal with, by better understanding the different tools and possible approaches. The role of the coordinating supervisor is to collect practical evidence on a regular basis: he interviews employees in order to find interesting stories which can be published in newsletters and reports and spread to the whole community. Stories, in fact, embody big quantities of tacit knowledge and offer the advantage of being easily memorized (Wenger and Snyder 2000).

Therefore, the relationship among organizational members is fundamental in order to develop and consequently carry out organizational patterned activities in which the memory of the organization is incorporated. The organizational context is both prone to activate individual's mnemonic processes, and more importantly activate organizational mnemonic processes (Paoli and Principe 2001).

Learning within the organization is a constantly active process by which the learning of the individual members is translated into something that belongs to the entire organization, into its organizational capabilities. It regards the generation of competences and skills that exceed the ones possessed by individuals. Learning in this context entails the existence of an organizational memory made of routines that shape behaviour according to standard operating procedures, but also bases itself on the ability to learn from mistakes.

It is important to note that the routine concept can be viewed considering the way in which interlinked routines slowly create a web over the years, outlining a trajectory the organization finds difficult to start from, but quite easy to repeat in some form. Like this, the decision makers' ability to explain sensory data and gather adequate responses is shaped by organizational history (Walsh and Ungson 1991).

The system of routines in which individual actors are involved shows a pattern of predictability in which they have invested when developing their abilities (Norus 1999). When interpreting the acts of others, every employee handles uncertainty that is linked to the cognitive abilities and limitations of human beings. In other words, every worker has a biography that expresses his own experience, idiosyncrasies and distinct forms of knowledge (Storper and Salais 1997). Consequently, all types of schematic behaviour acquired by learning, such as routines, are created through social practice and there is a good possibility they will combine on specific occasions, such as the making of a product. Thus, the fact that new family firm members may be involved in pre-existing routines depends on coordinated reciprocity (Weick 1979).

However, in the field of organizational learning, a new consciousness has arisen: the possibility that in family businesses there appear to be learning processes of a more lateral and socio-contextual kind. These learning processes imply participation in a community of practitioners in which newcomers have to follow an

apprenticeship before being capable of handling all the skills required to be admitted to a group of peers (Lave and Wenger 1991). From this viewpoint, learning is not considered a special practice that needs to be pulled out of the context and enabled through formal programmes; on the contrary, it is regarded as being necessarily drawn in the normal everyday interaction in the workplace.

Essentially, individual actors learn routines and conform to those followed by the other actors; this process may be primarily carried out through organizational training and incentives, and peer-based relationship. In specific terms, training and incentive structures may be offered by the organizations in order to originate a peculiar behavioural pattern. In these cases, an important role is played by the socialising mechanisms of the family organization, as well expressed by Nelson and Winter (1982). Following this functionalist point of view, "the routine's order" is applied by the organization, and individual performance is measured on the basis of that order, to verify if it is consistent with routine expectations. Individual members have to learn the system of coordinated messages and add these pieces of knowledge to their existing wealth of experience.

3.2 Inertia and Change

If we focus on routines, we can easily perceive them on two distinct levels,[2] potentiality and expression, considering that they are equally containers of knowledge held in organizations and its true representation, a sort of activation and performing of incorporated knowledge on a daily basis. Furthermore, we have to realize that, because various ontological levels appear in the routine concept, persistence is also linked to the visible or invisible aspect of knowledge: that is why we can affirm that change at the micro levels is directly linked to change at the macro levels. In fact, following Veblen's (1914) analysis, we can assert that habits and routines become an easy and immediate way of thinking and behaving and, following this logic, they fall into conventionality, acquiring the status of custom and an institutional force. That's how action is represented by norms and social conventions that tend to change only if they are outdated or no longer adequate. This happens when technology and innovation put the norms in discussion and require a considerable rethinking and a new viewpoint that leads to change. This evolution is quite slow because communities are rather reluctant to accept immediate and drastic changes that could disarrange their routines. The persistence of norms and social conventions is enclosed in the technological artefacts that generate persistence of practices and possible inertia on them. Change is performed at technological and social levels: routines and fixed habits have to be reconsidered, because it is too difficult to verify the intentionality behind the causality connections between human action and legal forces. Rules cannot be easily identified with the actions they assist, because their application isn't standard, but mediated by human action: therefore, actions cannot be merely readdressed to the set of rules by which they were undertaken, and this is true whether the rules are conventional (that means that they are observed on the basis of a common agreement) or they are explicated

within a legislation which also provides for potential sanctions. Compliance with the rules has to be explained, considering it is a feature of social life, but such explanation is hard to achieve, because the causes of change are connected at various levels.

The basic fact regarding rules and their explication is that individual appropriation, with the aim of fulfilling them as a routine, is troublesome, depending on the structure of memory at the individual and organizational level. So it is difficult to acquire some cognitive automatisms and, when they are undertaken, inertia within the organization can still be prevalent, because some members could continue keeping to the old automatisms, without learning the new ones, which would easily change present routines. The problem is that very often the change of routines is regarded as a cost and a considerable effort to acquire new automatisms. With regard to this idea we can talk about "overload syndrome", which could be defined as the difficulty to adopt new automatisms, connected to a change in how knowledge is transmitted. Of course, in time procedural knowledge can easily be utilized after the automatisms have been understood and put into practice, so the members of the organization accept the new routines regarding the allocation of their tasks. The problem we are discussing has been already examined in the past and many scholars have underlined the fact that ontological security could force some predictable routines to be kept, in order to reduce distress in social life and maintain confidence in social exchanges. In family life, for example, anxiety is eliminated by iterating a practice that has to be done, so it can be absorbed gradually. You acquire familiarity with something before practising it on a customary basis. By this means, when you learn an automatism, you are likely to acquire more trust in yourself and the others before the routine has been adequately started up. Because of the difficulty in learning new procedural knowledge and consequently new cognitive automatisms, these are stable and possibly inert, both at individual and organizational levels.

Sometimes it happens that cognitive automatisms are so radically built into the members of an organization that they are uneasily forgotten, although change is unquestionably required. A very good example of such realization is the accident that occurred in 1982 to an Air Florida aircraft, caused by the behaviour of the crew who hadn't responded adequately to the dramatic environmental change due to a heavy snow storm. The crew hadn't modified their usual routine and weren't able to adjust to the new event: their inertia caused the disaster. This example proves that it is hard to deactivate certain routines once they are fixed in users' memory and are practised by being generally repeated, a fact that ensures a sense of safety and order that hinders change required by a particular situation (Becker and Lazaric 2003).

Following Nelson's (1994, 1995) viewpoint, we realize that sometimes routines are very steady because they create a sort of truce among organizational members, as a result of an implicit contract incorporated in their determination. By the way, a change in the expression of a routine can provide a view to reallocate within the social hierarchical structure; but, such change is sometimes averted through a hierarchical reshuffling or by repudiating the new rules. This could happen, for example, when these rules are misinterpreted and the various actors aren't willing to accept the change, because their power would be reduced and thus they create a barrier

to the speed-up of the process. Actors don't behave automatically, although their efficiency is subject to the need of learning automatism. According to Leibenstein, hierarchical power encounters certain limits to impose routines at different levels unless they are elucidated and justified, a fact that entails that actors will always continue behaving the usual way, until they discover a different possibility using creativity and intelligence. Therefore, actors won't merely apply the rules, but will understand them, leaving a discretionary operational margin to their application. The role of creativity is notable: it has to be well understood, not only because it is the key to innovation, but also because it could be controlled by the hierarchical structure, whose ability to remark on operational routines is rather restricted. Besides creativity, we also have to consider intentionality: we are talking about the extent to which actors are really willing to change routines and how much they mean to divert from the model.

The discussion hasn't reached a conclusive point, because the process is very arduous to be observed. According to Nelson and Winter (1982), a routine may imply vast direct interaction among the organization members who determine different contingent choices that don't involve any special deliberation process by the top management. When top managers intervene in lower level operations they just want to try to change routines or signal functioning faults of existing routines.

Nonetheless, not only external events give life to action: actors truly exert influence on what they do and here is where creativity plays a dominant role. Following Feldman's (2000) ideas, we can affirm that routines can't be considered finished products; they change because of the social links incorporated in them and the creative performance of people whose actions are stimulated by their will and intention. Organizational routines are influenced by dynamic forces which generate a strong incentive to change. How change applies is based on the individual perspective of the organization members and their unstable personal targets, which ordain a process of modification that has to be discussed at personal and general levels. As Nelson and Winter (1982) assert, new employees may bring change, because of their potential determination of improving operational routines, by changing them partially. Such process, which can be accomplished at a conscious or unconscious level, is based on learning from past mistakes, but it is imperfect and ambiguous and not necessarily bound to be successful.

Another interesting study case is the one analyzed by Spreitzer and Quinn (1996), who focused their attention on the careers of Ford's middle managers before and after they had followed a specific training course aimed to encourage change. The discovery was that, despite the fact that innovation and career advancement were always positively connected, managers who had made conservative changes sped up along the track, while those who had made more extreme choices were less mobile. The surprising result was that Ford had undertaken a programme that overlooked change, considering its middle managers as the leading men of the transformation, but actually didn't repay them or even penalized the ones who had been more active. And what is more amazing is the fact that the latter were the ones who felt most gratified for their work: they considered the training course as a fundamental step to shake themselves from old convictions and make decisions not on what is politically

correct or easy to do, but on what is right and fair. The hypothesis expressed by Spreitzer and Quinn (1996) was that these plateaued managers had reconsidered the relation between risk and reward, and they were satisfied by the request of seeking organizational change, rather than competing for a position on a political basis.

Not many scholars have underlined the fact that single individuals can play an important role as agents of organizational learning. Within any organization, individuals face problems, discover new ideas, find mistakes and come across different learning opportunities day by day. Agents of organizational learning can be defined as those individuals who exploit their findings and decide to bring them to the organization's attention, despite possible risks and opposition. Anyway, this may occur not only to the advantage of the organization itself, but also for the satisfaction of the agents of organizational learning, who may feel more upright, helpful and active.

3.3 The Social Constitution of Family Organizations and Its Implications for Organizational Learning

Both institutions – the family and the business – describe social relations as a unique set of values, norms and principles; and everyone acts following its specific rules of conduct. As social pattern, family business is carried out through action, when people are activated and repeatedly take part in processes that safeguard their own continuity: it is the action of individuals that supports these processes. The interaction between rules and routines reproduces the duality of structure and action.

Institutions are primarily developed in order to respond to human cognitive issues: such response, which addresses the individual decision-making process, is shaped by the acquirement of the cognitive skills other people have specifically used to organize, in different ways, their own knowledge.

This represents an obvious benefit and is the reason why decisions are made and procedures adopted on the basis of external behaviour; and its consequences on individual performance should not be underestimated. In our discussion, two fundamental unexpected social effects should be underlined: first, similar behaviour models are developed so human interaction is made easier by conventions that are ready to use; second, on the basis of those behaviour models, people are favourably disposed to share new conventions, so they can solve a number of problems resulting from human interaction. In order to allow people to operate in their private sphere, institutions offer the required complementary structures of social capital: when people realize the nature and quantity of the advantages these institutions bring, they are stimulated to search for more benefits, by making the decision of contacting others to acquire new ideas.

If you want business organizations to work well and develop themselves, then you need institutions that work effectively, because a formal organization can exist only if there is the will to agree to a certain level of dependence. Barnard (1938) argued that the decision if an order has authority or not is in the hands of the people

to whom the decision is directed; and Ménard (1994) asserted that any type of organization can function well only if people want to agree to several communications, labelled as authoritative, but not issuing from their direct superiors. It is generally well known, but many times forgotten, that a formal organization cannot work well if it is not backed up by informal organization. As pointed out by Smith (1759), even in our private lives many sources offer us information and advice and we continuously agree to their authority, forming our opinions. It can happen that, now and again, we block or remove the authority of a particular source, which didn't reach our expectations or was misleading, but we cannot deny authority to every source, because external organization is vital to us. It is important to insist on the fact that the procedures we bring along with us into an organization represent the informal layer required by any type of business; they are the basis to evaluate the reliability of the people we deal with and are fundamental to establish the trust on which interpersonal and interorganizational learning is founded. Thus, our proclivity to agree to other people's decision assumptions, so as to make our cognitive tasks easier, and our constant ability in evaluating those assumptions are important to ponder opportunism, not only taking account of balances, but also of processes, and the context in which they develop.

In this viewpoint, as asserted by Quinn and Cameron (1999), tensions are present within the organizations and produce a meaningful impact on their ability to learn: these tensions are typically due to an important feature of organizations, such as their historical embeddedness that treasures the positive legacy of the past, but can even be a deterrent to change.

Institutional theorists emphasise that the historical "embeddedness" and "stickiness" of social structures and processes is likely to make the state, legal system, financial system and the family slow to change. Along the same lines, Johnson pointed out that social systems underlying an organization may slow down the process of change, because they may be set to keep a certain complex of embedded features.

As argued by Stinchcombe (1965), organizations are created by people when they learn or discover different better ways of doing things, as the present social system doesn't make them easy. The scholar realized that organizations born in different periods were characterized by different social structures and he questioned himself about the types of forces inherent in the process of handing down an organizational tradition, which could be inclined to keep their original form. So he concluded that a new organization will have a physiologically peculiar social structure and a shape that will tend to last through a process of institutionalization, called social embeddedness, described by a dynamic of self-protraction.

The basic and enduring idea of embeddedness is, however, that economic actors are not atomized individuals and that economic activity cannot be understood as divorced from the social networks which form its social context.[3]

According to Giddens (1984), institutions are practices embedded in the social context in two aspects: they are well rooted in the past and are very common, facts from which they acquire diffused legitimacy. Scott (1995) considered institutions as founded on three main pillars, such as the cognitive, normative and regulative

systems, by which organizations are governed, applying interpretative patterns, norms and rules: thus, organizational practices are learnt trying to adapt to what is considered common knowledge (cognitive pillar) to what is expressed by social norms (normative pillar) or to what is implemented by law (regulative pillar). As the institutional theory proclaims, meaningful organizational structures and processes don't specifically originate from an independent learning process, but, as argued by Lu and Lake (1997), derive from institutionalization processes socially embedded, arising from well-recognized norms, rules and practices, and so organizations aren't free to use their technical rationality to achieve their goals in order to maximize efficiency.

The consequences of such consideration are notable, because what organizational members can learn is partially built on a social basis by various institutions, due to the fact that social consent is granted to certain organizational practices that already exist; and organizational learning also depends upon what is thought as possible and rightful in legal terms institutionally defined. The consequences of institutionalization of organizational learning don't always unveil a conservative nature.[4]

Time plays an important role in outlining the concept of embeddedness within organizations, because it strengthens practices and routines and the relationship that links change and organizational learning depends upon it. Thus, the rise of the ability to change inside an organization is time linked and, following Schumpeter's ideas, we can affirm that, if change is strongly urged, then it will probably be creatively destructive, through a process of organizational unlearning and relearning accomplished by dismissing staff and structures and inserting others that already have new skills and knowledge incorporated. This process of change is extreme, but, as stated by Child and Smith (1987), it could be the only possibility of survival for a mature organization crippled by its level of embeddedness.

Leonard Barton (1995) realized that what she had defined as "core rigidity" was made up of four specific dimensions, such as physical systems, knowledge and skills, managerial systems and values. Values can be generic or knowledge-base-specific, which she called Big V and Little V respectively. Big V, that is difficult to change, is connected to the disposition and beliefs regarding interpersonal links, while Little V is connected to the disposition and beliefs concerning setting out activities. As outlined by Pettigrew (1985) first and later by Mayes et al. (1988), when a crisis occurs, the only way out from a situation of paralyzing core rigidity is the dismissal of the old management, in order to open the way to new organizational learning opportunities and ease the appearance of new organizational culture and practices. In fact, as well expressed by Herriott et al. (1985), embeddedness is powerful in slowing down or even blocking organizational learning processes, having a tremendous effect on the organization's performance. From this viewpoint, Leonard Barton (1995) asserts that even knowledge is highly resistant to change when it becomes embedded within the organization and this should be underlined because those features of embeddedness expressed by the social systems of an organization are hard to be modified and, as an extreme solution, they may require complete demolition.

A few case studies suggest that the contrast between institutional continuity and organizational learning isn't absolute, but, as stated by Pettigrew (1985) and later by Child and Smith (1987), a successful and definitive change could be linked to the preservation of various continuity factors. The unusual coincidence of continuity and transformation becomes legitimate due to the need for safeguarding acknowledged practices, a fact that may increase the reliability of change among those who have to handle it. The discussed combination of continuity and transformation safeguards especially tacit knowledge that could be rebuilt with difficulty in the organizational learning process, because it resists codification, considering that the bearers of such knowledge are often unwilling to share it. As argued by March (1991), knowledge acquired from the "exploitation of old certainties" can play a very important role in organizational learning as "the exploration of new possibilities".

We can better understand this assertion if, for instance, we refer to Toyota's experience: its methods of "lean production" are based on the organizational legacies from loom manufacturing (Fear 2001). Apparently there aren't any evident connections between the production of automobiles and the manufacturing of automatic looms, but actually both histories are linked by a set of routines and the transmission of organizational values. Sakichi Toyoda, founder of the Toyoda Automatic Looms Company, always supported his son Kiichiro's passion for automobiles, granting him money and space in his factory, until the Toyota Motor Company was finally founded in 1937. The attitude towards production was a true legacy that was expressed by the application of the "just in time" principle, in order to reduce waste, optimize inventory and be flexible enough to accomplish different tasks. After the Second World War, Kiichiro's ideas had a second life, when Taiichi Ohno, from Toyoda Spinning and Weaving, decided to make use of the basic working principle of Toyoda's loom production and applied it to automobile production, based on the assembly line. "Just in time" was the founding principle he had recalled from Kiichiro's experience and he put it into practice introducing a sign-board which specified the exact quantity of every single part required at every station of the assembly line. This change allowed a better inventory management and later in the 1970s it was expanded to all Toyota's subcontractors, despite their resistance. Therefore, production routines and corporate values were passed on through generations: although there aren't any doubts about the considerable differences between loom manufacturing and automobile production, we can surely admit that the legacy was expressed by a positive set of organizational values, routines and experiences which moulded the future of the company. Of course, the learning process wasn't easy or effortless over the years and it required much work to achieve success: but, it was thanks to the transmission of knowledge, in terms of values and routines, from past to present, that the company managed to bypass the discontinuities between textiles and automobiles and fill the gap between first and second industrial revolution. Scholars, when discussing path dependency, are inclined to assert that businesses are blocked within definite patterns, but we mustn't underestimate the fact that the past can enclose future all-purpose applications.

3.4 Conflict, Identity and Organizational Learning

Family firms are "fertile environment for conflict," which results "from the dominant presence of the family, setting the rules and having ultimate power, the lack of formalized systems and structures to deal with conflict. . . and the commingling of business and family roles" (Harvey and Evans 1994, p. 345). As Rothman (1997) suggests, conflicts regard the articulation and confrontation of individual and collective identities. They are generated by worries, ambitions, needs, fears and can be explicated and discussed according to interests and resources, but they specially imply personal and general aims and expression of self.

Family firms are subject to marital conflicts, sibling antagonism, and children's ambition to be different from their parents (Kellermanns and Eddleston 2004). Thus, family contrasts originated by family members themselves become a peculiar feature of family firms (Sorenson 1999; Eddleston and Kellermanns 2007; Zahra et al. 2007; Jehn 1995). If we compare them to non-family firms, there is a higher possibility that family businesses will experience long-term conflicts among their members (Morris et al. 1997).

Conflicts are viewed as unproductive since they generate tension, irritation, suspicion and resentment among organizational members. Conflicts can be dangerous because they can be destructive, but they also give considerable chances of learning, adaptation and growth.

Conflicts are positive when the various actors manage to clarify their needs, understanding what dissatisfies them. Identity conflicts have to be viewed also in a positive way for their formative value: in fact, they shape the sense of self of individuals and groups.

Identity theory defines one's identity as the "parts of a self composed of the meanings that persons attach to the multiple roles they typically play in highly differentiated contemporary societies" (Stryker and Burke 2000, p. 284). Identity theory is built around the concept of roles and the process of identification with multiple roles, and it suggests that when a particular role is activated, individuals act to fulfill the expectations associated with the role (Stets and Burke 2000; Straub et al. 1997; Stryker 1968, 1980).

Following this reasoning, individuals will attempt to enforce prominent identities by acting in ways that highlight their position within the pertinent social structure and by showing behaviours that comply with the expectations others have of somebody who occupies that peculiar position (Stryker and Serpe 1994).

Social identity theory defines one's social identity as "that part of an individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership" (Tajfel 1978, p. 63).

Social identity theory indicates that individuals tend to enclose themselves in categories based on group identities: this compels them to highlight the similarities between themselves and other group members (the in-group) and the differences between themselves and non-group members (the out-group; Ashforth and Mael 1989).

Identity and social identity theorists suggest that answers to such questions as "Who am I?" "How is my identity related to other entities?" and "What is my role?" (or "What are my roles?") provide individuals with a sense of self and a sense of one's self in relation to other individuals or collectives (Ashforth et al. 2008; Stets and Burke 2000).

Under the identity frame, conflicts are determined by menaces to fundamental human needs, such as control, safety, efficacy, recognition, dignity and purpose. In the identity frame under discussion, conflicts are considered as occasions to get working with the aim of learning and development.[5] Therefore, conflicts in family firms aren't generally considered as problems awaiting a solution.

Considering that individuals in family firms hold various positions (for instance, owner, family member, manager, employee), we could assume that family firms are more stimulated to guarantee the particular satisfaction of the related individual and groups. Family entrepreneurs are more likely to be socially responsible, because they frequently consider their firms as an extension of themselves and their families, and therefore they tend to satisfy societal individuals and groups: this is even more effective because family members cannot easily change groups or organizations (Dyer and Whetten 2006).

Different cognitive, affective and behavioural outcomes have been influenced by individuals' sense of identification with roles (identity theory) and groups (social identity theory) (Ashforth et al. 2008).

Moreover, it is important to underline the nature of the social models that may be forwarded by the founder within the family organization. As social psychology teaches us, the agent's motivation in a firm is closely connected to the relevance social models assign to task engagement, supportive problem solving, honesty and sincerity. These attitudes can keep under control contrasts within the group and also individual dissatisfaction (Mullen and Goethals 1987).

During the firm's early years, all employees report directly to the founder, so the firm's social dynamics are still very natural. This is because the informal nature of relations among family members is often transferred to the firm and it nurtures engagement, leading everyone to identify with the founder's dream. Furthermore, during this phase, the family often supplies the firm with honest and reliable manpower. Nonetheless, when years go by and the business becomes more mature, generating more variegated organizational forms, the institutional overlap between family and firm starts to create conflicts in the organization. In particular, these conflicts appear as normative contradictions between what individuals are expected to do in terms of family principles and what instead they should do according to business principles (Lansberg 1983).

Succession must be considered as a continuing process and not a one-time event.[6] The process of succession becomes even more complicated because the leader needs to use pre-existing and new strategic inputs and relationships so the organization can comply with performance expectations (Habbershon and Williams 1999).

For succession to go ahead, the process must satisfy not only the incumbent and the successor, but also the other family members, such as the siblings (Sharma et al. 2003). And if family members in the same generation are numerous, everyone's needs should be taken into account. Thus, researchers have advanced the idea that family leaders in multigenerational firms must undertake processes in order to moderate this conflict.[7]

The identity frame[8] concentrates on the process of engaging conflict rather than simply reaching a particular settlement. The work on the psychological dynamics of conflicts among people and groups, as inspired by Lewin (1948) and Bion (1961), underlies the identity frame of conflict in the organizational context: it fundamentally concentrates on the interrelation between interpersonal conflicts and organizational processes. Studies of participation and sociotechnical systems have indicated beforehand the fact that identity covers a central position in organizational conflicts.[9]

Stavrou (2003) availed himself of a psychological approach to the interpretation of succession among owner-managed enterprises, taking into account Jung's[10] original ideas of introversion and extraversion, in order to prove that family businesses show an extraverted attitude during succession. This means that, according to Stavrou, when leadership succession occurs, the business (the subject) considers fundamental the values and beliefs of an external source, precisely the family (the object), over its own needs. Thus, in family business succession decisions are hard to make and the complexities of family dynamics, which do not exist in non-family-owned businesses, magnify such difficulty (Kuratko et al. 1993). Finding a successor is not only an issue bounded, for instance, to the choice of a person with the most appropriate work history and skills, but also further complicated by family membership and expectations (Brown and Coverley 1999).

Incumbents in family firms shouldn't only consider conflict in the view of settling disputes, but they should consider it as a way of learning and understanding themselves and the people they deal with. Thus, it is easy to realize how the identity frame of conflict helps to understand what organizational learning means: you don't need to concentrate on the solution of the conflict, but you have to consider the conflict as a chance for double-loop learning.

Conflict is dynamic; it proves a constant evolution in understanding reality, acquired by personal interaction, discussing alternative viewpoints.[11] Therefore, conflict is a constant process that involves the continuous solution of problems that arise.[12]

But how can learning be directed the desired way while guaranteeing in the meantime the "repatriation" of different experiences? How can diversity be encouraged while maintaining consistency? How can family members be stimulated to follow a process of error discovering, to accomplish new tasks to assess their outcomes and use them extensively?

While single-loop learning concentrates on changing strategies, double-loop learning investigates the most important values, aims and needs that are beneath those strategies.

Every actor must investigate the reasons why his values and needs are so fundamental. The identity frame doesn't concentrate on the negotiation aspect; investigation overcomes collaboration, encouraging the process described by Nonaka and Takeuchi (1995) as the "rhythms of divergence and convergence". The identity frame doesn't merely focus on the aim of reaching a solution, but the conflict engagement is considered a dialectical opportunity of organizational learning. Agreements are obtained through investigation and important changes in thinking. When conflict is considered basically in terms of resources, needs or interests, the various actors are bound to work round compromises, as a way of mediating, but, as highlighted by Child and Heavens (2001), these agreements will be limited by the idea the organization members have, referring to what can be done or is allowed within the institutional context. In this case, there will be only single-loop learning. The identity frame represents a serious approach to conflict which overcomes single-loop learning, because it concentrates on the fact that the various actors (family members) have to understand and discuss the meanings of their needs and interests.

3.5 Success, Failure and Organizational Learning

Following Levinthal and March's (1993) approach, we can affirm that definite limits to rule-based learning exist. Organizational learning is truly difficult and only at times leads to success: in fact, the same mechanisms of rule-based learning that drive enhancement could even be destructive. Furthermore, an interference between the effectiveness of learning in the short run and learning in the long run has been proved.

If we refer to the concept of "competency trap" we can better understand the idea of limited learning. The process begins from the proclivity of successful organizations to amass surplus resources, considering such accumulation as a sort of insurance against potential adverse external events, but this attitude may cause internal malfunctioning. Often managers are inclined to repeat activities that have led to success and apply a standard programme, based on the reiteration of those activities, in order to achieve a good performance on the whole. This behaviour reduces the organization's reaction to change in the external environment, because the management's answer is always based on the mere application of the recipe it has elaborated and carried on following the well-known routines; and in so doing managers create a sort of circle, in which they gain experience by applying the usual programme, become more competent, and the result of such competence is success that produces higher competence. But such improvement is around a set type of technology and the relative programmes and prevents managers trying out different ways, because they are fossilized in their competencies. The fine double-way interrelation between programming and success is especially valid in the short run. It is hard to avoid the competency trap, because managers tend to follow their routines too long, making the possibility of searching new ways less comfortable and sure.

The problem is that when change happens and can't be avoided, organizations are unprepared and their reactions are obsolete: so we can definitely affirm that the competency trap which originates from organizational learning can lead to self destruction. Moreover, we realize how often it happens that a certain standard behaviour is followed, although there is a valid alternative that could produce better results, if only the situation was evaluated more critically; and within an organization this could result in habits that are highly out of line with specific conditions. Sometimes people develop such a mental block that it is difficult for them to move away from it, even when the circumstances certainly require it. Another effect of this type of behaviour is the fact that organizations aren't able to respond rapidly to changes. Programmes have a certain margin of tolerance and they aren't modified if changes move within this range and, even when relevant changes apply, reaction isn't necessary immediately, because the organization tends to adjust old programmes. This procedure takes time, because it is based on the need for testing the old programmes and verifying if they are still adequate. Only when the testing is unsuccessful the old programmes are abandoned and new ones are inserted.

Competency traps can be avoided by focusing on experimentation and its rewarding: successful results must be highly recognized, while mistakes mustn't be penalizing for the organization members. It is necessary to readdress aspirations to performance, and when the absolute difference between them increases, experimentation is more probable. Generally the difference is quite modest and exploration is reduced to a gradual improvement of the organization's rules. Instead, if aspirations are still or change very slowly, the difference between performance and aspirations can be considerable and it would lead to more substantial experimentation. Thus, if organizational aspirations slow down, exploration can be further supported. Another way of avoiding the negative effects of competency traps is to create visions or ideologies that are means of interpreting experience. New ideologies promote exploration because they change mental models, but success doesn't mean that organizational leaks are automatically identified. The behavioural theory approach allows us to summarize that success leading to slack resources makes managers stronger against external events, improves their self-confidence, increases exploration, enhances performance and sometimes raises risk taking; but, generally, success hinders experimentation and, as Nystrom and Starbuck (1984) affirm, it would be better if the organizations unlearnt old routines on a regular basis to avoid fighting to discover new procedures when necessary.

In case of failure, organizations are inclined to apply stricter controls, avoid risk taking and centralize power, trying to avert those rules responsible for it. Therefore, the organization becomes stiffer and members more competitive, while conflicts rise and fears propagate; managers are blocked while the crisis enlarges itself: failure creates failure in a vicious circle. The "failure trap" can also be originated by a too narrow search for change driven by the failure, basically concentrated on efficiency improvement by using the old procedures. And even an organization in which routines are heavily changed often has the problem of taking advantage of the results of its exploration, because it hasn't got enough time or strength. The vicious circle reappears: failure produces search and change, which in turn produce failure

again and so on. According to Levinthal and March (1993), three features of organizational life are at the base of this outcome: most new ideas are bad and most innovations are not rewarded; even successful innovations perform well only when organization members have acquired sufficient user experience; downward adaptation of aspirations is slower than upward adaptation and they express a notable optimistic trend. But the failure trap can even be interrupted. Failure may cause search and change and this may lead to the discovery of an incredibly valid alternative that could revive the organization. Normally, then, success tends to reduce search and enhance the application of standard routines, while failure tends to increase search and put the old rules into discussion. Opposite directions can be followed, but a particular effort is required. Improvements are induced but also limited by the same learning process.

An interesting case study is Thyssen, the famous steel manufacturer, which actually bears a considerable discontinuity level, while apparently it follows continuity lines.

To understand this assertion we have to recall the company's history, starting from when Thyssen, after making treasure of his previous experience in the field at Thyssen & Co., in 1891 established GDK, Gewerkschaft Deutscher Kaiser, precursor of the present Thyssen AG, having decided to operate on a larger scale in the steel sector. But, at least initially, the experience wasn't profitable and Thyssen had to turn to external advisers in order to understand the reasons for such failure. According to the experts, the causes had to be found in the disorganization of the plant and in the fact that the market demanded a different type of steel. The serious mistake Thyssen and his managers had made was the mere transfer of the production model from Thyssen & Co. to GDK, which turned out to be inadequate for the new market conditions. Thus, Thyssen accepted the critiques, changed strategy and finally his company became one of the most successful in its sector.

Following Fear's (2001) analysis, we conclude that this case proves how a previous successful experience can't be put forward automatically; if market conditions change and only if we realize in time we can respond properly and avoid failure.

If we just skim the surface, Thyssen's history seems quite continuous, but if we look in depth discontinuity strikes. Actually we must affirm that Thyssen AG's history starts with GDK and not with Thyssen & Co., but we must admit that the shift to GDK was fundamental and definitely changed old procedural behaviour.

It is essential for an organization to adjust to environmental changes, so expediting organizational learning is an important aspect of leadership: this clearly outlines the connection between the study of organizational learning processes and the study of leadership. To better understand the leader's role we refer to the example suggested by Milmer and Sadler (1993), who examined the role of George Fisher, Chairman of Motorola, in solving an important strategic problem by applying organizational learning: in the 1980s, Motorola's core skills lay in the mechanical engineering field, while nowadays its ability is mainly writing software. The shift wasn't easy, because engineers couldn't be converted to programmers due to a different type of training and mental make-up; so the only possibility was to move to the labour market and search for talented professionals, but the company had

to face two problems: top-skilled qualified programmers who could write software specific to telecommunications were few and most of them worked for rival companies, which had moved earlier. Fisher managed to solve this problem by redefining Motorola's top-executive development programme, applying Revan's model, which focuses on organizational learning from the concrete problems a firm has to handle, in order to find effective solutions and put them into practice. The aim was to create an appealing environment that could be attractive to high-skilled software professionals and Fisher was out in front when he started up the programme in 1991, by inviting 25 high-level executives and addressing them to specific goals, such as understanding what could be the ideal environment for a programmer, elaborating a plan for realizing it and following the consequent process; but, above all, learning the modalities by which changes are made and reporting them, in order to leave an organizational legacy.

Case Study: The L'Oréal Group and "My Learning" Program

The L'Oréal Group is the world leader in beauty and cosmetics and focuses on hair care and colour, make-up, perfumes, skin care and sun protection; it is also active in the dermatological and pharmaceutical fields and is the top nanotechnology patent holder in the USA. Its headquarters are located in France, in the Paris suburb of Clichy, Hauts-de-Seine.

L'Oréal is quoted on the stock exchange, but only 36.4% of the shares are publicly traded, while the rest, apart from a residual 3.2% represented by treasury shares, is controlled by the founder's daughter Liliane Bettencourt (30.8%) and Nestlé, the famous multinational corporation (29.6%).

Retracing the origins of the company, we go back to 1907, when Eugène Schueller, a young French chemist, created an original hair dye, called Auréole. Schueller developed and produced his own innovative hair-colour products, which were sold to hairdressers in Paris.

Two years later, Schueller officially established his company, which was registered as the "Société Française de Teintures Inoffensives pour Cheveux", that literally means "French Society for Inoffensive Hair Dyes", and represents the original L'Oréal, the company that would soon become the most important in its industry.

Eugène Schueller was basically a chemist and a researcher, but he was also an inventor, a person who had a clear vision of the future, and, above all, was definitely able to understand the consumers' needs and create products that were in line with their expectations. Over one century has passed since the company was established and the small family business has become the world's leading beauty and cosmetics company present in 62 countries with over 67,000 employees, while its products are distributed in 130 countries.

L'Oréal's mission is to help everyone, man or woman, to realize their own aspiration to beauty and well-being and express in a complete way their individual

personalities. Such an aim is achieved by creating innovative and high performance cosmetics.

L'Oréal's success formula is DIVERSITY + INCLUSION = INNOVATION AND SUCCESS, and it is reinforced by the belief and commitment to a sustainable workforce, workplace, and marketplace.

The fundamental ingredients in this formula are employees, consumers and business partners.

L'Oréal strongly believes in the importance of research, in which it invests 3.3% of its consolidated sales (over 560 million euro); 3,268 employees from 60 countries work in the 18 R&D centres worldwide and the 13 evaluation centres, which cover over 30 different disciplines and generate more than 500 new patents every year. The main R&D centres are located in Aulnay and Chevilly, France; one in Clark, New Jersey, USA; another in Kawasaki, Kanagawa Prefecture, Japan; and the last of our list was established in Shanghai, China, in 2005. L'Oréal plans to inaugurate its next R&D centre in Berkeley Heights, New Jersey, USA.

L'Oréal is one of the most technologically advanced companies in the world and produces and supplies 4.6 billion units to the whole world every year. L'Oréal owns 42 cosmetic factories and 150 distribution centres worldwide, which employ 4,000 managers and a total of 20,000 employees. The work environment in L'Oréal Operations is innovative, high powered, challenging and diverse, and it offers the possibility of cross-functional careers in manufacturing, supply chain and operational product development. L'Oréal Operations is engaged in continuous improvement, people development, safety, quality and sustainability.

The company has strong brands which are part of a unique and diverse portfolio, which responds to various consumer needs and helps to create well-recognized products. The potential of every single brand is maximized by each division of L'Oréal: this builds up every day a more intimate and stronger relationship between L'Oréal's 25 international brands and an always increasing number of consumers with different needs.

Every year 500 new products are launched in the market by L'Oréal, which is a real leader for its highly creative process that begins from product development and reaches the brand portfolio management. The company operates in a strongly competitive, highly charged, multicultural environment, in which personality and passion are fundamental. The key idea is to be first to market in order to beat competitors and this aim is achieved by identifying and analyzing new consumer trends, focusing on the single brand and its competitors, and above all elaborating a strategic vision so as to achieve the specific goals for the brand.

Information systems and technology (IS/IT) are fundamental for L'Oréal's decision-making process and are essential for its operational and strategic performance. IS/IT managers and their teams have the task of understanding business needs and translating them into day-to-day technology, in order to sustain L'Oréal's growth. The company is engaged in many and diverse international projects, such as development of web-based and e-business activities, ERP implementation for their business units and factories and advanced technology designing solutions for over 63,000 users.

In fact, the company has recently started an e-learning training scheme for its own employees called "My Learning" program, with the partnership of CERTPOINT Systems™, a leading provider of corporate training solutions.

The "My Learning" program has been conceived to offer a personalized online learning space and optimize the learning experience wherever the employees are located. It is based on several innovative learning tools and methods, such as traditional classroom workshops, on-the-job and online learning, and several others, in order to respond to the different training needs and expectations of all the employees.

Thus, every employee follows his own learning track which is developed on the basis of the technical and managerial competencies suitable for his position. Hence, every employee acquires the knowledge and skills he needs to operate with success in his position and can look at the future with an optimistic advancement perspective. This encourages knowledge transfer within the company; it helps employees orient themselves and allows information to be rapidly and thoroughly spread among employees.

All online activities are managed and delivered through a single platform provided by CERTPOINTVLS, which can be accessed through L'Oréal & Me, the corporation intranet.

All L'Oréal's criteria are satisfied by CERTPOINT Systems: we specifically refer to product quality, global implementation experience, multilingual functionality and ability to offer software as a service (SaaS).

L'Oréal's intent is to propose the learning program to its over 60,000 employees, in 58 countries worldwide, in more than 46 languages.

L'Oréal's leadership in the beauty industry is based on its centenary expertise; in every category, from skin care to hair care, from make-up to hair dyes and perfumes; in every distribution channel, from mass market to hairdressers, from department stores and chemists to the internet; and in almost every country, with only 10% of sales coming from France and a massive 90% from the rest of the world (it is also remarkable that over 50% of the sales comes from outside Europe).

Source: personal research

Case Study. Michelin: Learning to Create Value from Experience Accumulation

Michelin (full name: *SCA Compagnie Générale des Établissements Michelin*, Euronext: ML), based in Clermont-Ferrand in the Auvergne *région* of France, is primarily a tyre manufacturer, currently either the world's second largest or the largest (see below). It is also notable for its Red and Green travel guides, for the Michelin stars that the Red Guide awards to restaurants for their cooking, for its road maps, and for its emblem, the Michelin Man.

The tyre manufacturing subsidiary is officially called *Manufacture Française des Pneumatiques Michelin*, "Michelin tyre manufacturing company of France". The company headquarters is in Clermont-Ferrand, 424 km south of Paris, France. In addition to the Michelin brand, it also owns the B.F. Goodrich, Taurus, Kormoran and Uniroyal (except in Australia) tyre brands.

Michelin is currently ranked first in the global tyre market, with Bridgestone second, Goodyear third, and Continental and Pirelli fourth and fifth, respectively.

A significant example of how an organization can create value for its shareholders is represented by the establishment of Sino-French joint ventures in China, promoted by Michelin, the famous French tire company.

Following Meschi's analysis (Meschi 2004), we will specifically consider three joint ventures in which Michelin was involved during the period 1994–2002. The first, called "Michelin Shen Yang Tire", was announced on 19 December, 1995 and it joined Michelin that held 90% of the capital, with Shen Yang, holder of the remaining 10%. The second, named "Shangai Michelin Warrior Tire", which had the intent of producing radial tires, was announced on 8 February, 2001: in this joint venture Michelin held 70% of the capital, while Shangai Tire and Rubber held the remainder. The third and last associated Michelin with Huili Tire with the intent of producing high-end tires and was announced on 19 April, 2001: in this case, Michelin held 30% of the capital.

If we analyze Fig. 3.1, which represents categories of alliance experience (CAR), over a period from three days prior to 3 days after the announcement of the joint ventures, we will immediately realize that, in the case of Michelin, there is a sort of "stock market experience effect", when managing international alliances, especially Chinese.

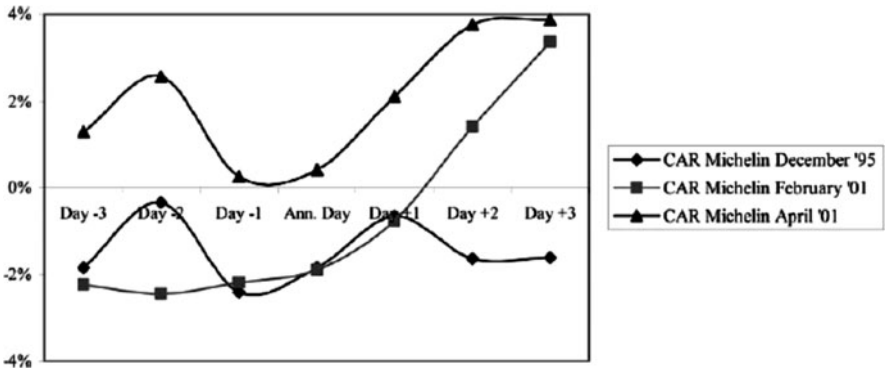

Fig. 3.1 Experience effect and stock market valuation of Michelin. *Source*: Meschi (2004)

The starting point was represented by an evident stock market depreciation (Fig. 3.1), but, when every single joint venture was announced, a strong and constant progression occurred.

This outcome was due to the fact that the stock market understood that Michelin had developed the skill of managing international alliances in a successful way and this was true besides the value assigned to the company's repeated experience in this field.

The stock market realized that Michelin had more possibilities of being successful, because it held an organizational learning capacity, or at least showed the signs of it: through the various joint ventures it experienced in China, Michelin learnt and acquired managerial practices that would assure success.

Case Study: Samsung's Key Issues for Success

Samsung has been the world's most popular consumer electronics brand since 2005 and is the best known South Korean brand in the world. Samsung Group accounts for more than 20% of South Korea's total exports and is the leader in many domestic industries, such as the financial, chemical, retail and entertainment industries. The company's strong influence in South Korea is visible throughout the nation, which has been referred to as the "Republic of Samsung". Samsung is a leading company in its own business, but, in order to continue being a successful leader and increase its growth prospects, it needs to respond effectively to the new challenges it faces day by day. The Samsung Group is composed of numerous international affiliated businesses, most of them united under the *Samsung* brand including Samsung Electronics, the world's largest electronics company, Samsung Heavy Industries, the world's second largest shipbuilder and Samsung C&T, a major global construction company.

The mobile phone market is highly competitive and the reduction of the entry barriers, together with the so-called digital convergence in devices and services, have already attracted several new competitors, even companies from other industries; as a result, competition has intensified. This is the reason Samsung will need to outline new and more creative strategies, if it desires to continue being a market winner, also considering the present market uncertainty.

Different from Nokia, Samsung pursues a high-end strategy, based on brand building and the application of high prices: in doing so, the company has benefited from high profit margins over the years, but now the question is if such strategy can still be sustained in the future. Nokia has intervened on cost dynamics, maintaining high prices, but spending less on research and development, and marketing. Can Samsung continue endlessly along its well-known route?

As time goes by, the mobile phone market becomes more and more saturated and the only possibility of expansion arrives from the new emerging markets, such as China and India, for instance. However, these markets generally require lower cost cell phones, and Samsung must target the low- and middle-end markets, if it wants to beat Nokia and Motorola, that have already moved far in this direction. And such a goal must be achieved without devaluating Samsung's top brand image.

Apart from this, we must also point out that Samsung doesn't develop its own core technologies, but relies on other companies, such as Qualcomm and several Japanese firms: in fact, most of Samsung's patents are merely on applied technologies. This leads to an increase in costs that carries us in the direction opposite to the one we previously assumed was necessary.

In fact, Samsung's dependence on external modules and core technologies will reduce profitability in the long run and could also pose a threat to its position in the market.

And finally, Samsung needs to focus on the next generation phones, the so-called smart-phones that will be leaders of growth for the industry. Nokia again has been the first mover, shipping already over 5 million devices in 2003, while at that time Samsung was shipping only a few hundred thousand. Convergence will offer great opportunities and cell phones are the perfect platform for a multifunctional system, so the only direction is to comply with this standard and try to be always one move ahead of the direct competitors.

Notes

1. The "context" includes the physical state of equipment, external memories and work environment.
2. The first step of our analysis is the consideration that the macro structure could possibly explain persistence of organizational routines at the level of the micro structure. At the same time, we will consider the influence of political forces which could hinder or promote change. And finally, we will prove that there is space for an intentional emergence of change at the micro level, despite persistence.
3. As stated by Granovetter (1985), actors don't perform outside a social context, but their actions are clearly embedded in it.
4. As debated by Larson (1979), particularly in the Anglo-Saxon societies, professional corporations represent a significant external institutional reference point for certain organizational members, when even the normative framework encourages the adoption of learning practices, which follow the guidelines of the professional associations, instead of those forwarded by the organizational managers.
5. According to Gurevitch (1989), learning arises when the competitors are willing to understand one another, rather than trying to merely apply their mental models on the others. They have to investigate how the reality of every single person and group has been built and learn from it. By perceiving truth and reality the correct way, the conflict isn't a useless fight, but overall it becomes an opportunity for growth and development.
6. In the literature on family business, the way in which succession has been conceptualized and modelled advocates significant research interests over the past decades. For example, some authors propose an approach that involves different groups of actors (Barach and Ganitsky 1995; Cadieux and Lorrain 2003; Le Breton-Miller et al. 2004), while others describe the steps in the organization's life cycle (Barnes and Hershon 1976; Gersick et al. 1999; Holland and Boulton 1984; Holland and Oliver 1992; Murray 2003; Peiser and Wooten 1983) or the interactions that take place between the predecessor and the successor during the process (Churchill and Hatten 1987; Handler 1989; Hugron 1992; Longenecker and Schoen 1978). In all the cases, authors agree that succession occurs over a long period of time. It begins before heirs even enter the firm and then proceeds through the formal nomination of the successor, the transition phase and the actual takeover (Handler 1990; Le Breton-Miller et al. 2004). Regardless of their differences, what all these models show is

that succession is a complex process spread over four different phases – initiation, integration, joint reign and withdrawal – during which the roles of the predecessor and successor evolve in an interdependent way with the ultimate goal of ensuring the firm's survival. In particular, between next-generation entrance and their actual takeover, authors identify several phases during which the next generation moves from a more career "developmental" phase, where knowledge and functional and leadership skills are built, to a "transitional" phase leading to the takeover (Aronoff and Ward 2001; Marchisio 2006).

7. The literature on family business (Churchill and Hatten 1987; Lansberg 1988; McCollom 1990) recognizes the pivotal role played by relationships between different groups of individuals, arguing that bad interpersonal relationships are the cause of potential conflicts that obstruct succession (Kepner 1983; Lansberg 1983; Rosenblatt et al. 1985). The relationships included in this category may be among family members or between family and non-family members.
8. Rothman (1997) declares that the identity frame of conflict for the most part came from attempts to manage very difficult ethnic contrasts, pointing out the importance of human needs in large-scale conflicts and their solution. This approach called analytical or interactive problem-solving approach refers to the small-group dynamics movement and a new vision of making decisions on an international scale: under this viewpoint, conflicts are regarded as caused by threatened needs which must be singled out and explicated before successful settlement and discussion.
9. Emery and Thorsrud (1969), for example, revealed in their studies that the concept of industrial democracy is far from being truly applied: in fact, it is easy to talk about sharing independent power, but this means also a wider sharing of managerial power and this doesn't generally happen. By acquiring independent power, employees are in a stronger negotiating position towards management, but there is a sort of mix-up between independent power and managerial power. The latter requires a deep change in the roles of employees at various levels and overall it implies change in what it means to be a worker or a manager. Boulding discussed relational power, which can be defined as the power with others, not against others. By the recognition of the articulation and assertion of self, conflict offers the chance for reciprocal change and reinforcement. As pointed out by Morrill (1995), managers and researchers of organizational conflict are taking into serious consideration the identity frame. The expression "conflict management" was used by Morrill (1995) to define a process by which individuals and groups forge and change their personal and social identities and impact their relational power. Nonetheless, we prefer referring to "conflict engagement", because the process overcomes collaboration and settlement of the disputes.
10. According to Carl Jung, introversion and extraversion refer to the direction of psychic energy. If a person's psychic energy usually flows outwards, then he or she is an extravert, while if the energy usually flows inwards, the person is an introvert. Extraverts feel an increase of perceived energy when interacting with a large group of people, but a decrease of energy when left alone. Conversely, introverts feel an increase of energy when alone, but a decrease of energy when surrounded by a large group of people.
11. As Rothman states (1997), conflict engagement means creating "reflexive dialogue", in which all the actors talk to their antagonists, in order to highlight their needs and values, in an active way, questioning themselves about the reasons of their importance and aiming directly to change both on individual and collective basis. This dialogue allows everyone to better understand each other and insert conflicts in a frame in which values and aims overlap. This is how rivals may acquire a new perspective and find a way of cooperating, re-establishing their relationships and defining new targets.
12. Eisenhardt et al. (1997) analyzed 12 top management teams and verified that the groups among which substantive conflict, centred on different evaluation of facts and consequent action, was lower were less performing, while the ones among which the conflict was stronger were more performing.

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Chapter 4
Family Business: Leadership and Succession

Maria Rosaria Della Peruta

Abstract Leadership can be defined as the process of influencing the activities of an organized group in its efforts towards goal setting and goal achievement. In family businesses leadership concerns two areas to which every leader addresses its forces: family and firm. How the family business leaders behave is the outcome of the forces exerted by these two areas, both of positive value. Moreover, considering that, in family firms, leadership is more transformational than it is in non-family firms, we can assume that many of the features traditionally assigned to family firms may be the consequence of a similar action and behaviour linked to the idea of transformational leadership that family firm leaders exert. Many of these features, that have been considered strong points by the literature on family firms, are of a cultural nature, and transformational leaders generally have an important part in creating and developing the set of values and all the other elements that describe the culture itself. Besides this, leadership in family business remains transformational regardless of the family generation which runs it.

4.1 Unique Features of Family Business and the Concept of Leadership

Family companies can be surely regarded as one of the engines of the post-industrial economy, considering they have nourished entrepreneurial talents over time, empowered a sense of loyalty to business success, supported long-term strategic commitment and corporate independence.

From the motivational point of view, the fact that the entrepreneurial business conception is shared by the firm members as a cognitive frame, it makes a great difference whether or not people adopt the attitude of contributing to a common goal. Their task perception tends to be framed in such a way that their attention is devoted more to solving problems in the interest of the family firm's goals than to pursuing private short-term inclinations and separate interests.[1]

Indeed, a considerable body of literature and research on family firms has carried out an analysis of the relations between family ownership and corporate governance

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to characterize family firms' particular productivity enhancers and impediments, such as information asymmetries, access to efficient labour market, access to efficient capital markets, importance of social contract-altruism and time horizon.

The objectives of numerous empirical investigations, drawing a great deal of attention from researchers, were to undertake a systematic attempt to combine financial and strategic management perspectives on key controversies surrounding the study of agency problems and performance in family firms. Scholars have argued that the agency model explains firm behaviours and performance (Amihud and Lev 1981, 1999), while others have demonstrated that the absence of conflict between owners and managers agency relationships have little influence on firm decisions (Lane et al. 1998, 1999). In particular, these results induce us to consider that the accumulation of numerous empirical studies has been adding more complexity to the issue rather than clarifying it.

Analyzing unique features of family business,[2] one may find that the concepts break down into the following points.

Strong points of family enterprises are

- knowledge of the business and precocious training in favour of the family members,[3]
- family culture and strong identification, commitment, motivation, continuity in *leadership* performance[4];
- greater independence from the stock market[5] and, consequently, low risk of *takeover*[6];
- longevity;
- major capability of reacting to difficult times, orientation to self-financing;
- major flexibility and rapidity of decisional processes due to the minor bureaucratization of the structure; and
- financial benefits, major possibility of success.

Among the weak points of family firms we can list the following:

- minor access to the capital market which can limit growth opportunities;
- organizational structure characterized by a not well-defined division of the tasks;
- nepotism tolerance towards the family members not able to hold managerial positions,[7] unequal retributive system, more difficulties to attract *professional management*;
- syndrome of the "spoilt child[8]";
- internal struggles, family conflicts transferable to the company;
- paternalistic and autocratic rules, resistance towards change, secrecy;
- financial tensions, imbalance between contributions and rewards; and
- dramatic tensions in generational successions.

Probably the secret of family firms' *long lasting* resides exactly in the capability of transforming weak points into strong points (Kets de Vries 1993a), by investing in

human capital, developing distinctive competences, encouraging long-term investments, following with persistence the *mission*.[9] "I believe that the entrepreneur has to put his soul into the firm, otherwise it's better if he leaves, sells or closes down. If you want to be an entrepreneur and last over time, you have to express values" (our interview to a founder). What values? The ones that contribute to define the *mission*,[10] or the target of the firm.

According to Deal and Kennedy (1982), the values act as an informal control system which reminds people what is expected from them; they accord to values a motivational effectiveness[11] that contributes to give sense and meaning to work, considering that the power of values resides in the attention that people pay towards them. Deal and Kennedy's thesis is strengthened by Pascale and Athos (1981) who highlight the fact that the firm's values (Watson 1963) can become significant targets which bind together the human values and the firm's ones, becoming, thus, the spiritual substrate and, probably, a less-known secret weapon.

The *mission* is strictly connected with the *vision* that represents the preordained condition and is absolutely independent from the target of profit maximization.[12] The values and principles concur in defining "how" you want to operate inside the organization to reach the *vision*.[13] According to Collins and Porras (1996), the union of *mission*, values and principles defines the *core ideology* of the *vision* that is the critical mass that needs to be protected, in which the people who work for the firm identify themselves.

The *vision*, in its turn, represents the synthesis among business aims, *leadership* style and *management*, which characterize the firm in the following n-years. It contains the analysis of the reality that surrounds the firm, a relevant factor especially in the optics of change. The *vision* can't leave out of consideration two requisites: credibility and shareability (Correale and Penco 2002). Therefore, parallel with the need to develop the sense of the mission arises the pledge to transmit it to those who lend their services to the firm, so that the latter can attribute sense and meaning to their work, in accordance with the wished permeation between personal values and those of the firm. It is the duty of the *leader* (Kets de Vries 1993b) to head towards this target.[14] *Leadership* is "a suit able to adapt itself to the build of the subject who wears it" thus showing his/her personality. There isn't any possibility to perpetuate a specific style of *leadership,* considering the blend of inherited factors (which, sometimes, can propose again psychosomatic features leading to the grandparents, rather than the parents) that concur in the definition of the unborn's features. In the 1970s the anthropologist Schirm elaborated the Structogram[15] as a result of enquiries conducted on the character of successful people, in order to highlight common features. Well, the minimum common denominator pointed out by Schirm was the coherence between the *leadership* style and the *leader*'s personality. It really seems that "the suit" has to fit the person who wears it. Schirm identified every *leadership* style with a chromatic dominance:

- the "blue dominance" indicates a person characterized by a strong rationality, by the capability of planning and organizing, a person who wants to get to the bottom of the matter;

- the "red dominance" corresponds to a strong personality, that wants to emerge and takes decisions quickly, oriented to the "here and now";
- the "green dominance" expresses a personality that is characterized by the positivity it transmits, likes to stay with people and people are ready to follow it because they feel an affective link.

It is not possible to arrange hierarchically, in order of effectiveness, the above-mentioned colours, as each one of them results in "winning", according to the type of context in which it is applied.[16] Apart from the "colour", every *leader* must have some indispensable requisites, such as

- *self-awareness*, consciousness of one's own capabilities, and intelligence, and is able to use in the best way these qualities to reach the fixed targets. However this mustn't lead to haughty attitudes[17];
- credibility, the *leader* has to inspire reliability in the people who are interacting with him;
- empathy, he has to have the ability/sensitivity to understand what the others can feel;
- honesty, the authentic *leader* is honest, right and fair towards the others;
- communication, ability of transmitting one's ideas in a clear way;
- *active listening,* that is the ability to listen and understand;
- *vision*, the real *leader* is far-sighted, he focuses on targets and conveys his *vision* to his *team.*

Leader matters. In family business. . .that makes the company better!

4.2 Leadership Styles for Family Business

Leadership is important for business success (Fiedler 1996), and it is essential for family businesses, for three specific reasons. First, family firms may have different goals from the ones publicly owned companies try to achieve, because sometimes their goals are not oriented towards performance, as it happens when the goals of growth and profitability are overcome, as in the case of employing family members (Chua et al. 2003). Second, family businesses are potentially more prone to long-term conflicts, if compared to non-family businesses (Morris et al. 1997). And finally, the importance of leadership succession is greater for family businesses than it is for non-family ones, due to a more tenacious connection to firm survival.

It is possible to distinguish three *leadership* styles.[18] the autocratic style, the democratic style and the delegating style or *laissez faire.* The autocratic style is peculiar to those who are inclined to impose their will taking advantage of their hierarchical position, and simply follow their own instinct, without considering anybody else's opinions. The democratic style is definitely more involving; the *leader*

promotes the participation of his own *team* to solve possible problems; better communication that derives from it encourages the creation of an involving atmosphere, although this approach is more difficult to manage. The *laissez faire* style is characterized by a high level of autonomy in the team compared to the *leader*, who, despite being responsible for the decisions taken, has less importance, considering the fact that the greater amount of information required to take decisions is concentrated in the *team.*

Some scholars have made a further distinction between *transactional leader* and *transformational leader.*[19] the first one is the one who exerts authority receiving in exchange a service; this type of relationship is intended to last until each of the parts achieves something from the other. The resort to a similar figure is useful to reach short-term targets. The *transformational leader* is the authentic *leader,* the one who is able to motivate his team without appealing to favour exchanges, but relying only on his evident moral integrity. Are you born a *leader* or do you become one?[20] You can become one! To be a *leader* nowadays is an imperative. It is, therefore, indispensable to have good starting bases – considering that the *leadership* is a subjective, genetic tendency, something that cannot be taught at school any more than a baseball player learning to throw a ball by reading a book[21] – and provide yourself with innovative instruments, techniques and models to lead your *team* in the best way.

Moreover, if we want to compare them to the more traditional studies of the so-called transactional type leadership, the most recent contributions to the study of leadership can be divided into two specific directions – charismatic leadership and transformational leadership. Considering the first, Conger and Kanungo (1994) have detected a series of behavioural dimensions that can be grouped into three categories:

- continuous orientation towards change;
- formulation of a clear vision for the organization;
- effective commitment to that vision through actions and behaviours.

When exerting charismatic leadership, the interaction between leader and follower is described as a process of transformational influence; this is why some scholars define this type of leadership as a transformational-type leadership (Bass and Avolio 1993). Therefore, as stated by Conger and Kanungo (1994), charismatic and transformational leaderships are not dissimilar leadership styles. As pointed out by Yukl (2002), who closely examined this concept, the possibility of comparing these two types of leadership is prevented by conceptual ambiguity and a lack of consistency in the definitions. Anyway, it is true that recently the main points in favour of the charismatic leadership view have been considered in a new light and have come closer to the transformational leadership approach, and vice versa (Rowold and Heinitz 2007).

Furthermore, according to Bass (1985),[22] charisma should be viewed as a key factor in exerting transformational leadership, but there is no need for a charismatic leader to be transformational. From the point of view of charismatic leadership, our

interest should focus on the leader's perceived behaviour or norms of behaviour (Flynn and Staw 2004), while for the transformational approach, analysis is based more on the type of the leader's influence on his or her followers (Piccolo and Colquitt 2006).

Followers are induced to be creative by the leader. As a consequence, most of the scholars (e.g., Alimo-Metcalfe and Alban-Metcalfe 2001; Wang et al., 2005; Tucker et al., 2006), basing themselves on Bass's three factors (see Note 19), spoke about a fourth factor which they called inspirational motivation, while they defined the charisma factor as idealized influence (Bass and Steidlmeier 1999). Inspirational motivation is nothing but the ability of transformational leaders to kindle enthusiasm, excitement and optimism in the subordinates. These leaders are confident in expressing their clear vision of the future, making things easily understandable, by resorting to symbols that address their followers' efforts, thus making them behave as they truly desire (Yukl 2002). To better understand this idea, we recall an example.

In 1997, during a meeting in California, Richard LeVitt, HP's Director of Quality, expressed his considerations with regard to the origin and direction of HP's corporate quality: at the beginning, HP's basic goal was represented by product results and their reliability. These are essential for the firm, but a better outcome could be achieved by moving the attention towards those processes that introduce the results and finally lead to them. The main issue was to accomplish adequate processes and this level of manager quality was at the centre of the TQM movement in the 1980s. But once all competitors had obtained the proper processes, the problem became one of understanding on what basis competitive advantage would be founded from that point on. The critical factor is the need for managers to think better and act accordingly, with special reference to customers and related experiences. Hence, LeVitt outlined how HP had changed its view from results to processes and from processes to the acts of thought from which those processes were born (Scharmer 2001).

The main aim of a transformational leader is to encourage his followers to work in a long-term perspective, in order to achieve goals in the long run, instead of focusing on immediate single results and to put themselves to test without searching for constant security. Therefore, followers are rewarded internally. By explaining his point of view, the transformational leader is persuasive and assures that his own objectives are understood, accepted and accomplished by his subordinates, who work intensely and are strongly motivated. At this point it is the motivation itself that becomes a sort of self-compensation for the individual (Bass 1985, 1999).

Every family generation has had to face various leadership challenges over time and the four factors of transformational leadership, i.e. charisma, individualized consideration, intellectual stimulation and inspirational motivation, particularly vulnerable to organizational characteristics and behaviours, are not static but they evolve as leadership does in the business and in the family.

Such a pattern results from the combination between the cultural patterns of the business (paternalist, laissez-faire, participative and professional), the family

(patriarchal, collaborative, conflicted) and the governing board (paper or bureaucratic, rubber-stamp, advisory, overseer) (Dyer 1986).

Leaders of family firms should be intensely involved in all these three dimensions, and be fundamentally conscious of the shifting contingencies within each of them. The challenge family firms face is hard, because these areas are interconnected and affect one another; so the consequences could be completely different from one business to another. The aim of recent debates in theory is to explain not only the differences in the modalities by which firms approach and understand their situation, but also the various points in common that arise in the types of situations they face and the definite consequences they produce on their leaders.

It is important that, for every family generation, advisors and consultants are capable of promoting and developing the factors of transformational leadership. In this manner, the charisma and individualized consideration factors become, for the founding generation of leadership, the key factors to induce others to believe in it. During the sibling generation leadership, practitioners should aim at the positive effects of transformational leadership on group cohesion, in order to make the leadership direct itself to a team view.

A higher level of cohesion, as well as a greater group consciousness,[23] can be obtained by transformational leaders among members of the workforce (Dionne et al. 2004; Pillai and Williams 2004), and they have a higher direct impact on profit than the one transactional leaders can achieve (Rowold and Heinitz 2007).

4.3 Succession Management in the Family Business and Leadership

Leadership is a social process: the process involves interaction between actors who are both leaders and followers. This interaction leads to the creation of a relationship between leaders and followers related to a two-way process of influence for family business succession.

Succession, by definition, implies the substitution of the founder or the incumbent management (Chrisman et al. 2003). The succession process has been described by Handler (1990) as a mutual role adjustment between the members of the incumbent and those of successor generations. Naturally, in such process, reciprocal respect and awareness between the generations are fundamental. The growth and development of the successor in family businesses follows a series of steps or milestones (Longenecker and Schoen 1978). And, to become a successful leader, the successor must be completely engaged in the succession process (Barach and Gantisky 1995).[24]

The succession process in family firms has the purpose of ensuring competent family leadership across generations (Le Breton-Miller et al. 2004). The process includes changes both at the management level (Alcorn 1982), which involve the CEO and top management succession (Le Breton-Miller et al. 2004), and at the ownership level (Barry 1975).

Family business succession has been defined as the passing of the leadership baton from the founder-owner or incumbent-owner to a successor, who will either be a family member or a non-family member, that is, a professional manager (Beckhard and Dyer 1983).[25] Thus, the process of succession planning involves all the actions and organizational mechanisms by which the leadership of the firm, and sometimes the ownership, as well, is transferred (Le Breton-Miller et al. 2003).

For the success of the process, important changes are needed: they involve the legal transfer of property, which concerns the law, and the management decision for authority transfer, which concerns power structures and interactions among family business decision team members.

The founder or incumbent leader takes charge of the continuity of the family business because he/she must have the desire to transfer the business to the next generation (Barnes and Hershon 1989). The fundamental relationship between the successor and the incumbent in the business must be supported by the entire family. Siblings should be addressed and find a common agreement, either inside or outside the management of the firm (Handler 1990). The establishment of a positive relationship between successor and incumbent is truly important even before the successor enters the family firm.[26]

Disputes are normal among leaders in family firms, but it is essential that a good working relationship takes place during the transfer phase between the predecessor and the successor (Cabrera-Suarez et al. 2001). The incumbent must be willing to leave the reins of the business (Dyer 1986) and he must delegate responsibility and allow the successor to make decisions and mistakes (Handler 1990). Some incumbents do not want to train their successors, turning to a type of undermining behaviour, while some are just envious of their children (Morris et al. 1997). Some first-generation leaders only try to discover faults in their successors in order to find a justification to dismiss them (Lansberg 1988).

A relevant issue is considered to be the "generational shadow" cast by the founder (Davis and Harveston 2001; Levinson 1971). In this case, the founder maintains an important role in the business, even when he should have set himself apart, after handing over the firm to his successor. This could even cause an upheaval within the firm, because his involvement is absolutely tactless. Of course the previous leader may continue advising and intervening when he thinks it is needed and this can surely have a positive effect on family business management, but the concept of generational shadow relates to only harmful intervention. In their research, Davis and Harveston (2001) discovered that the generational shadow of the founder is a fundamental cause which determined the rise of conflict in second-generation family firms as compared to that of first-generation firms.

Thus, in multigenerational firms the need for promoting processes by which family leaders reduce such conflict arises.

The process has various outcomes, most obviously, not only the achievement of the organization's goals but also such intermediate consequences as the commitment of family/non-family member to organizations and their objectives, the enhancement of group cohesion and the reinforcement or changing of organizational culture.[27]

Thus, the process of family business succession cannot be reduced to a single event, but consists in a series of events, that occur over a long time, perhaps even 20 years (Handler 1994). Family firm leaders are often worried about the continuity of the business in the long run (Miller et al. 2008). Contrary to what happens to the managers in publicly held companies, family firm leaders own the business, so they can easily manage their own timetables and don't have to come to terms with external stakeholders. Managers in publicly owned businesses have to respond immediately to the pressures from the stakeholders and produce visible results in the short run.

More importantly, there is substantial evidence that strategic vision and social responsibility of owner-managers in family firms determine strong differences from the ethical behaviour of other appointed CEOs from widely held firms who might adhere to their utility maximization over a relatively shorter period of time (Bartholomeusz and Tanewski 2006).

On the contrary, family firm leaders can easily achieve goals which differ from short-term profit maximization (Chua et al. 2003).

In family businesses, long-term orientation is linked to the desire of the first generation to pass on the baton to the second generation; the standards of conducts of leaders and their family members intend to maximise the long-term wealth of family business that can be passed on to subsequent generations with family reputation.[28] Of course family firm leaders may desire to achieve different goals such as, for instance, developing a start-up company they are willing to sell in the future to another firm that is already present in the same industry or a related one, but the majority of them would like to maintain their businesses under the control of their families.[29]

4.4 Succession, Leadership and Gender Issues

Previous research has essentially focused on the relationship between father and son (Davis and Tagiuri 1991; Dumas 1989), but only in recent times scholars have begun to analyze the transfer of family business management from father to daughter (Brockhaus 2004). Statistics show that the number of women working continues to increase[30] (Dumas 1989; Francis 1999; Gillis-Donovan and Moynihan-Bradt 1990; Salganicoff 1990) and this trend is also true for family businesses (Bowman-Upton and Sexton 1987; Dumas 1989; Salganicoff 1990). At the same time, literature concerning the differences between men and women, in terms of thinking, communicating, problem solving, leading, has increased.

Popular literature and some earlier social science research had prepared the researchers to expect to find a distinctive feminine style of leadership that, in comparison with men's style of leadership, would be characterized by greater willingness to listen, greater empathy and orientation to people, and less aggressiveness in the pursuit of goals. Morrison et al. (1987) compared derailed and successful women executives using McCall and Lombardo's (1983) methodology. The results

closely paralleled the earlier findings with men. This study suggests that although there may be some differences, the dynamics of derailment are similar for male and female managers. However, Morrison et al. did not find any significant differences between men's and women's styles. It is not clear just how conclusive these findings are. According to Hooijberg and DiTomaso (1996), who have summarized the main research findings on differences in leadership style between men and women, a number of researchers have found little dissimilarity.

Others, however, have found differences. In particular, Rosener (1995), in examining the ways men and women exert leadership, discovered that men use a strong authoritative and hierarchical style, while women avail themselves of a more interactive and participatory style. Rosener's research pointed out that women leaders promote participation and share information more than male leaders. Danes et al. (2005) stimulated family business owners to exploit gendered differences in discourse styles in order to maximize positive results by changing the differences into assets rather than considering them as liabilities. In fact, by regarding them as assets, Francis (1999) pointed out that the most successful leadership style is the one that uses the strengths of the leader and focuses on the needs of the group.

In one of the few studies on management transfer from father to daughter, Dumas (1992) realized that only after a crisis had happened daughters were regarded as managers.

A traditional view of the role of women in family business is based on observations that women are mostly passive and distant when companies are doing well but they start to intervene in management when corporate performance begins to deteriorate and reaches an unacceptable level. The notion that women remain passive until there is a crisis implies that female members of family firms are like "firefighters" who sit around and wait for a fire before going into action. In order to understand the prevailing relevance of this traditional role of women, it is important to consider that the introduction of a daughter into the family business caused a change in identities and roles, and this generated unrest and strain, because traditional identities and roles were called into question. Recent studies on the role and action of women have revealed that work done by daughters is more active and comprehensive than the traditional view suggests. It has become obvious that crisis and failure are not the only conditions under which women act on and influence development. In the long run, the daughters learnt to work in an interdependent and collaborative way with their fathers, achieving positive outcomes. According to Dumas, this ability based on interdependence and collaboration contrasts with the often competitive complete interdependence of father-son transitions.

The role of the wife or mother in transition was often important, even when she was inactive in the family business, because she was considered a guardian of the family values and a binding agent between the family members themselves and between the family and the business.

The prevalence of the transnational type of leadership (based on mechanisms bound to economic rewards), also in the field of the organizational theories, emphasizes the strong points of a transformational (or interactive) leadership more suitable

for a female vision, that rewards mechanisms which enhance relationships, sense of responsibility and belonging, sharing of strategic vision.

Let's just examine the theory of social identity (see Chapter 3) and self-categorization: it postulates that the social groups with which an individual identifies himself/herself fundamentally determine many aspects of his/her way of thinking, feeling and behaving (Hogg and Abrams 1999; Jiatao-Li and Pillutla 2002; Turner 1985), and, of course, group cohesion (Smith et al. 1999). Thus, as a consequence of the identification with the values of the family culture expressed by the transformational leadership exerted by the owning family, we can conclude that a relation between that leadership and the level of cohesion in the firm as a group is evident. Furthermore, cohesion can be stimulated by the leaders, by inducing the members to be cordial, harmonious and enthusiastic, or by simply presenting themselves as identification models (Piper et al. 1983), which is probably something a transformational leader can do in a successful manner.

Therefore, to intercept the phenomena we examined above, we suggest a concept of leadership linked to the female social action, defined as innovative female leadership. The concept of innovative leadership is based on the one of transformational leadership that also introduces the proclivity of women to change and innovate, not only the leadership style, but also the type of vision, culture, values to which it refers to and the way of steering the relationship between enterprise and external world.

Mutatis mutandis, referring to this last point, we often talk about entrepreneurial leadership or female "entrepreneurial dimension of leadership", giving credit to women for their ability of developing relationships (network), detecting and exploiting new market niches, especially in certain industries, and for specific social needs.

Therefore, women entrepreneurs are a trait-d'union among different generations, both in regard to the enterprises they manage and the families in which they live.

Moreover, Fenweck adds that the cultural and biological difference leads women to some peculiar behaviours in the working field. Women continuously call themselves into question, reinventing their roles and personality; they also show a strong orientation towards ethics, environment and cooperation. And, above all, in a market with a redundant offer, a women manager establishes relationships, solves conflicts, increases cohesion and internal participation within organizations and enhances communicational flows.

Danes and Morgan (2004) pointed out that women in family businesses have often provided a barometer of the relational dynamics among family members, representing one of the strengths they add to team building. The whole decision team must be involved in obtaining the information and must interact as a group, with the individuals being allowed to confirm or refute the group interaction data, otherwise biased information may be achieved.

Thus, the managers receive more consensus within the organization, promote cooperation and show a marked orientation towards relationships (Walh 2001). Besides the fact that they are able to better manage important changes, the presence of a female figure in the firm's board is appropriate in order to be always competitive in the current global market.

Case Study. Olivetti S. p. a.: Leadership in Crisis

Camillo Olivetti, a brilliant man gifted with a bright and original mind, established "Italy's first typewriter factory", Olivetti S.A.S., in Ivrea in 1908. During his trips to the USA, he had come across the typewriter and had been literally struck by it: this new machine was already well known in the USA, while it had not been discovered in Italy yet. Olivetti seized the opportunity, raised a small capital fund of 350,000 liras and opened in Ivrea his own typewriter factory, the first in the country, which employed 20 workers.

In 1911, the first Italian typewriter, the Olivetti M1 (Fig. 4.1), was exhibited at the Turin Universal Exposition. The M1 did not offer significant improvements compared to the analogous US machines it competed with. Nonetheless, as Olivetti said at the time, "the aesthetic side of the machine has been carefully studied". In fact, the "elegant and serious" design, peculiar to Olivetti, gave the machine an edge.

During the first 20 years of its life, Olivetti was affected by the consequences of World War I, high inflation rates, political unsteadiness and also the onset of the Great Depression after the 1929 events. Nonetheless, Olivetti managed to sail through this harsh period, becoming one of the most successful and prosperous companies in the quite immature Italian industrial scenario. The first factory in Ivrea was enlarged, floor space was added and a considerable number of new employees were hired; between 1914 and 1929, the production of typewriters rose 10 times from 1,300 to 13,000. New typewriter models were added to the line, such as the M20 in 1920 and the M40 10 years later, and Olivetti started international expansion, opening sales offices in six foreign countries.

Fig. 4.1 The olivetti M1.
Source: www.olivetti.it

In 1924, Adriano Olivetti started working in the family business as an apprentice. One year later, together with Domenico Burzio, he travelled around the USA and visited many factories. This tour opened his mind and offered him a range of new ideas he decided to put in practice, as he returned to Italy, to modernize Olivetti, through innovative and advanced projects: function-based management, decentralized staff organization, rationalization of assembly work, development of an efficient national and international sales network.

The new organization produced very positive effects, increasing productivity and sales. In 1931, Adriano travelled to the Soviet Union with a delegation of Italian industrialists; later that year, he established an advertising department in Olivetti, which started working straightaway with famous artists and designers and he eventually set up the organization office.

During this period, Olivetti was active on the social front, interested in the welfare and trying to improve the living conditions of its workers. In 1926, the company started building houses for its workmen and managed to set up a corporate environment where its employees could feel at home. But Adriano Olivetti flew high and, as he gradually took over the family business during the 1930s, he brought wealth to the whole city of Ivrea, building roads, schools, housing and recreation facilities the entire community benefited from; at the same time, he continued expanding the Olivetti plant itself. Adriano also founded a magazine and even a publishing house to spread his social ideals, becoming one of the most well-recognized industrial philosophy leaders in Europe.

In 1948, a Works Council was formed in the Ivrea plant, the first in Italy and for several years the only one in the country, with general consultative powers regarding funding for social services and welfare. In 1956, Olivetti applied a new national category contract, reducing the working week from 48 to 45 h, without lowering wages.

Over the years, the number of office products manufactured by Olivetti grew; and, thanks to its aesthetic sensitivity, the company became famous in the world of design, as it considered functionality and design two essential and inseparable elements. Thus, Adriano Olivetti carried out his idea of a company that responded to the needs of both consumer and worker.

Adriano Olivetti was awarded many prizes, such as the “golden compass” for achievements in industrial aesthetics in 1955, and, the following year, the Grand Premium of architecture for “the architectural merit, original industrial design, social and human objectives incorporated in every Olivetti achievement”.

Olivetti received international recognition for a series of products it had launched into the market between the late 1940s and 1950s; these soon became cult objects in terms of functionality, technological content and design. In particular, we can mention the Lexikon 80 typewriter (1948), the Lettera 22 portable typewriter (1950) and the Divisumma 24 calculator (1956). In 1959, the Lettera 22 was named by an international jury of designers as the best of 100 top products in the previous 100 years.

At the same time, Olivetti was very attentive to graphics and advertising and became an important reference model in the world for its work in the industrial design field.

As the demand in the Italian and international markets rose considerably, Olivetti's product range was widened and production capacity was expanded. In Italy, factories were established in Pozzuoli and Agliè (1955), Bernardo di Ivrea (1956), Ivrea (the "new ICO") and Caluso (1957). In Brazil, a new factory was inaugurated in São Paulo in 1959.

In the field of office products, Olivetti achieved extraordinary international successes, but this did not divert Adriano Olivetti's interest towards the new field of electronics and the amazing opportunities of development it could offer. In 1952, Olivetti opened an electronic computer research laboratory, in New Canaan, USA. In 1955, it created the electronic research laboratory in Pisa; in 1957, together with Telettra, Olivetti established the Società Generale Semiconduttori (SGS) and, 2 years later, unveiled the Elea 9003[31] (Fig. 4.2), Italy's first electronic computer, developed and produced at the Borgolombardo laboratory.

Fig. 4.2 The Elea 9003. *Source*: www.cep.cnr.it

In 1957, Adriano Olivetti was awarded a prize for "ground-breaking activity in the field of international company management" by the National Management Association of New York, and this earned him further international appreciation.

In 1959, Adriano Olivetti acquired Underwood, a US organization with approximately 11,000 employees that had inspired his father Camillo when he established Olivetti way back in 1908.

When Adriano Olivetti died in 1960, the Olivetti family's direct management of the company came to an end. In that year, about 40,000 people were employed in the company and over half of them worked outside Italy, while the share capital had reached 40 billion liras. Despite the worldwide acclaim and the numerous awards it had received, Olivetti ran into a hard period characterized by falling profits and gradual insolvency. At this point, the company needed external capital and management, and in 1964 it was rescued by a consortium of Italian banks and corporations.

At a certain stage, Olivetti emerged as a leading telecommunications company and this represented a very significant change. For decades, Olivetti had been leader in the production and sale of typewriters, but just before the 1980s it dived into the information technology market, becoming one of the most successful producers of computers in Europe. Anyway, this golden period did not last long and, as losses in its computer operations rose, the company nearly went bankrupt in the 1990s, so it had to divest its PC division. However, as it approached the new millennium, Olivetti remained focused on telecommunications and maintained a few IT interests, such as Olivetti Lexikon, that pursued the company's original tradition by producing fax machines, printers, photocopiers and similar products.

In 1999, Olivetti acquired a majority stake in Telecom Italia.[32]

Telecom Italia used to have a monopoly on the telephone market in Italy; the company was privatized in 1997 and, 2 years later, was subject to a hostile takeover by Olivetti.

The reason for this failure must be searched, on the one hand, in the difficulty of keeping in step in the personal computers market, with companies such as IBM, Compaq and Apple, and, on the other hand, in Adriano Olivetti's lack of preparation to his own succession. And this last motivation is surely the main reason for the failure of a global company like Olivetti. Besides, Adriano hadn't transferred to anyone the know-how, those skills and capabilities that made him a great manager. He had kept to himself his own "competitive advantage", characterized by the curiosity for personal stories, by the pleasure of moving through the meanders of the plant, by the attention to details, those tiny novelties that change moment after moment the enterprise, social body and living system.

One predominant aspect of crisis has highlighted the human dimension associated with family firms where "dominant individuals mattered".

We examined the often difficult and detrimental process of transferring power from one generation to another in the typical family business. A key aspect in our study is the recognition that the existence of dominant individuals influences the dynamics of the family business: it is also interesting to note that the appearance of dominance by specific individuals is regarded as an important factor associated with firm value.

At present, Olivetti S. p. A. (known also as Olivetti Group) is the most important telecommunications company in Italy, considering it owns the majority of Telecom Italia S. p. A. The telecommunications market in Italy is very dynamic and still offers margins for growth. Olivetti aims to take maximum advantage of these

possibilities, increased by the liberalization process, so as to become a strong industrial group within Europe, offering telecommunications services and technological infrastructure.

4.4.1 The Reasons for the Crisis

In the 1980s, Italy had carved out a position of excellence in the IT market worldwide, thanks to a brand coming from the small Ivrea, Olivetti. Over the years ownership changed (today Olivetti is 100% Telecom Italia), but the brand has decided to invest again in the PC sector. It will certainly be a very different story, far from what the "Olivetti world" had been at the beginning: a small family firm, that, thanks to the courage and the efforts of Camillo primarily, and of Adriano later, has become a big industrial group, capable of competing at the same level as the giants of the world market of its age.

We could say that Olivetti's slow end began with Adriano's death, in the 1960s, when he was only 59; agony that was prolonged till the entire 1990s and, in a way, until today. Olivetti hasn't disappeared either because of financial shortage (financial resources have never been short), or because of a lack of technology: both at the time of the Mainframe, and at the time of the Personal Computer, it arrived prepared. Olivetti was excellent in hardware and software. This certainly isn't a condition of disadvantage. An intelligent management could have chosen.

Olivetti has not been penalized by its localization. It had production centres in various locations and technological antennas in the *USA*. And anyway location is never an insuperable success factor. As automobiles can be produced anywhere, hardware can also be produced anywhere. Moreover, for software, location does not matter, and one could just recall India's successes.

In the same years when Olivetti wasted away and perished, Apple, one among many, was born from nothing in a garage in California, with enormously less resources than those Olivetti had at its disposal at the time. And in the years when Olivetti, after the initial successes, could not keep up with the personal computers market, as a clone of IBM PC, Compaq, that used to be one of Olivetti's chasers, asserted itself as a big player in the industry. And we cannot even affirm that Olivetti has been ruined by a lack of studies in research and development. In Italian universities there were excellent minds. If it so desires, a prestigious firm can attract talents from any origin. Besides, Olivetti had an internal school tradition. Natale Cappellaro, Mario Tchou, Pier Giorgio Perotto had not been acquired paying a fortune on the talent market, but had grown up in Olivetti.

Then, we arrive at blaming some people, such as Bruno Visentini or Carlo De Benedetti: both people with a golden pen in their hands, ready to sign agreements, at ease with the world of finance, but unfathomably distant from the factory. Olivetti's school had not trained any manager capable of ensuring succession, maybe before

Visentini and De Benedetti, or together with them, nobody capable of keeping a straight course and valorising the huge resources the firm had at its disposal. Surely, from Olivetti's school excellent professionals have emerged: technologists, engineers, Human Resources and marketing professionals. And yet, only a manager who had grown up inside, given Olivetti's nature, so bound to a culture, a history, could have guaranteed Olivetti a future.

Therefore, we assert that a family problem existed, a problem of *generation transfer*. The missing or not well-timed planning of passing on the baton is, in fact, one of the reasons that have contributed to the firm's crisis. The lack of managers can be explained by the difficulty of actually growing up standing by Adriano Olivetti, growing up without remaining a son or a figure in the background. Here we have to point out the fault, the very human limit of this great charismatic leader, who lets one grow, encourages growth, as long as nobody can compete with him. A very human limit that is also expressed by keeping away the idea of death by exorcizing it, thus, by not preparing his own succession. But there is also the fault of the others, of those very brilliant minds Olivetti had surrounded itself with. There is the fault of those incapable of growing, despite the difficult context. If these managers had kept up with their task, Olivetti would still exist. Instead a managerial class of co-stars, rather than real leaders, had grown. Olivetti's aura removed critical sense. The feeling of belonging tended to degenerate into gratuitous haughtiness and perhaps prevented the managers from looking at the world with curiosity, taking the cue from managerial schools, prevented them from looking elsewhere and perhaps learning everything that could have been learnt.

Another related deficiency, perhaps the severest, was the following: to have reduced Olivetti to an idea, a myth, an icon, an abstraction that was surely rich in references to ethics and free enterprise; but a "managerial", aristocratic image, too far from what the enterprise was, in daily concreteness, for workmen, technicians and employees. Probably all the career-driven businessmen in Olivetti, as the home culture prescribed, had risen through the ranks working in the factory when they were young, even if they were assigned to staff management, or had scoured the outskirts selling typewriters.

In short, Olivetti's managers were lacking that attitude every entrepreneur, fit to be called so, has, and that every manager could or rather should have. Attitude without which Adriano Olivetti would never have discovered Natale Cappellaro's qualities. Workman fond of mechanics who secretly brought home with him tools and material, so to peacefully design new machines, far away from the engineers too bound to their schemes. Here, the young philosophers Adriano Olivetti brought into the firm to make them future managers have probably remained too bound to a schematic vision of reality, just as the engineers Cappellaro was not capable of managing. Incapable of understanding people as Cappellaro, incapable of discovering them, without any interest for them.

The fact that the "original" Olivetti does not exist anymore is due to nothing else but this incapability and, hence, the lack of or not well-timed planning of the generation transfer.

Case Study: Entrepreneurial Regeneration Ability and the Case of Manifattura Lane Gaetano Marzotto and Figli

Luigi Marzotto – even prior to being the founder of the company – was a man of great culture, but also a man of trade, a skillful hotelier and public works contractor, a careful connoisseur of the wool production process. In fact, at the age of 66 – when the tourist flow towards Recoaro, a well-known thermal centre, from which he had gained a considerable fortune by offering hotel services, came to an end, and after he had given up his occupation as public contractor – Luigi Marzotto came into the wool production *business.*

Actually the business wasn't immediately profitable: for almost 30 years it was be accompanied by the production and marketing of chalk for agricultural use, from which he gained for a long time considerable sources of income. Investment diversification in businesses which are irrelevant to wool production isn't an isolated phenomenon in Marzotto's history, but an event that repeated itself in time, when the financial conditions and the economic and market opportunities allowed it. Though, this reaffirms the strong entrepreneurial calling of the members of the Marzotto family and also the distinct flair for business of many of its members, who were at the same time managers and entrepreneurs in the company.

Therefore, during the nearly 170 years of its life, Marzotto manages repeatedly to carry out deep changes in the company strategy and structure, thanks to the decisive contribution of many members of the family, who have succeeded in the direction of the company. Briefly Marzotto's history can be summarized in the following points:

- Luigi Marzotto perceives the potential of the wool *business* in Val d'Agno, after the dark years and the crisis at the beginning of 1800;
- Gaetano and Giovanni reinforce the wool business parallel to the management of a few family *businesses* (mill chalk), awaiting the development of the conditions for new investments;
- Vittorio Emanuele bets on worsted and encourages investment of the best in the plant, allowing the company to make a considerable dimensional leap. He develops the commercial network and continues in *labour-saving* investments;
- Gaetano Marzotto enlarges the company, completing the design of social town outlined by his ancestors. He makes even uneconomic decisions, in order to maintain strong the link with his own territory. In the post-war period he starts up a deep restructuring and he diversifies downstream in fabric manufacture for men and women;
- Pietro Marzotto ferries the company out of the shallows resulting from the economic crisis in the 1970s. He intervenes heavily on labour cost, with investments in always more advanced technologies and the start-up of production delocalization towards east. He repositions upwards the company's production and develops new *business* lines oriented to high fashion. He carries out important growth

operations externally, such as the buyout of Bassetti and Lanerossi, as well as Hugo Boss and, recently, the Valentino group. The directional model puts side by side representatives of the family and managers of indisputable value;
- Paolo Marzotto, despite quitting high direction roles, becomes the reference shareholder, creating a syndicate with the finance company Canova and Antonio Favrin.

If we look at the company's history on the whole, observing even the most significant *turnarounds* impressed along its multicentennial past, we can ascertain how a critical factor of success has essentially been the entrepreneurial regeneration ability impressed by the various "captains" who succeeded to the company command. From time to time they have been capable of looking beyond the present, adjusting or defining *ex-novo vision* and *mission statement*, riding with success new entrepreneurial challenges, even on grounds which were not completely familiar and explored. Without this ability of doing some soul searching from time to time, remixing not only the business field, but also the strategic goals and the consequent deliberated strategy, very probably Marzotto not only wouldn't have the present features, but, very simply put, perhaps it wouldn't have survived till now.

Case Study: Dr. Ing. h. c. F. Porsche AG, the Leader

Ferdinand Porsche was an ambitious and obstinate man, a very bright and ingenious mind, and these qualities were decisive for the foundation of the well-known automotive dynasty that has continued to flourish and expand for over 100 years. Ferdinand Porsche can be compared to Cicero, the famous Roman orator and politician: Cicero was gifted with an outstanding personality and the ability of convincing his audience thanks to his fluent speech, so he did not have any hesitation in fighting the Roman aristocracy. The nobles hadn't well evaluated the power of his words and had considered him harmless, but Cicero was stronger than they had thought and he followed his path, managing to assert himself as a distinctive leader of his times. Similarly, Ferdinand Porsche was capable of integrating business expertise, rhetorical mastery and leadership: he had a good sense of humour and a sharp wit, and was able to influence corporate culture in Germany, by fixing the standards that would be followed.

He was a strenuous innovator and a talented executive manager in the automotive industry and, thanks to his skills, he was able to outline the track of the automobile

during the first decades of the past century. Right at the beginning of 1900, when he was only 25 years old, Ferdinand Porsche was the first to introduce hybrid technology to power the automobiles he designed. At those times, gasoline had become the preferred fuel source and Porsche intended to design the fastest and most enduring automobiles in Europe.

At 31 years of age, Ferdinand Porsche was appointed Technical Director at Austro-Daimler in Wiener Neustadt and became responsible for the entire model range of one of the largest automotive companies in Europe.

Later he joined Daimler-Motoren-Gesellschaft in Stuttgart as Technical Director and Board Member; here he designed the Mercedes Compressor Sports Car, the famous 2-l race car that won him the Targa Florio in 1924. And from 1927 international competitions were dominated by the Mercedes-Benz S-Type models.

While he was employed as technical manager, Ferdinand Porsche designed not only automobiles, but also highly efficient aircraft engines, big tractive machines and also trolley buses and hybrid transport systems driven both by electricity and gasoline.

At this stage, Ferdinand Porsche became independent and established his own design office, which was inscribed in the Commercial Register on 25 April, 1931 as "Dr. Ing. h. c. F. Porsche GmbH, Konstruktionen und Beratung für Motoren und Fahrzeuge" (design engineering and consultation for engines and vehicles).

Despite the company Dr. Ing. h. c. F. Porsche AG being established in 1931 as "designers and consultants for land, sea and air vehicles", it was Professor Dr. Ferry Porsche, son of the most acclaimed Professor Ferdinand Porsche, who managed to lead the company into one of the most important and appreciated automotive engineering design companies in the world, specializing in manufacturing sports cars. Since he designed in 1948 the Porsche Type 356, it was his intense commitment that gave Porsche the imprint that made it the top brand we recognize nowadays.

Ferdinand Anton Ernst Porsche, better known as Ferry Porsche, was born in Wiener Neustadt, Austria, on 19 September, 1909. Since childhood, he followed in his father's steps and at a very young age he was already driving cars, to the extent that, when he was only 12 years old, he raced in the lightweight Austro-Daimler Sascha (Fig. 4.3), winner of the Targa Florio in 1922.

Another very famous car was designed by Porsche just before World War II and became the most produced of all time, having a tremendous impact on both Ferry Porsche and the rest of the world. Of course, we are referring to the well-known Volkswagen Beetle[34] (Fig. 4.4).

The war produced serious consequences in Porsche's life: after the war destructions, Ferry had to transfer from Stuttgart to Gmund in 1943, and then, together with a few colleagues, had to start everything up again, making do with simple repair jobs and the construction of basic farm machinery.

In the meantime, Professor Ferdinand Porsche, Ferry's father, was detained by the French until 1947, when his family managed to pay for his freedom, after they had raised enough money from new contracts in Italy. One of these new design projects lead to an all wheel drive race car with a mid-mounted engine, the Cisitalia

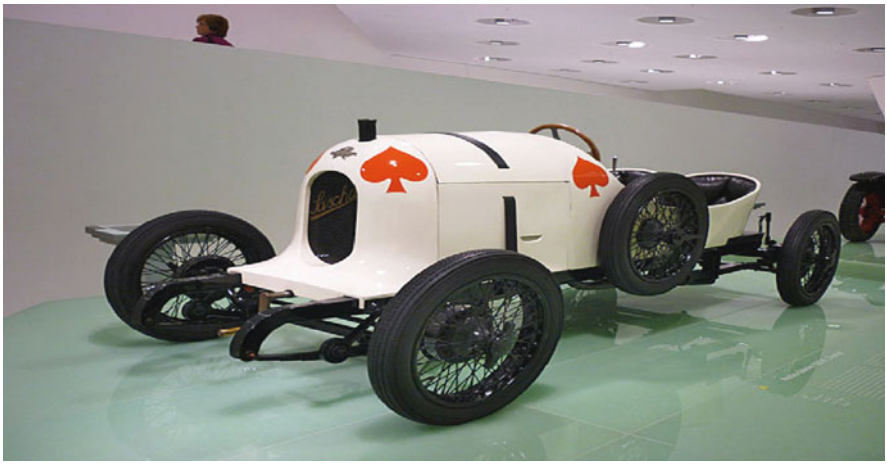

Fig. 4.3 Porsche designed austro-daimler ADS R "Sascha[33]". *Source*: Porsche Museum

Fig. 4.4 The Volkswagen beetle. *Source*: www.speedace.info

Formula 1[35] (Fig. 4.5), which was presented at the Turin Motor Show that same year.

In these years, sport successes were achieved with the very famous 16-cylinder racing cars with a central engine and torsion bars the Porsche Design Office had conceived for the Auto Union Group.

The Auto Union was the most innovative and advanced racing car design concept in the years before the war. It was lightweight, it boasted a highly efficient 16-cylinder engine, with unique valve control installed right behind the driver; this position has become standard for all the new generation Formula 1 cars. Ferry Porsche was very involved in the design and construction of this sports car and he also conducted much of the initial test driving till his father asserted 1 day, "I have enough drivers, but only one son".

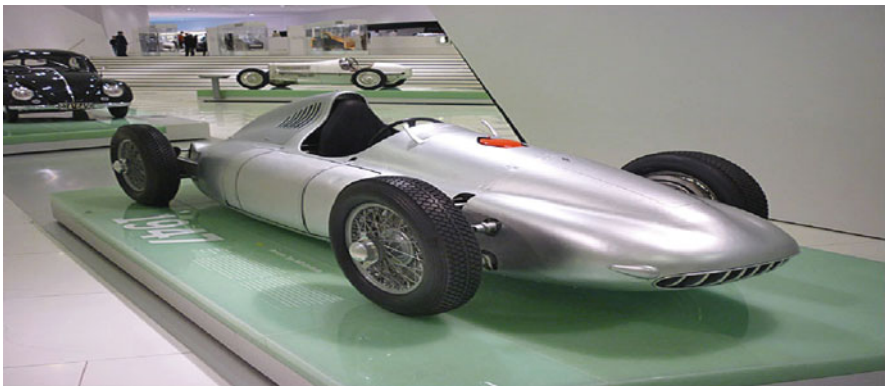

Fig. 4.5 Porsche 360 Cisitalia. *Source*: Porsche Museum

Porsche had always assigned importance to sport competitions; he himself had won in 1909 the "Prinz Heinrich" cup riding an Austro-Daimler, and he had understood that the races, besides being a valid test for material and solutions, represented very good advertising media.

Later, Ferry Porsche, who had always taken part in his father's projects, gathered the most valuable collaborators of the Porsche Design Office in the Austrian town of Gmünd to create a sports coupé that bore his name. Thus, project 356 was born, a small sports car based on the mechanism of the Beetle that took inspiration from the Type 60K10.

In 1939, he had carried out a plan to design and construct a compact automobile based on the Volkswagen, so he reconsidered this idea and conceived a car that could be easily used every day, but was also provided with a good acceleration and braking system. The marketing concept adopted by Ferry Porsche can be well expressed by this sentence: "If I build a car that gives me satisfaction, then there must be others with the same sort of dreams who would be prepared to buy such a car".

The first car to bear the Porsche name, the Type 356,[36] was delivered on 8 June, 1948 (Fig. 4.6).

Since 1948, Ferry Porsche had truly devoted himself to improve the Porsche product, which had always benefitted from an excellent reputation over the years: he expanded customer service and marketing, and accelerated product development through motor racing.

In 1949, in order to ensure the supply of parts for the 356 and guarantee nonstop production, Ferry Porsche negotiated a new contract with Heinz Nordoff, who was, at the time, head of Volkswagen. The contract also appointed Dr. Ing h. c. F. Porsche K.G. as consultant engineer to Volkswagen, sole importer of VW cars for Austria and receiver of a royalty sum on every Beetle manufactured at Wolfsburg.

Before Porsche returned to Stuttgart, 52 Type 356 cars were built at Gmund in Austria. In March 1950, production restarted in Germany. At this point, Porsche began designing its own engine, the Carrera (Fig. 4.7). The 356 model was a great

Fig. 4.6 Porsche 356, also known as "the first". *Source*: Porsche Museum

Fig. 4.7 Porsche Carrera GT. *Source*: Porsche Museum

success: at the beginning it was thought it would sell approximately 500 units, but it was produced till 1965 when it had sold 78,000 units. Porsche has adopted a policy of model longevity that continues nowadays with the Porsche 911 (Fig. 4.8), which has come into its 35th year of production.

From that moment on, the Porsche brand has become distinctive of highly refined sports cars with a unique line, and the top of the range is represented by the legendary and probably unreachable 911 and Boxster.

Fig. 4.8 Porsche 911. *Source*: Porsche Museum

Ferry Porsche's father, just before he died on 30 January, 1951, had approved with satisfaction the beginning of Porsche as a specialist sports car manufacturer and this made Ferry very happy.

In 1965, the Technical University of Vienna awarded Ferry Porsche an Honorary Doctorate in consideration of the goals he had achieved in the automobile industry.

In fact, in 1972, Ferry established *Porsche Design*, where, with a limited number of collaborators, he devoted himself to design experimental vehicles and various objects characterized by an aggressive and high-tech look, essentially faithful to the criteria of functionalism, all intended for large-scale production, but he only took care of the stylistic-formal aspect, without looking into engineering.

In 1984, at the age of 75, he was awarded the honorary title of "Professor".

Overall, Professor Dr. Ferry Porsche demanded commitment and devotion from his staff of engineers, mechanics and drivers. He was an innovator, a fearless investor and so managed to build a solid reputation for his company, becoming one of the most prestigious and revered manufacturers of technologically advanced sports cars in the world.

Ferry Porsche, though, is recognized not only for his entrepreneurial success, but also for his attention to social aspects: in fact, he was one of the first to introduce old age business insurance, to pay 13th and 14th month salaries, to establish the Porsche Foundation to help staff who were in difficulty for no fault of theirs and to make workmen equal to employees, changing the hour-based pay into a monthly wage. Thus, Ferry Porsche has created values and principles that still today maintain their full validity.

Case Study. Bertone: A Conflictual Succession

Bertone Spa is one of the oldest and most prestigious names of the Italian automobile industry. The birth of this business dates back to November 1912, when Giovanni Bertone, at the age of 28, opened a garage in Turin, where he could repair and build horse-drawn carriages. At the beginning of the twentieth century, automobiles were rare in Turin. Road traffic was still dominated by carriages: those built by young Bertone were immediately successful because of the accuracy of manufacturing, the sturdiness and construction quality. In 1914, Giuseppe Bertone, Giovanni's second son, was born, and everyone called him right away Nuccio, a nickname that would accompany Giuseppe forever and would become the signature of one of the great masters of Italian style in the world. At the end of World War I, came the decisive turning point: the firm enlarged itself focusing on automobiles. In the 1920s, Bertone established solid partnerships with almost all the manufacturers of the time. Turin was the heart of the automobile industry and Giovanni Bertone managed to be awarded many contracts, although the most important partnerships were with the two most famous companies in Turin: Fiat and Lancia. In 1933, young Nuccio, who was only 19, officially entered his father's firm. During the 1950s, the first foreign contracts were awarded, in particular by MG and Bristol in 1952. The following year Nuccio Bertone signed the *Alfa Romeo Giulietta Sprint* prototype that was presented at the Turin Auto Show in 1954. During the 1960s, Bertone continued to enhance its reputation, designing automobiles that would become part of history. Among these, we must mention the *Lamborghini Miura* that immediately became a symbol of success combined with good taste. In 1972, Giovanni Bertone passed away at the age of 88: his remained the head of the firm and managed to direct the company with an eye to innovation, insomuch as Bertone in the 1980s began the first researches on electric automobiles, planning and building the ZER (*Zero Emission Record*), a battery-powered single-seater that went over 300 kmph.

On 26 February, 1997, Nuccio Bertone passed away. He remains one of the greatest car body designers, master of Italian style in the world.

For Bertone's family business it was the beginning of the end; the firm lead off with a slow worsening of internal economies caused by financial speculation and bad managerial choices. A breach within the family occurred between Lilli, Nuccio Bertone's widow, and her daughters Barbara and Marie Jeanne. The firm's ownership was jointly between mother and daughters; in order to continue its management, a certain agreement would have been required. Instead, Lilli Bertone preventively suspended with immediate effect her daughter Barbara from her functions: she held the position of general director of the company and the two daughters brought an action against their mother for "unfaithful administration". Thus, a series of generation and family conflicts started and they lead Bertone to financial disaster during the second-generation transfer. It is argued that conflicts arose because of the financial problems the firm had experienced only a few years after Nuccio's death.

After the production of Opel Astra Cabriolet old series was stopped, the company had not been awarded any other important contracts. The last big opportunity they lost was Alfa GT, entirely conceived, designed and planned by Carrozzeria Bertone: they did not manage to bring home the production of which Fiat was entrusted with at the plant in Pomigliano d'Arco. Between the end of 2007 and the beginning of 2008, Carrozzeria Bertone, including the holding, was declared insolvent, and the three special commissioners, appointed by the Department for Economic Development, required special administration in order to proceed with drafting a plan for the firm's takeover. Several offers had been formulated for the buyout of this company. On 6 August, 2009, the Department for Economic Development authorized the takeover of Bertone's plant by Fiat, that became owner of the body shop in Grugliasco (TO) and of the production set. In fact, from what we know, Fiat's offer was economically much more substantial than the other offers and it prefigured a long-term industrial prospect.

However, the buyout was a positive sign, because Bertone's takeover by Fiat ensured the future of a historical plant of the Piedmontese industry. In fact, the plan provides for the resorption of all the 1,137 employees, who will be gradually reinstated in their duties, and the integration with the American company Chrysler for the production of some of their models in Italy. Moreover, there is a second positive aspect regarding the relaunch of *Made in Italy*, because Carrozzeria Bertone has made the history of the automobile: from Bertone, in fact, not only have some of the most beautiful automobiles in the world of motors come out, but also a very long series of designers, who later established their names setting up their own business.

Notes

1. Family businesses have been depicted as firms which have patient capital, which means they can better figure out the overall picture and have more patience while awaiting the results in the long run (DeVisscher 2002). Families have strong and powerful social bonds that last over time, because their capital is uncommon, irreproducible, it can't be substituted; in one word it is unique. Thus, the overall level of family capital in a family business is determined by these long-lasting social bonds and the other specific dimensions of family capital: the stronger the social bonds, information channels and family norms are (and in this context we include duties and expectations, notoriety, identity and moral infrastructure), the higher the level of family capital within the family business will be. Family capital can produce a sustained competitive advantage in family businesses and generate enhanced family business performance. It can also determine an abundance of other resources that themselves produce a sustained competitive advantage.
2. Family businesses are characterized by lower recruitment and human resource costs and by a stronger effectiveness in labour-intensive businesses than other firms. Family firms typically have longer investment horizons than non-family firms that can cultivate employment stability and employee insurance. These firms communicate in a more efficient way because they have a family language and they manage to exchange more information with a higher level of privacy; family businesses are sources of corporate vision and inspiration that enhance employee morale (Chrisman et al. 2003). Family businesses are cemented by the family relationships which create a powerful motivation among members, strengthen loyalties and enhance trust. And they even have a more trustworthy notoriety and a lower total transaction cost (Aronoff

and Ward 1995). Besides the advantages highlighted above, family businesses show a more noteworthy creativity and are more attentive to research and development (Ward 1997). It seems they have a definite self-analysis ability. Family businesses are generally recognized for their integrity and devotion to relationships. They are less dependent on their environment and for this reason they are less liable to negative downturns. And, finally, they have a lower cost of debt. For current systems views of family business see Distelberg and Sorenson (2009).

3. In traditional neoclassical models it is typically assumed that feedback mechanisms work instantaneously. A substantial and growing body of research, however, in economics shows that the experience gained by individuals and organizations actually improves performance over time. Unlike the pure learning-by-doing approach, in which individuals learn through current productive activities, the investment in training model is based on the assumption that workers dedicate a portion of their workday to training and thereby trade off current production for increases in future productive performance.
4. Strong points of family firms, such as the presence of specific values and beliefs, shared vision, long-term commitment, and, of course, relationships based on loyalty and trust, can be developed even more by transformational leadership, in harmony with its features. See § 4.3.
5. "Quotation on the Stock Exchange doesn't appeal to me for the responsibilities that having shareholders involves. I would like to keep quiet without the nag of having to justify all our investment choices" (our interview to a founder). The entrepreneur isn't interested in pressing the firm with short-term results that perhaps compromise its future. He is interested in daily work to carry out long-term strategies.
6. While in the case of separation between ownership and control, according to the public company model, with a hostile *takeover* it is possible to rake the ownership shares owned by some subjects (diffuse shareholders) and replace the inefficient controller (manager) against his will; the system is blocked when ownership and control are joined in the same subject. If the entrepreneur owns the majority of the capital and is not available to hand it over, we face a completely legitimate control block (from the point of view of ownership rights), that irreparably closes the enterprises, though the enterprise market is efficient in the hands of the family which owns them. In the control market, offer is "rationed". To replace the controlling owner, his consent is necessary and it is determined by a condition of necessity that appears without the premises being built (through the creation of a management structure), so that the transit can be effective (M. Balconi et al. 1998, pp. 25–77).
7. Access to an efficient labour market is hampered partly because of a perception of the family firm's natural inclination to favour applicants related to the family. This perception could reduce the quality of applicants for key managerial positions in the firm, and suggests that a challenge for managerial succession in a family firm is to ensure that key employees are not promoted on the basis of family connections, but on merit (Schulze et al. 2001).
8. That system of spoon-feeding the youngsters is what produces men without backbone, without alternatives, without the ability of resisting the clashes from the external world (M. D'Azeglio). Equally, also excessive strictness with which their children could be judged ends up generating insecurity and lack of self-esteem.
9. Danny Miller and Isabelle Le Breton-Miller, two North American scholars, have recently completed a research performed on a sample of 40 family enterprises – on a world scale – with the elaboration of the model of the 4C (Continuity, Community, Contacts, Command), codifying the "recipe" of the *long lasting* quality of family enterprises.
10. The mission represents the long-term vision towards which the firm's business will have to be run and how it will lead to the achievement of the desired results. Therefore, it is the resultant of the following "vectors": aim, strategy, values and behavioural standards. The most important thing is that the mission is felt by all the members of the enterprise, has practical implications, is of easy identification and memorization, so it can be of orientation and meaning for all the members of the organization independent of their hierarchical position (Peter and Donnelly 2003, pp. 3–28).

11. All the family enterprises are innervated by the heritage of values of the owner family, handed down and brought up-to-date by every generation. Some personal, family and business values are expressed through a sober individual and family life style, despite the huge patrimony; direct, frank behaviour, free from attitudes of superiority and arrogance; through the transparency inside the family group and the firm's complex allows to overcome the hesitations that often contaminate human relationships; the spirit of sacrifice; the entrepreneurial spirit that asks every generation their contribution to the firm's growth and precludes to the incapable, despite being members of the family, the engagement in roles of importance, allowing the prevalence of meritocracy and of the firm's interest against personal interest (Corbetta 1995).
12. With regard to the theories about the possible aims of the enterprises, see Sciarelli (2002).
13. Assuming the firm as a social phenomenon represents the point of convergence of a plurality of common ethical values, among which we find the value of production and efficiency represented by profit; the value represented by saving and its diffusion among the public; the value embodied by man in exercising his working activity; the interests and values involved in the location of the firm itself (the natural environment, the wealth of the community located in proximity); the value itself that the firms' existence represents for the country. The social fact that constitutes the enterprise is enclosed in the fact that it uses productive factors for the production of the goods and services it transfers to other enterprises, to the families, to the public administration. About the definition of enterprise, see Visentini (1997).
14. Walras, representative of Losanna's neoclassic school, didn't assign any substantial role to the figure of the entrepreneur, who acquired relevance only in a context characterized by uncertainty, imperfections, transaction costs. Walras justified the figure of the entrepreneur only inside the production services market (production factors). In this market, in fact, offer is clearly identifiable: service sellers, who own the production factors. Nonetheless, without the figure of the entrepreneur, the demand of such services would be lacking. Thus, the instrumental need for such a figure. When the demand for services is otherwise identifiable, Walras doesn't hesitate to admit that the entrepreneur is useless. This is what happens when exchange concerns products against products, products against services, personal services against personal services. L. Walras, *Elemens of Pure Political Economics*, Turin, UTET, 1974 [It. trans. of IV edition (1900) of *Eléments d'Economie Politique Pure*, 1874]. Lesson XVIII, p. 323. Schumpeter underlines the role of innovator held by the entrepreneur: although, of course, entrepreneurs may be inventors. . . they are not inventors because of their function, but only by coincidence. Therefore, the entrepreneur is neither the elaborator of a new technique, nor the owner of the capital necessary to apply it to production: the entrepreneur isn't (regularly) a capitalist (Schumpeter 1971, p. 98). The entrepreneur's innovative activity is distinguished by the discontinuity it introduces towards the usual running of the business, configuring not only a new way of acting, but also determining the overcoming of the old methods, and with them the exit from the scene of the old actors. Innovation, in other words, is by its own intrinsic nature a phenomenon of imbalance and the adjusting process is never painless: transit from the old to the new balance most times causes wealth losses for some and destruction of richness. The mechanism by which this happens is more easily understandable if we refer to process innovation. In this case, the entrepreneur selects and introduces, let's suppose successfully, a new solution for the production of an existing good. This has, as an immediate consequence, cost reduction and the achievement of exceeding profits compared to those obtained by the "old" enterprises. It is inevitable, though, that sooner or later new producers shall enter, attracted by the possibility of making extra profits from the mere imitation of the process invention, a fact that pushes prices down: sooner or later the old methods become unsustainable and are abandoned (Cfr. Schumpeter 1971, pp. 172–188). The surplus created by the invention has the nature of revenue (it is a revenue analogous to land-revenue and to Marshall's almost revenue), (Schumpeter 1971, p. 94. Compares D. Ricardo's revenue theory), and through these it starts up the competitive and economic development process, all phenomena that for Schumpeter are strictly interconnected. Once the innovation has been introduced, and thus pre-existent balances have been broken, economy moves

towards a new balance. (The essence of economic development in Schumpeter's vision is in the spontaneous and sudden change in the flow channels, disturbance that alters and moves the state of balance previously existent, Schumpeter 1971, p. 74.) with the consequent erosion of entrepreneurial profits, achievement of new combinations that oust the old ones, substitution of the old entrepreneurs with new ones: "the higher levels of society look like hotels that are surely always full, but of always different people, who come from below in a very higher amount than many of us want to admit" (Schumpeter 1971, p. 197). J. A. Schumpeter, *The theory of economic development,* Florence, Sansoni, 1971 (It. trans. of IV Germ. ed. of *Theorie der Wirtschaftlichen Entwicklung*, Berlin: Duncker und Humblot, 1934 [I ed. 1912]. According to F. Alberoni "entrepreneur is who, boosted by an ideal, a dream or an interest, puts together all the factors to create a new social and material entity that produces richness, work, wealth, services" (Alberoni 2002, p. 78).

15. Bio-structural analysis was developed, for its application in training, by anthropologist Rolf Schirm on the basis of Paul MacLean's researches, who was at the time director of the laboratory of cerebral and behavioural evolution at the National Institute of Mental Health in Bethesda. It allows to discover, through a simple self-analysis, which part of the brain predominates, and the measure of such predominance in our usual behaviour in order to understand our specific critical factors of success and understand "through which glasses we see the world". Concerning this, MacLean discovered that we are endowed with three regions of the brain, with different chemical-molecular structures and above all different ways of thinking and behaving. These three cerebral regions keep even today their features and by their interaction they are responsible for our behaviour, our contradictions and incoherence. Basing himself on MacLean's concept of "brain split in three", Schirm wanted to investigate the role of every cerebral region in our behaviour. Does the cerebral trunk, the place of instincts, biological experiences of millions of years in the art of surviving, prevail? Or is it the diencephalus which prevails, that adds emotiveness, the ability of immediate and spontaneous action? Or, again, is it the neo-cortex, the most recent part in evolution history, capable of planned actions, abstraction, verbal communication, that is dominant? Thus the Structogram® method was born, the research activity of which was commissioned by a motor industry to anthropologist Rolf W. Schirm.
16. In the attempt to discover the specific qualities of people who achieve particular successes, Schirm has found that neither "ideal" assumptions, nor the "correct" behavioural style, nor the optimal selling technique exist. The only common denominator of successful people is the fact that their behaviour is consistent. It is possible to determine which of the three regions of the brain prevails in every one of us, and to what extent. If the cerebral trunk prevails, the person concerned distinguishes himself for niceness, sensitivity, the love for company he inspires. If the diencephalus prevails, the person shows great efficiency, willingness to face risks, desire for success, dragging enthusiasm. People characterized by supremacy of the neocortex are described by a great insight, tendency to perfection, great intellectual persuasion strength, but also the need to keep distances.
17. With regard to this we report the fable no. 237 by Aesop: "The war between mice and weasels had broken out. The mice, which were always defeated, had a meeting and concluded that the reason for their failures was the lack of a chief. Therefore, after they had chosen a few of them, by lifting their hands they named them strategists. To distinguish themselves from the others, they built some horns and they put them on. But, when the battle broke out, beaten in mass, they searched for a shelter in the holes and, while all the others got in easily, the chiefs weren't able to slide themselves in because of the horns. So they were captured and eaten up. In the same way vainglory is a source of trouble for many". Aesop, *Fables*, Oscar Mondadori 1996, fable n° 237.
18. The first to recognize the importance of the "organizational philosophy or morality", later defined as leadership, was Barnard. Every human behaviour is influenced, as Barnard explains, by moral codes of behaviour, for example loyalty to certain religious ethics, the presence of a code of family duties, the adherence to professional rules. . . Thus, such codes can, presumably, thrust in; then, the leader's task will be to restore internal balance, since he's

invested with the task of creating an inspiring philosophy for the employees, in order to instil in them "faith in the maximum satisfaction of their own personal reasons, in the integrity of an objective authority and in the superiority of a common scope intended as personal target of those who assume it". Leadership must create the sense of the mission (Barnard 1968).

19. This difference between family and non-family firms produces positive effects which can be exploited by the first. From this viewpoint, as stated by Bandura (1986), Hater and Bass (1988) and Shamir et al. (1993), transformational leadership induces its followers to devote themselves without doubts to the mission and targets of the organization. Furthermore, family firms can even receive advantages from the seven following dimensions that, as pointed out by Carless et al. (2000), make the difference between transformational and transactional leadership: vision, promotion of staff, driving leadership, empowerment, innovative thinking, psychological–behavioural coherence, charisma. The tri-systemic structure of this type of firm can originate the features that allow you to understand transformational leadership. In family firms the leadership has to achieve not only the followers' objectives, but also the ones of the family owners. Most family firms are oriented to various goals, which are individually detected, and have many family objectives, often diffusely defined, both strictly bound to the specific goals of the owner–manager. Finally, we can affirm that the existence of family businesses is justified by the need to harmonize both types of objectives (Rosenblatt et al. 1985). What transformational leaders do is to transform the needs, values, preferences and aspirations of their subordinates, diverting them from their personal interests and addressing them to collective interests (Den Hartog et al. 1997). This variety of objectives creates an emotional conflict within the leadership, which induces a sort of mixture between purely emotional and temperamental feelings and colder and more rational considerations, and, in this manner, we move closer to the transformational leadership and away from the transactional leadership.
20. According to the psychologists, you have to observe if an individual shows the typical feature of the entrepreneur, that is the attitude to change by innovating strikingly; therefore, it becomes impossible to identify the leader when he is still in the cradle; leadership is a field factor and critical situations reveal a leader's talents.
21. Reference to the episode reported in § 2.1, based on T. H. Davenport L. Prusak, op. cit., p. 99.
22. Analysis of the transformational leadership factors has been carried out on the basis of the research initiated by Bass (1985), who pointed out three factors which can be applied to this type of leadership:

    - charisma, the leader has the ability of inculcating a sense of value, respect and pride in order to define a vision;
    - individualized consideration, the leader cares about the followers' needs and charges them with projects which are important for their own growth;
    - intellectual stimulation, the leader teaches his or her subordinates the best way to discover a rational point of view to analyze a specific situation.

23. When successive generations become involved, the family involvement as a group is increasingly regarded as a constant to the firm and thereby becomes institutionalized within the organization.
24. Once he starts moving within the family business, the successor follows a learning process as if he were a student of the organization to acquire knowledge of the praxis and of the people involved (Churchill and Hatten 1987). Next step is reaching a lower management position. At this stage he may be mentored by a trainer or an advisor (Handler 1990).
25. Despite the ownership succession being essentially considered a management issue within the family, management succession may underline the fundamental choice between another family member and a non-family professional manager. At times, the problem is due to the fact that suitably trained family members are not available or the number of family members in a large family who aspire to a certain position is too high.

26. The incumbent leader may stimulate the successor to join the family business in different ways, using positive shop talk (Handler 1994) or helping potential successors access part-time or summer employment (Barach et al. 1988). The owners/founders of the family firms must comprehend their roles as leaders and the impact of their actions on their successors, so that they do not become unmotivated and unsatisfied about their work.
27. Some scholars have concluded that founder leadership is fundamental for the creation of organizational culture, which persists beyond the permanence of the founder, having an imposing effect on the generations that follow (Eddleston 2008; Kelly et al. 2000; Levinson 1971).
28. Churchill and Hatten (1987) suggested an approach to succession in family firms based on a lifecycle divided in four stages. In the first stage, the owner is the only family member who is involved in the business. The second stage includes a learning and development phase in which the offspring make their first moves in the business and are trained. The third stage is a partnership phase in which both the owner and the successors share the leadership of the business. The final fourth stage represents the phase when the power is transferred and responsibilities are handed over to the successors.
29. As we anticipated, family goals may not be exclusively oriented to performance, because they may come before and acquire more importance than the usual business goals of growth and profitability. For example, for a family firm manager, the need to give a job to an inefficient family member may take precedence over the goal of profit maximization. In family firms, leaders are free to achieve their long-term goals and this influences business in various ways. As a consequence of this approach, family business managers may take time to train their successors to become leaders of the next generation. And these leaders may also be inclined to long-lasting commitment because of the affective links that bind them to the family; so they display stronger intentions to pursue long-term careers within the family business (Irving et al. 2007).
30. The increase in the researches on female labour is generated by a series of changes such as the birth rate reduction (bound, at least in part, even to more conscious reproductive choices made by women) and the consequent ageing of the population, which have had at their centre the emergence of a female subjectivity and the falling into crisis of the *male breadwinner model* (Pfau-Effinger 1993). The male breadwinner model is based on a conceptual gendered division between public and private spheres: it is based on the ideal of the family in which men earn a family wage while wives do the housework and provide for family members. Such an ideal has never been fully accomplished, but it has played a prominent role in most Western welfare regimes as a logic that supports state policies regarding gender relations and gender roles in paid employment and the family. This ideal has even been used to understand differences between welfare regimes placing gender at the centre of the analysis.
31. This room-sized machine was conceived in order to compete with IBM and the other early computer developers. Nonetheless, only a few years had to pass before Olivetti realized that this machine could not compete with the more innovative products made in USA and abandoned the mainframe market.
32. The acquisition of Telecom Italia by Olivetti had been achieved through a publicly traded subsidiary, Tecnost S.p.A., that was 70% owned by Olivetti. Tecnost originally produced automation systems and gambling machines, but these productions had been sold to Olivetti at the beginning of February 2000. Thus, Tecnost simply became a holding company for Olivetti's telecommunications activities. Following a plan to lower its debts, in late 1999, Olivetti tried to transfer control of TIM, the valuable mobile phones company, from Telecom Italia to Tecnost. Nonetheless, Olivetti gave up this project, because minority shareholders and institutional investors showed resistance, considering it hazardous for Telecom Italia. They had thought that Tecnost and Telecom Italia would merge because this was Olivetti's original intention.
33. The "Sascha", a small 4-cylinder racing car with a displacement of 1.1 litres, was presented by Ferdinand Porsche in 1922. The same year, the "Sascha" raced in Sicily winning the Targa Florio in its specific category. Commenting on this success, Gazzetta dello Sport wrote, "Up

until very recently no one would have dreamed it possible to achieve such top speeds and durability with a 4-cylinder engine belonging to the category of smallest cars ever".

34. The company Dr. Ing. h. c. F. Porsche KG received an official order for the design and production of a German Volkswagen. Just one year later, the prototype was test driven. The "Ur Beetle" was assembled in the garage of the Porsche villa in Stuttgart.
35. Under the direction of Ferdinand Porsche's son Ferry, design of a four-wheel Grand Prix race car – the "Cisitalia" (Type 360) – was begun for Italian industrialist Piero Dusio.
36. This car featured a tubular space frame chassis, an aluminium body and a rear-mounted four-cylinder 1.131 cc VW engine. The 356 was the first sports car to bear the Porsche name. "No. 1" was road-certified in June. Just 1 month later, the lightweight mid-engine roadster won its first class victory at the Innsbruck Stadtrennen.

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Chapter 5
Family Business in the World

Manlio Del Giudice

Abstract In the European Union, family enterprises represent, depending on the country, 60–90% of economic activities and are responsible for two thirds of GDP and workplaces. In the mid-1990s, in the USA, family firms were over 90% of the total and produced more than half of the goods and services; moreover, a third of the "Fortune 500" enterprises (i.e. the largest and richest enterprises in the country) were controlled by one family or by the founder family that took part in the business management. But the most important thing is that these enterprises tended to create better outcomes and advance more rapidly than the average of the executively managed competitors (non-family members). Besides Europe, also in the developing countries, family enterprises give a valuable contribution to economic development, because their cultural, political and economic situation isn't mature for industrial structures of managerial type. In fact, in many of those areas, Africa, Middle East, most of Southern Asia and South America, family firms are the hope for economic start-up, seeing that they add safety and human resources. So, both West and East seem more inclined to a "community" idea of enterprise, biologically identified with the entrepreneur and his family as the main source of the resources needed by the business. We find it in the idea, widespread within the enterprise, of "paternalism", which refers to the creation of a "community of workers" internal to the enterprise and inside which the relations between capital and labour are shaped by reproducing the typical structures of pre-industrial societies. After all, the setting in force in Europe outlines a close and long-time relationship between enterprise and family. A direct consequence is "familism", that is the involvement, at every level of the enterprise's activity, of family members, to whom resources, power and responsibilities are assigned on the basis of kinship criteria. On the other hand, also in the Japanese model of production organization, feudal rules of loyalty and sense of belonging are faithfully reproduced within the enterprise. Hence, family isn't an exclusively biological unit, but it points out the group of "those who contribute to the economic wealth of the group itself", because collective interest is laid upon the individual one, talking either about families of enterprises or of the whole country. In this chapter we specifically analyze both Western and Eastern countries, Germany and UK, and Lebanon. Viewing these countries, we notice that although a few dimensional differences exist in the organizational structures and in the governance

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of the main family-led enterprises, in the end the contribution they give to national income seems to show a certain conformity, i.e. they add a valuable contribution to the richness of the nation.

5.1 The Development of the Family Business Around the World

Family business, also spread at the international level, maintains a relevant role within the most advanced economies (Albert 1991): It is present not only in the so-called traditional industries, dominated by highly labour-intensive small enterprise, but also in the leading industrial enterprises. Dreux (1990) and Gersick (1997) have shown that the percentage of enterprises owned or controlled by families around the world is more or less between 65 and 80% and they determine an annual turnover of more than $1.2 billion. On the other hand, a survey by Devecchi, Fraquelli (2008) within CERIS, a research institute on enterprise and development, shows that on average the family enterprises around the world, considering the first eight European countries (Table 5.1), are equal to 60% of the total of the largest quoted enterprises. This percentage is bound to rise if we take into account the countries with an intermediate GDP, such as Portugal, Greece, Argentina and Mexico that, in the same survey, show an extremely high presence of family enterprises. Specifically, family-led enterprises are 45% of the enterprises in Portugal, 50% in Greece, 65% in Argentina and even 100% in Mexico.

Table 5.1 Relative percentage of family enterprises, divided by country

European countries	(%)
Austria	83.2
Belgium	69.0
Germany	82.0
Finland	63.2
France	60.5
United Kingdom	67.3
Netherlands	51.7
Switzerland	67.2

Source: Devecchi, Fraquelli (2008)

There are many differences between a country and another regarding institutional framework and policy initiatives directed at family businesses. Various actors have put into practice different measures supporting family businesses, which face a wide series of problems, such as family governance, company law, taxation, collecting and publicizing information, encouraging entrepreneurship and family-business-specific education, arousing awareness through lobbying and policy advice (Table 5.1).

All this confirms the impression that as is the case for the other forms of organization, the "form" adopted by family enterprises widely depends on the national context and the conditions that historically have determined its development path. To this end, viewing the economic situation during the industrialization process, we realize how family business has given a valuable contribution to the development of the entrepreneurial world as family enterprise is generally characterized by a low intensity degree of capital and technology and a relatively small size of the production unit (Ben-Porath 1980; Alvesson and Lindkvist 1993).

In particular, in England, during the Industrial Revolution, there was a considerable diffusion of *family businesses*, given that many producers created enterprises with members of the same family rather than external subjects who conferred capital. Similar cases can be found also in other Western countries and in developing countries, such as Korea, Taiwan and Philippines. In all these places, the industrialization process started up thanks to family enterprises, generally active, initially, only in the textile industry and trade, which later expanded to other business sectors, maintaining their characteristics of conglomerate groups, family controlled and managed. In a completely different frame are the South-American business *grupos*, especially developed in Argentina and Brazil, defined as multifirm family-led enterprises that operate in different markets, but with only one entrepreneurial and financial control (Leff 1978).

Viewing the typical sector of family business, it is convenient to give account of the Chinese situation, because 47 out of 50 most important industrial groups owned by *Chinese overseas*is particularly rooted in patrimonial, banking and financial management, activities for which they developed an intense practice of networking and interpersonal contacts (Brown 1995).

All this has direct implications for the organizational structure and the management philosophy of the enterprises founded by the Chinese who emigrated to Hong Kong, Singapore, Indonesia, Malaysia, Philippines and Thailand. The lack of trust towards external members and the diffusion of family ownership are expressed in an autocratic managerial style, hostile to individual initiative and organizational decentralization, allowed only if the family is able to control and manage the diversification. In fact, the trust network that is established among the members of a family enterprise ensures an effective monitoring and a fairly good loyalty (Pollak 1995), achieving a relevant role on the internal market. After all, it is natural if the founder of an enterprise and his collaborators are willing to devote most of their time to the firm, given that a member of a family enterprise will have a greater passion for his own firm in comparison to any compensable executive, regardless of the wage he may receive.

Thus far, family enterprise is considered a synonym of internal succession in all Continental Europe, remarkably in England and Italy, where "the idea that the enterprise is the dominion of an individual or a family seems to materialize as persistent culture" (Amatori and Jones 1997). Similarly, in the most recently industrialized countries, both in Asia and Latin America, succession by internal lines remains the rule (Dutta 1996). In fact, in the major enterprises in Eastern Asia, from Indonesian conglomerations to Korean *chaebols*, the top and second level managerial positions

were, and still are, reserved for relatives and family members (J-W Lee, 1997, A financial distortions and crisis in Korea,Unpublished paper, June). Thus, such enterprises are controlled by only one family, whose members, including the closest relatives, share the top managerial positions (Robinson 1986). A recruiting path is found, besides the European countries, also in the USA, where they ensure continuity to the ownership and family control through the creation of *spin offs* in which the new generations find space (Scranton 1993).

However, a contrasting situation can be found in Japan where, despite being the only Asian country which introduced birth-right a long time before World War II, the ownership structure of the big diversified groups is based on a big family-owned holding. This is because, in such countries, ownership succession has a basic principle that the heir mustn't necessarily be a blood relation, but even an external member adopted by the enterprise. Thus, the main goal of entrepreneurial succession in Japan is to protect and expand family richness under the guidance of an individual, rather than reserving it for blood relations – a strategy that tries to avoid the "*Buddenbrook* syndrome", i.e. the inability of the heirs of repeating the founder's success, and the conflict between old and new generations, as a result of new styles and new direction strategies.

In the light of the following analysis, we give account of the study carried out on family businesses present in Europe and Asia. In these places, such enterprises have been leaders of global economic innovation and development, creating modernity as such. Specifically, we give account of the researches carried out in Germany and England in Europe, and Lebanon in Asia.

5.2 The Family Business in Germany

In the German economy, family businesses have an exceptional importance. Just consider the manufacturing sector that appears to be controlled by multinational companies, of which 90,431 out of 107,094 are family firms, led by a member of the owner family.

Most of the family businesses in Germany are small and medium-size enterprises (SME). Nearly all the German enterprises (99.8%) are part of the SME sector which, as officially defined, includes all those enterprises that have less than 500 employees or an annual turnover lower than 100 million DM. A considerable part of these SMEs (94.8%) is managed by a member of the owner family. A great number of family firms have already reached the second or third generation.

As shown in Fig. 5.1, results from a research of the Institut für Mittelstandsforschung Bonn (IfM Bonn, www.ifm-bonn.org) (2009), regarding family businesses point out that, presently, the number of industrial companies in Germany is around 107,000. In 1998, the annual turnover of these enterprises was approximately 2,600 billion DM, with 7.7 million employees.

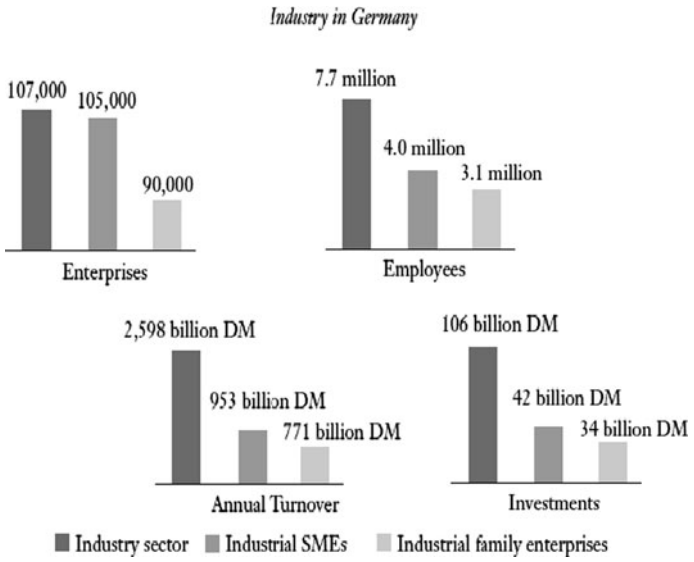

Fig. 5.1 Significance of the German industry sector. *Source*: Ifm Bonn (2009)

Nonetheless, only if we compare this data to the aggregated national economic data, we can truly understand the importance of the manufacturing sector for the German economy. In fact, we realize that although only around 3% of the 3.3 million German enterprises belong to the industry sector, they employ more than 25% of the labour force and account for more than one-third of the annual turnover of the entire German economy.

The estimation and sampling method adopted by IfM Bonn allows us to determine the number of industrial companies owned by families and understand their importance for the entire German industry sector. With an overall analysis, we can point out that about 90,000 industrial companies, that is 84.4% of the total, are represented by a family business or an enterprise managed by a member of the owner family.

In Germany, not only in the manufacturing sector but also in the trade and in the enterprise services sectors, family business plays a substantial role, often growing from a generation to the next. Therefore, the widespread idea of industrial companies being big-sized and executive-managed appears to be absolutely confuted.

In 2009, a total of 3.1 million workers were employed in industrial family companies: this represents about 41% of the overall employment in the entire industrial sector. Moreover, the companies generated an annual turnover of about 771 billion DM, which represents around 30% of the turnover of the entire manufacturing sector.

Of course, in family businesses, family members are charged with the responsibility of managing their companies, but this doesn't mean that all the relevant decisions are only taken by them. In fact, in SMEs important decisions are even devolved to hired managers who are not family members. Besides, manufacturing family companies avail themselves of external advisory services, such as tax consultants, banks, attorneys. Different from how it happens in Italy, or in the UK, business is entirely managed by one of the family members. The IfM Bonn research gives evidence of the fact that family firms are fundamental for the creation and maintenance of jobs. Industrial SMEs overcame big-sized companies in terms of employment performance, considering the rate rose by 2.4% in 2007 and 3.9% in 2009.

In summary, manufacturing family companies are not a relic of the past, but are a lively part of the economy, overlooking the future. And in Germany a great number of these companies continue to arise and the current generation has founded almost one-third of the present manufacturing family companies.

The SME sector is experiencing a fundamental change in managing generations. In fact, such change was experienced in the period from 1996 to 2001, by almost every fifth family company examined by IfM Bonn. About 24% of the approximately 90,000 manufacturing family companies, i.e. a total of 21,600 enterprises, were passed on to new family owners by 2006. To sum up, the development of family business is being achieved by a new generation of family entrepreneurs.

5.3 The Family Business in UK

Within the European frame, besides Italy and Germany, family business firms are well spread in the UK too.

Poutziouris (2000) divides the SME family business economy in the UK into four general categories:

- Traditionalists: this group includes owner-managing directors of traditional family firms that are inclined to maintain control from a generation to another. They are interested in the maintenance of the status quo, so they follow the usual path, always being in control of the situation, generally until an internal or external event leads them to change attitude. This group includes most of the family companies (61%).
- Open-growth stars: this group includes owner-managing directors who are willing to expand the business, by itself or through buyouts and joint ventures. They are not slavish followers of family traditions and they are inclined to hire external practitioners and raise from the market the capital to expand and diversify their business, so they can even achieve flotation. This group includes 21.4% of family companies.
- Strugglers: this group includes owner-managing directors who are not strategically oriented because they are limited by financial pressures. They struggle to

survive, so they don't plan to expand or diversify the business and maintain it within the family. This group includes about 15% of family companies.
- Exiters: this group, which accounts for less than 4% of family companies, views exit options through trade sale or flotation.

Every year a survey on small enterprises is published by the Department of Trade and Industry (also known as DTI, now included in the Department for Business, Enterprise and Regulatory Reform or BERR).

Results from the research point out that, at the beginning of 2009, the companies operating in the private business sector in the United Kingdom were 4.47 million and that includes unincorporated enterprises. Column 3 in Fig. 5.2 shows the number of family businesses at the start of 2009, divided by size, determined by the number of employees. Column 4, instead, shows an estimate of the number of firms at the beginning of 2007, considering that the growth rate of the number of companies was assumed to be same both in 2008 and 2009.

1	2	3	4	5	6
Type of firm	No. of employees	No. of all firms start-2006	No. of all firms start-2007	% of firms that are family-owned	No. of family firms start-2007
Micro	0	3,262,715	3,365,999	65	2,187,900
	1-9	1,005,535	1,025,535	67	687,108
Other small	10-49	165,980	171,141	58	99,262
Medium	50-249	26,530	26,490	45	11,921
Large	250+	5,940	5,910	19	1,123
Total		4,466,700	4,595,075	65	2,987,313

Fig. 5.2 Number of family businesses. *Source*: UK Department of Trade and Industry

Column 5 shows the percentage of firms that are family-owned for every size-band. In particular, the research gives an estimate of the proportion of micro-enterprises (i.e. without employees) that are family firms: the relative data is 65%.

Naturally, enterprises without employees cannot acquire the title of family firm by compensating other family members for their work, rather, some of these may just work in the company without receiving a wage, or perhaps the sole trader may be willing to include in the future other family members, as the size of the firm allows it. On the other hand, they could even view the company as a family business because they bear in mind to transfer it to a family member, when they decide to quit. Furthermore, the survey shows that family businesses represent 67% of firms with the number of employees between 1 and 9; 58% of small firms with the number of employees between 10 and 49 and finally 45% of medium-sized companies with the number of employees between 50 and 249.

As shown in Fig. 5.3, there are about 99,000 small firms and 12,000 medium-sized firms that together take the number of family firms in the SME sector to just under 3 million. The large family enterprises are just over 1,100: including these, family businesses reach the total number of 2,987,000.

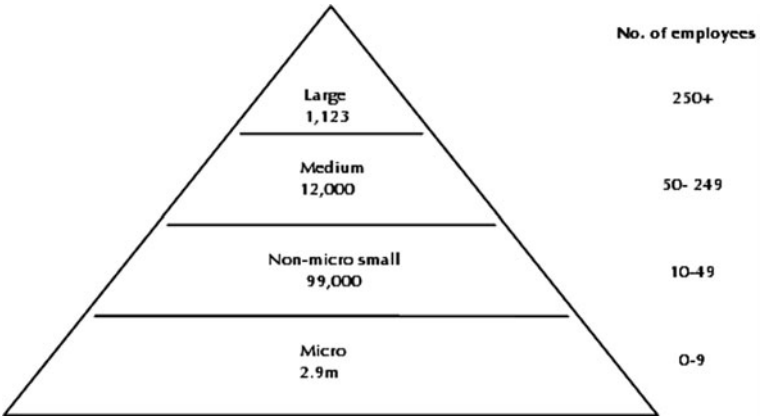

Fig. 5.3 Number of family businesses by size of firm. *Source*: Institute for family business (UK) (2009)

Table 5.2 Industries

Industries	Number of businesses	Percentage
Retail and wholesale	42	24.9
Manufacturing	56	33.1
Service	47	27.8
Construction	24	14.2
Total	169	100.0

Source: Foundation for the advancement of monetary education (2009)

As shown in Table 5.2, family companies are generally present within the services sector, and, in particular, in distribution, catering and tourism, while they are not common in the business and financial services sector.

As shown in Fig. 5.4, financial firms are underrepresented in the entire SME sector and this is surely due to the high start-up costs.

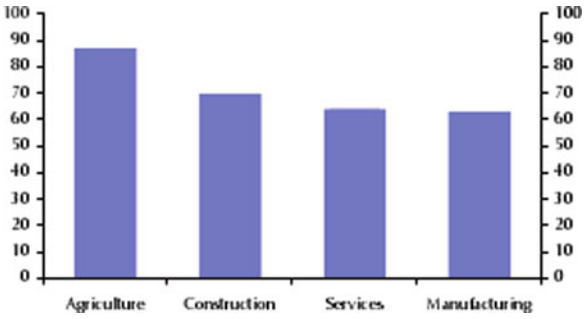

Fig. 5.4 Proportion of SMEs in each sector that are family firms, % excluding firms with no employees. *Source*: DTI 2009 annual survey of small businesses

As family firms are not generally common in the business and financial services sector, it is normal that they are not widely present in London, which is, as well known, the financial capital of the United Kingdom.

From the viewpoint of generational change, in the UK, as in Italy, family business is mainly controlled by the first generation that manages to keep the business group cohesive. In fact, as shown in Table 5.3, most of the sampled family businesses (56.8%) are managed by the first generation, 24.9% are controlled by the second generation and 18.3% are managed by the third generation or over.

Table 5.3 Generation control

Generation in control	Number of companies	Percentage
1st	96	56.8
2nd	42	24.9
3rd	15	8.9
Over 3rd	16	9.4
Total	169	100

Source: Foundation for the advancement of monetary education (2009)

Research showed that the older and larger companies are the ones for which there is a greater probability they have already been transferred to the next generation. Just consider that the probability that family enterprises in the SME sector with 10 employees or more are managed by the second generation is twice the probability of those with less than 10 employees. And even the sector itself is a variable, because there are businesses for which there is a greater probability they have already been passed on to the second generation, for example agricultural businesses.

Moreover, most of the family firms, object of investigation, didn't reveal clear plans for the future: 61% of the owners declared they hadn't decided anything yet regarding the moment when they would leave the company, and only 16% had already taken a decision about their successor.

In the United Kingdom, we have three types of family firms: owner-managed firms, sole traders, which are trading concerns owned by an individual who is also managing director and the firms in which the strictest controls are applied. Then we have larger, family-managed firms, which are generally owned and managed by two or more family members. And finally, family-controlled firms, in which ownership and/or management are shared with external members: anyway, in these companies, which are the largest, the family is still in control, thanks to the voting rights it holds.

An FBN International Monitor survey points out that in the United Kingdom about 40% of SMEs are owner-managed, around 45% are family-managed and only 15% are family-controlled.[1]

For this reason, the family business sector contributes to economic activity in a definitely more consistent way than private equity-backed companies. Estimates of The British Venture Capital Association have shown that private equity-backed

firms account for a turnover of about £425 billion and regard 2.8 million employees, while the family business sector accounts for £1,065 billion of annual sales and 9.5 million employees. In the meantime, the family business sector has the same importance for the economy as the companies which appear in the FTSE All-Share i.e. the 700 highest quoted companies. The turnover of such companies, as indicated by a valuable analysis of the FAME database, is approximately £1,200 billion, while the number of employees reaches 7.5 million, as shown in Table 5.4.

Table 5.4 Turnover & employment of family firms compared to other sectors

Type of firm	Turover (£ billion)	No. of employees (million)
Family firms	1,065	9.5
Private-equity backed firms	425	2.8
Top 700 quoted companies (FTSE All-Share)	1,200	7.5

Sources: BVCA & FAME database (2009)

Truly, some of the biggest private and quoted companies are family firms, and we can offer various examples, such as JCB, Associated British Foods and Clarks Shoes.

5.4 The Family Business in Lebanon

In market economies, ruled by the law of supply and demand, family businesses are a fundamental source of job creation (Shanker and Astrachan 1996). In Lebanon, family businesses represent 85% of the private sector, covering 1.05 million of 1.24 million jobs (Fahed-Sreih 2006). In economies disrupted by the war, as in Lebanon, which are trying hard to recover, family is often the only inviolate socioeconomic institution, which can sustain an entrepreneurial activity.

After the war in 2006, the EU has invested a great deal in Lebanon, in political and economic terms, and overlooks with profound concern the persistent situation of institutional stalemate, considering that the European Union has signed an association agreement with Lebanon and that in January 2007 an EU–Lebanon action plan has been adopted, aimed at development of the country, to ensure its per capita income can rise at the level of the rest of Europe and Lebanon returns to being the centre of Middle East. Thus family behaves as a stabilizer in the processes which aim to produce social and economic value and preserve wealth through generations (Habbershon and Pistrui 2002).

In family firms in Lebanon the presence of young members is quite high, considering that 78% of those who answered the survey were less than 50 years of age. As shown in Table 5.5, most of the firms that were analyzed were less than 30 years old, the average age being 33, and single families owned over 20% of the businesses.

Table 5.5 Characteristics of the firms

Age	Number of firms	Average number of full-time family employees	Average number of full-time employees	Average number of part-time employees
<30 years	60	2.44	55	6
>30 years	54	3.1	196	14.5

Source: Institute of Family and Entrepreneurial Business (IFEB) (2009)

Table 5.6 Business activities of Lebanese entrepreneurs

Business activities of Lebanese entrepreneurs	
Business activities	Percent of total
1. Construction	24.30
2. Retail	17.76
3. Professional services	15.89
4. Computer/technology	14.02
5. Financial/insurance	11.21
6. Service organization	7.48
7. Transportation	5.61
8. Distribution	2.80
9. Manufacturer	0.93
Total ($N = 112$)	100.00

Source: Institute of Family and Entrepreneurial Business (IFEB) (2009)

As shown in Table 5.6, in the Lebanese market, three kinds of business activity prevailed: in the first position construction, which accounted for 24.30%, followed by retail (17.76%), and then professional services (15.89%).

Given that senior generation leaders are inclined to remain in their offices as long as they can, they don't usually freely debate succession matters. Many of them cling to their seats and refuse to pass the baton. For the same reason, Lebanese family firms show features that portend not only for their own development and longevity, but also for the wealth and stability of the whole country. Family firms in Lebanon aim at showing persistence, moving along a path of self-reliance, and seem to be quite optimistic, in spite of the consequences of war and devastation (Fahed-Sreih 2006).

To conclude, we can say that many more long-lived family enterprises have been able to survive thanks to the continuous compromise between the aspirations of the family members and the conditioning imposed by the market, legal and institutional systems, managing to develop an adapting process combining the virtues of trust, low transition costs and long-term *commitment* with a highly creative management. And, above all, they have managed to contribute to the economic development of their own country.

Case Study: LCF Rothschild Group

In England, banking business is a particularly rich ground for family firms, because the medium of exchange is unique and homogeneous, i.e. legal tender. After all, "the profession is hereditary and bank credit passes on from father to son", as W. Bagehot, the nineteenth century English liberal economist, defined the banking industry.

This industry has been dominated for many years by LCF Rothschild Group, a guarantee of experience, honour, financial acumen and mutual trust. In fact, it is one of the big dynastic banks, thanks to the continuous presence of potential heirs and the values carried by their Jewish religion.

The period when the Rothschilds began to make their way in the world dates back to the eighteenth century in Frankfurt, but they reached real success in England when they opened their first bank.

From a generational viewpoint, the first Rothschilds were Jews and churchgoers, money changers and wool and silk traders. Mayer Amschel Rothschild was the founder of the banking dynasty, although the real promoter of the establishment of the bank in England was the third-born Nathan, from whom the first bank in London took its name: N.M. Rothschild & Sons. English business was far ahead of all the others with regard to industrial entrepreneurship and commercial technique, and it required a constant capital flow.

In 1814, the British Government, that aimed to defeat Napoleon, ordered Nathan and his brothers to raise the funds needed for the war and this was a great opportunity for the Rothschilds.

The successful banking business established by Nathan in London represented a model for his brothers. In fact, first James, in 1812, settled in Paris and there established his bank; then, Salomon, in 1820, decided to base himself in Vienna, where they already had business running. Lastly, while Amschel, the oldest of Mayer Amschel's sons, was left in Germany to manage the Frankfurt bank, that was gaining growing influence, Carl, following the expansion of the Austrian Empire in Italy, reached Naples, where he established his own business.

An interesting aspect is the exclusively consanguineous succession of the family business. In fact, this was decreed in the will left, before his death, by the head of the family, Mayer. He specifically listed the behaviour principles of the whole family: for example, "there wasn't and there never would have been space for genders within the firm, and family members could only get married to other Jews". Thus, it was a will that limited behaviours, but at the same time strengthened their sense of social pre-eminence and dynastic continuity. Finally, for over 200 years Rothschild has held a leading position in the world's financial markets.

The values and traditions started by Mayer Amschel have been carried on across generations and are still alive in the LCF Rothschild Group, which was established by Edmond de Rothschild and is presided over by his son, Benjamin.

The LCF Rothschild Group has its offices not only in Europe, but worldwide. Its core activities are corporate banking, investment banking and private banking and trust services; its clients are governments, corporations and individuals all over the world.

Case Study: Toyota Motor Company

In Japan, automobile manufacturing is one of the most flourishing industries of the internal economy, and the global growth of Japanese automobile companies has been pulled ahead by the advance of Toyota, which has become one of the leading international manufacturers.

Toyota Motor Company was born in August 1937 from a rib of *Toyoda Automatic Loom Works*, one of the most important textile industries in the world, founded by Sakichi Toyoda, in 1890. The founder, after he had invented a wooden textile loom, decided to reach a radical turning point by transferring in 1929 the patent of its automatic loom to the British *Platt Brothers & Co. Ltd.*, world leader in loom manufacturing. The transfer made the firm cash to the equivalent of 1 million yen: the start-up capital from which the *Toyota Motor Company*, led by Kiichiro, Sakichi's son, would be born. First and foremost, the firstborn introduced the technique of reducing the storage of finished products, anticipating the kaizen technique, brought into the company by Taiichi Ohno.

A peculiarity that should be emphasized about the generational process with regard to succession is that the property's heir mustn't necessarily be a blood relation, but can even be an external member adopted by the company, as it happened during Toyota's second generation.

Later, in 1967, Eiji Toyoda became president and managing director: he was the first member of the founding family in a direct consanguineous line who occupied the top of the pyramid from Kiichiro's time. At present, Toyota has reached its fourth generation with Akio Toyoda, great-grandson of the founder of *Toyota Motors*, chosen both for his technical preparation and because he is a consanguineous member of the family.

In summary, the present situation shows Toyota as third largest automobile manufacturer, after Ford and General Motors, with a very wide range of automobiles that goes from economy cars to luxury cars, including family sedans and minivans, and also reaching off-roaders and sport cars. It is present all over the world, especially in Japan itself, Brazil, South Africa, Germany, Portugal, England, France and many other countries, both with its own branches and with *joint venture* manufacturing

agreements, for example the one signed with GM, which gave birth to NUMMI (*New United Motor Manufacturing, Inc*.).

Case Study: Wendel Investment Company

In France, the metallurgical industry has been controlled for long time by the Wendel family, big iron manufacturers, owners and managers of mines and foundries, since the beginning of the eighteenth century. In their history, industry, trade and public affairs weave together, given that they have been for a long time allied to governments and first-rate public figures.

In March 1704, the first founder of Wendel was Martin Wendel, who bought forges in Hayange, Lorraine. After his death, his son Francois Ignace succeeded him, and he is the most significant personality of the long Wendel dynasty, given that he fought with energy to achieve better and more competitive market conditions for iron manufacturing: protectionist tariffs on finished metal and no import taxes on raw material.

On the other hand, in 1834, Wendel was only ninth in the ranking of the French iron manufacturers, with an annual production of 3.5 million francs (in the first position was *Cie Des Hauts-Fourneaux de la Loire et de l'Ardèche*, that produced iron for 7.3 million francs), less than 1% of the country's total production (approximately 340 million francs). Nonetheless, in just over 30 years, the quantity of iron produced had increased about 30 times, reaching 11.2% of the national production.

Later, the company expanded from France to Germany, dividing itself into two branches: the German part, named *Les Petits-Fils de Francois de Wendel*, which included the firstborn in Hayange, Moyeuvre, the new plants in Stiring (inaugurated in 1853) and the coal mines in *Petite-Rosselle*, which remained an unlimited liability family company: according to its establishing deed, only the direct descendants from the Wendels could acquire the ownership shares. Even if, in time, the sons-in-law would access the company, giving birth to an ownership succession process characterized by direct blood relations.

At the end of World War I, the two Wendels mined 3.7 million tons of iron ore and produced 1.25 million tons of raw cast iron, 1.1 million tons of steel and 892,000 tons of sheet metal: more than one-third of the French production and a quite remarkable share of the German one. The family gave jobs to 23,000 workmen, 30,000 if we count those employed in the Ruhr and in Netherlands. Employees were often lodged in houses owned by the company and sent their children to schools built and financed by the firm. The company's management aimed to make them feel that they were part of one big family. It was a standard procedure, in the traditional paternalism of French companies: "family is always the family".

In the present international scene, forge and ironworks business has become a lot less profitable than in the past, because the market always requires more engineers and professional managers. Therefore, this *family business* manages its own activities in an indirect way, by share ownership: the Wendel clan meets once a year to listen to the reports on a share portfolio that ranges from electric appliances to oil, from abrasives to medical research, without forgetting the business which made them known in the market, i.e. the iron and steel industry. Moreover, the *Wendel Investment Company* has been established and it is committed to increase richness: in fact, in 1977, a patrimony equal to 1 billion francs was counted, now risen to € 2.5 billion.

Note

1. Pilot FBN International Monitor, Gallup Europe/Family Business Network, 2009

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Chapter 6
The Italian Entrepreneurial Outlook

Manlio Del Giudice

Abstract The premise of the chapter is that the prevalence of the family-owned business model in the present Italian economic system, the result of an evolution from far away, brings out the contiguity of some important "context conditions", the specification of which has influenced the main theoretical interpretations. A picture of Italy is unveiled through the figures of some protagonists, the entrepreneurial ideas, the choices of governance.

6.1 The Italian Family Business Model

The beating heart of Italian economy is represented by a mass of small-dimension entrepreneurial initiatives characterized by *family governance* systems; in the manufacturing sector, the incidence of SME with the number of employees lower than 50 is equal to 57% on the firm's totality, percentage definitely higher than the one of the same dimension firms operating in the major European countries.

The warning signs of the small firms' *boom*[1] (Cavalieri 1981; D'Angelo 1996) are to be found in the 1960s, when, after the rebuilding phase had ended, the state promoted entrepreneurial initiatives, both of public and private matrix, aimed in particular at the chemical and the steel sectors, in order to create positive externalities[2] on the entire economy, allowing its development. Despite the good intentions, many of those initiatives failed – disappointing even under the occupational aspect – for their magnitude, for inefficiency in using the resources, or for deficiencies of strategic nature, leaving space for the development of the small and medium enterprises that drew – and still draw – vital lymph from the artisan tradition of our country, cutting out spaces inside the industrial districts,[3] characterized by factors that neither the time nor modern complexities have been able to affect: the attachment to work and the attention for quality. Which are the levers and which are the inhibitors of the Italian industrial system? Among the first we can include

(a) the ability to develop innovations immediately noticed by the market; (b) flexibility and adaptability in respect to the environment and market conditions; (c) tight identification of the entrepreneurial dimension with the managerial one; (d)

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ability of assuring a company "atmosphere" better than the one you can find in the big enterprises; (e) good self-financing skill, due to a deep-rooted trend to reinvest the entrepreneurial profit.

Among the second, instead, are placed

(a) the insufficient contractual skill towards the markets of resources (in particular financial and technological); (b) the low tendency to form a "critical mass", both towards the institutions and the markets (in the first case, through category and territorial associations, in the second, through *joint ventures*[4]) (Valdani and Bertoli 2006; Paul Peter and Donnelly 2003, pp. 253–272); (c) general deficiency and inefficiency of public and private infrastructures which should be available to our SME; (d) a low consideration of Italy from a political point of view abroad and consequent lack of general synergies between the image of the *Made in Italy* and the image of the "country".

If we add to this the increase of competitive pressure in *labour-intensive* sectors, the fast evolution of the needs, the *deficits* under the *knowledge-intensive* and *science-based* profiles, the "clinical frame" is complete and the more qualified diagnosis seems to be *small business* syndrome, briefly, dwarfism. There is unanimous consensus among scholars in attributing, *inter alia*, to the dimensional structure[5] (Merli and Saccani 1994) of our firms, as well as to the sector-based specialization, the responsibility of the disappointing *performances* of Italian *export*[6] (Robson and Bennet 2000; Woolf and Pett 2006), on which, nonetheless, the district origin *output* (Becattini and Menghinello 1998) falls in a positive way. Pavitt[7] (1984; Pavitt et al. 1987) distinguishes between traditional sectors and specialized offer sectors (the four "A"s of the Italian manufacturing excellence: clothing, furnishing, automation, food), in which Italy is a *trend setter*, but finds itself facing fierce Chinese competition that, heartened by the possibility of availing itself of social *dumping*[8] (Valdani and Bertoli 2006) inexorably moves towards its *take-off*. In SME innovative processes adopt above all the guise of product and process innovations. ISTAT Italian data[9] shows that in the 2006–2009 triennium, 38% of the firms of the industrial division with at least 10 employees have realized product and/or process innovations, pointing out that, *ceteris paribus*, the tendency to innovation, both formal or informal, tends to be influenced by dimension in addition to the sector it belongs to. Moreover, it emerges that, because of the insufficient integration with basic research activities and the low tendency to cooperate, such processes are often isolated and not anticipated, supported or followed by contextual innovations of management practices, of the firm's organizational forms and of people's competencies. As a consequence, impact on competitiveness is lower than the one potentially achievable. That means the lack of strong links among the actors who complete the innovative processes (Baumol 2002) prevents the achievement of the minimum stage to exploit the benefits arising from cumulability. Eurostat data for 2009[10] register a missed line-up of the growth rates[11] towards the EU area (Italy has grown by 1.9% against 2.9% of EU-25 and 2.7% of the countries in the Euro area) and in particular towards traditional Italian *competitors* (Germany, France, Spain). The annual survey performed by the Italian Consortium of the Chambers of Commerce named "Unioncamere", dated 2010, offered interesting data: the analysis

of a significant sample of medium industrial enterprises, led over a 5-year period, highlighted a greater turnover growth than the one of the small and big enterprises; a bigger growth of the operating margin on the turnover than for other enterprise categories; a greater financial solidity[12]; a superior patent capability; greater investment opportunities in the internationalization processes.

In this regard it is frequent that the medium enterprise, after enacting an expansion process, keeps strong relationships with the territory and the market of origin (adopting a *leadership* position in it), not only of commercial type, but also, above all, in terms of information and knowledge exchange[13] (Spingardi 2006). After all, as the Latins said, *in medio stat virtus*! Hence a swarming of theories about enterprise growth, which can be essentially brought back to two approaches: the first, of US matrix, that sees in the small enterprise a transit stage, whereas the same is bound to evolve or disappear. The progenitor of such a trend was Chandler (1962). Later Galbraith (1971) supported such thesis recognizing in the *large-sized* the exclusiveness of long-term development planning, exploiting scale economies and managerial techno-structures.

Williamson focused on the link existent between dimensional growth and managerial administration, underlining the individualist dimension assumed by them in implementing the firm's policies. On the other side are placed those who are opposed to the determinism inborn in such theories, recognizing the *small-sized* dignity of *genus* as such. To the entrepreneur belongs the faculty of deciding if assuming – or not – the role of *manager*, of activating – or not – growth paths. An assiduous promoter of this second approach, of European imprint, was Penrose (1959), according to whom it is possible to reach balance whatever the firm's dimension is; therefore, development has to be understood in a qualitative key – under the sign of the evolution of the relationships between macro and micro-environment – more than quantitative. *Fil rouge* of almost all these models seems to be a vision of the enterprise's change process, as a timed sequence of evolutions and revolutions ordered by different needs in terms of entrepreneurial spirit or management[14] (Miles and Snow 1978). Greiner 1972 suggests a model in five phases – creativity, authority, delegation, coordination, cooperation – and describes the roles that management has to adopt in every stage in order to transform an organizational crisis in a launching pad. Kroeger (1974) suggests the hypothesis that the firm's life can be broken up into the phases of start-up, development, expansion, maturity and decline, and identifies in the entrepreneur's ability of changing his own role the fundamental condition for the enterprise to survive and grow. Bruce and Scott (1988), in step with contributions by Churchill and Lewis (1983), elaborate a development model distinguishing five growth stages – start-up, survival, growth, expansion, maturity – and four critical phases placed in the transit from a stage to another, that, if noted a priori, can allow the enterprise to continue developing itself. Growth processes, and therefore of change, can be brought back to biogenetic approaches (life cycle theory) and finalistic approaches (teleologic theory), and dialectical (dialectical theory which can lead back to the idealistic current, Fichte, Schelling and Hegel) and, finally, can adopt evolutionistic tones of Darwinian imprint (Boldizzoni et al. 1993).

Actually, according to a study by Boldizzoni et al. (1993), growth processes are also described by "external lines",[15] examples of which are represented by the stipulation of consortia/agreements with firms in the sector, signing of agreements on an exclusive basis or long-term contracts with the suppliers and the participation of many other enterprises. It results in a mass of growth possibilities in which the choice of one of the possible paths is not necessarily irreconcilable with other collateral paths. According to a recent study enterprises which are aware of the greater hostility of the competitive environment in which they operate achieve higher growth rates, because they develop an intense reactivity. Studies by Carmeli and Thisler (2004) and Wolff and Pett (2006) claim, instead, that a turbulent external environment is a deterrent to growth. In Johnson's (Johnson et al. 1999; Hymer and Pashigian 1962) studies, instead, the *external environment* variable is absolutely marginal. The desirable transit from small to medium size doesn't represent at all a panacea, because the number of enterprises which score such a goal offer a decreasing marginal *trend*, due to the fact that their competitive advantage has a commercial nature, because it is founded on aspects such as, production decentralization, and strengthening of the weight of industry-linked services for the activities that are homeland located, which can be easily copied by the other *competitors*. Have we reached a dead end? No; if growth in the short term is accompanied, in the medium long run, by orientation towards the *technology intensive* and the *science based*. Probably the solution to the "problem" is built-in in the valorization of the components of our entrepreneurial system instead of the eager research of the "miraculous cure that restores to health the hypothetical patient". And if dwarfism wasn't the consequence of an imperfect gene,[16] but the expression of the ability to develop interstice economies to those undertaken by the *large* and *medium-sized*? Thus, we should put aside our "comfortable" *clichés* and open ourselves to empirical evidence: a group of small enterprises exists, with a high growth potential, exceptionally innovative, with a surprising ability to create employment, that represents 5–10%[17] (Audretsch et al. 1999) enterprises in continuous expansion, in spite of their informational as well as financial *budget* contents.[18]

They operate essentially in the technological division and invest in research and development. Bypassing the borderline of competitiveness based on labour cost (1960–1970), as well as the one of the speed/flexibility of the productive system (1980–1990), we live nowadays in a new season of district capitalism where an unexpected "flourishing of the small enterprise"[19] is under way (Audretsch 1995) with a range exceeding the explication capabilities of the theoretical models prepared and which apparently matches badly the internationalization perspective[20] (Balconi et al. 1998).

What gives substance to the district *quid pluris* compared with the non-"districtualized" dwarf enterprises? Social knowledge, the link with the territory, the charismatic capability of involving every type of co-workers, a complex of extraordinarily adaptive values and behaviours, anything but the "adiabatic processes – *lato sensu* – plastered in dusty manuals". Capitalism needs the *homo distrectuale,* skilled alchemist of a "nostrum" for competitiveness, as well as for the reproduction

of his own "chromosome make-up", *Made in Italy*'s backbone. The system's valorization inevitably passes through the valorization of all its components; in the age of *globals'* the recovery of district competitiveness could follow the route of strategic assembly (Haspeslagh and Jemison 1991), made of a series of acquisitions, aimed at creating a frame inside which district *know-how* can be situated – and protected – positioning it, rightfully, in the competitive macro arena, together with the transnational "stateless". This brief *excursus* on the Italian entrepreneurial outlook cannot be concluded without a due clarification about the relationship existent between small and medium enterprise and family enterprise. Is family enterprise equal to SME? (Zocchi 2004). Nothing more wrong, argues "if it is true that small enterprises have almost all a family configuration, it is also true that there are mono-family firms in which the family institution is completely superimposed to the enterprise institution, like so there are *public companies* in which a high number of families, with limited capital shares, don't exercise any type of control. There are also mixed family enterprises (usually of medium dimension), where external capitals of banks and institutions are mixed with private capitals; where in the governance[21] (Modena and Scafidi 2006) there are only entrepreneurs, namely representatives of such institutional shareholders in the BoD and the boards of statutory auditors. These are other typologies of family enterprises, certainly not SME".

6.2 Family Business in Italy: Traits, Configurations and Path to Sustainable Competitive Advantage

Family enterprises[22] (Corbetta 1995) represent a widely diffused category, in developed and non-economic systems.[23] They are born, in most cases, from resource aggregation around a unique *leader*: the founder. In Italy we estimate that about 92% of the firms are family businesses,[24] such an operational model representing the result of our entrepreneurial culture, made of creativity, industriousness, persistence and individualism (exaggerated at times).[25] Moreover, such prevalence is due to the strong link with the territory and not to the presence of the industrial districts, forges of entrepreneurial DNA. The assessments provided by scholars and researchers significantly diverge in showing the diffusion rate of family enterprises[26] (Boldizzoni 1996), their average duration[27] (Kets de Vries 1993) and their survival probability[28] (Bertella 1995). The absence of a *database* that stores the number and typology of family enterprises is essentially due to the missed collection of the firm's data assuming family *status* as a discriminant, meant in terms of ownership and management. Studies in the firm's field have in common the conviction that the management modality typical of small enterprises is the entrepreneurial/individual one. So *business* development possibilities are anchored to the entrepreneur's skills and to his availability to change his own *status*, to adopt the one of *manager* (Steinmetz 1969; Kroeger 1974) and, also, to the concurrent evaluation of the prospects of the family managing group's professional growth (numerosity and tendency of the family members to commit themselves to the firm, the extent of the family's

assets and the attitude of the relatives to let them flow into the firm as risk capital). The growth process of the family enterprises appears characterized by leaps and discontinuity,[29] dimensioned on the consideration, more than of the *business* variables, of the internal limits, in terms of human resources, skills, capitals owned or obtainable by the family. More recent studies warn those who are ready to analyze the *Family Business* (Zocchi 2008; Corbetta and Montemerlo 2009) phenomenon about its structural complexity, a regular "tangle of economic variables", since a family enterprise is "a pizzeria in Campania, a stock company in Padania, a group of hard-working artisans and noisy traders, unknown islander billionaires, Milanese bauscia entrepreneurs, industrialists with the pochette or with tattoos, [. . .] and children with piercing and dads in a double-breasted suit, perhaps don't they represent in a clashing way the evolution of Family Business? The actor De Niro, the singer Pavarotti or Vasco Rossi, a television showman such as Maurizio Costanzo, or a journalist such as Bruno Vespa, the director Steven Spielberg who breaks box office records with his films, perhaps aren't they examples of Family Business?" (Zocchi 2004). And a small firm from Caserta's *hinterland,*[30] the hearth and home of which has radiated since six generations the tradition, the passion and the art of fireworks, perhaps isn't it one of the many shades of family business? Abandoning the dimensional criterion (small firm equals family firm), and detecting the heterogeneity of the possible distinctive activities, the only binomial steadily common to the plurality of the forms in which the above-mentioned phenomenon can manifest itself, seems to be family-enterprise. Among the possible approaches to *Family Business* study, we analyze three:

- the legal matrix one;
- the FOB (Family, Ownership, Business);
- the FAP (Family, Family Activity, Family Assets).

The family enterprise institution finds its legitimation in many rules in the Italian Constitution: e.g. article 1 by which Italy is a Republic based on labour; article 29 that recognizes the rights of the family as natural society based on marriage; article 3 that ratifies the principle of equality; article 35 that safeguards labour; article 36 that gives workmen recognition of their right to an adequate salary; article 37 that safeguards the woman who works; article 46 that recognizes the workman's right to cooperate in the firm's management. The enterprise under discussion is an institution introduced with the reformation of family law in compliance with the Italian law 19 May, 1975 n. 151, to make up for the frequent unpaid work performed by family members within the family firm, safeguarding in this manner also the domestic labour and removing every position of subjection towards the owner of the enterprise.[31] It can perform any activity, commercial, industrial or agricultural, except the insurance and banking, for which law prescribes the corporate form. The relative discipline,[32] contained in article 230-bis of the Italian Civil Code, by regulating the *status* of the family member who performs, a company or dependant job relationship, his own working activity in the family or the family enterprise, assigns

to it a residual meaning, since such institution finds its application when a different job relationship[33] isn't configurable. Moreover, it assumes that family members live together and perform an activity within the family and not necessarily within the family enterprise. While in common language family enterprise and enterprise of the family are equivalent notions, the Italian Civil Code imposes a distinction between the two. *The family member, who performs in a continuous way his working activity in the family or the family enterprise*[34] (Ferri 2006), *has the right to maintenance according to the family's patrimonial condition and participates to the profits of the family enterprise and the goods purchased with them, as well as the firm's increases, also in order to the start-up*[35] (Besta 1920, p. 423*;* Amodeo 1984, pp. 833) *in proportion to the quantity and quality of the work performed.* [. . .] (*Art. 230-bis of the Italian Civil Code).* Family enterprise presents certain affinities both with the small enterprise and the tacit family community. The first of the two affinities is based on the practice of an organized professional activity, however in an exclusive way, and prevailing with one's own work and of the family members; the second affinity is based, instead, on the kinship's tie (the *affectio familiae*) that enthrals people who live sharing a roof and table, work and interests, and touches not only the sphere of moral, spiritual and material assistance, but also the economic interests. The social relevance of family labour wasn't unknown by the legislator who, in Article 2083 of the Italian Civil Code, included among the small entrepreneurs, besides the small independent farmers, the artisans and the small traders, *those who perform a commercial business mainly organized with their own work and of the family members.* Therefore, the family enterprise is the enterprise in which takes part the so-called nuclear family,[36] to whom patrimonial rights and management powers (Campobasso 2008) are acknowledged.[37] The right to participate in the profits and the increases is transferable, in favour of the other family members who are included in the category provided by law, only with consent of the other family members, recalling, in this, the discipline provided for the partnerships, where the *intuitu personae* is privileged with respect to the patrimonial component of the company's relationship. The thesis that situates the family enterprise among the individual ones seems to prevail (although income is divided among family members using the same criteria provided for partnerships) in which the discipline of the internal relationships assumes a mere obligatory character. Because in external relationships the entrepreneur acts in his own name and on behalf of himself, the effects of the acts accomplished by performing the entrepreneurial business will be attributable to him, including the exposition to bankruptcy in case of disorder.[38] Bonds regarding the establishment of the family enterprise don't exist, so it could take place independently from a written act. Business approaches[39] (Davis 1983; Boldizzoni 1996; Schillaci 2008) adopt as a discriminant variable in order to identify a family enterprise the *coniugium* between the family institution and the enterprise institution in which at least one of the following conditions is verified:

- the bodies managing the firm are prevalently represented by members of the same family;

- family events weigh on the firm's ones, representing a crucial variable especially in the generation transits and when proceeding to power transfer;
- the identification of the firm's values with the family values exists; and
- active involvement of one or more family members in the firm's operational business is highlighted.

According to some authors, in order to reach an effective analysis, it is convenient to distinguish from the enterprise system, ownership and direction, because there are individuals who, despite being owners, are not involved in the management of the entrepreneurial business and there are others who have management powers and responsibilities, although they are not owners[40] (Gallo and Garcia-Pont 1989; Hill and Snell 1989; Barach and Ganitsky 1995; Gersik et al. 1997; Sharma et al. 2003). Gersik, Davis, McCollom Hampton and Lasenberg, grouping the sets that form the above-mentioned triad (family-ownership-business) inside the same *box* (Fig. 6.1), created a model able to give a place to every individual involved in the family enterprise exploiting, for the cases of biunivocality of the relationship, the areas of superimposition among such sets. The individuals who present only one relationship with the enterprise will be situated in the most external areas: in zone one are the family members who are not involved in the entrepreneurial business; zone two welcomes the owners who aren't either family members or employed in the enterprise; zone three includes the employees who are neither owners nor family members. Let's move on to the superimposition areas: the owner who is not involved in management, but is a family member, will be placed in sector four. Area five is assigned to the owners who work in the firm although they are not part of the family. On the contrary, all the family members who are involved in management, despite not being owners, are positioned inside area six. And finally, those who participate in management and are at the same time family members, as well as owners, find a place in area seven.

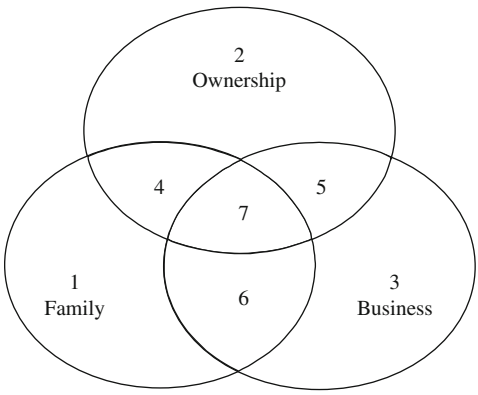

Fig. 6.1 The triad of the family business. *Source*: Gersik et al. (1997)

The determinants of the problems regarding the generation planning process can achieve, by such a method, an effective framing in the light of the position assumed by every member inside the *box*: for example, a subject placed in area four could be favourable to a dividend distribution policy,[41] motivated by the *premium price* to which he is entitled for the only reason that he is a family member. Such logic collides with the one of an individual belonging to area six, who tends towards profit reinvestment in a self-financing view,[42] as well as the firm's growth. The determinants of the third approach are, instead, the family business and the family assets. The success of a family business and, in general, the continuity of family capitalism, is indissolubly linked to the balance level that is established among the three variables under discussion. The concept of family[43] is used in the wider meaning of the term, including, besides the direct family members (partner, children, nephews, single/widow), also the indirect ones (friends/ex-partners, external managers, bank clerks who are friends, co-founder partners, very loyal employees). In a context as the American one, family certainly represents a less supporting reference point compared to the role it assumes in the Italian entrepreneurial realities; from this a higher tendency to insert external partners derives. A further divergence is noticed under the aspect of control: it would be inconceivable to define as a family firm a US enterprise controlled by a family who detains less than 5% of the capital, while in Italy, the rules provide for that share to be sufficient to exercise control. Family members can be distinguished as active and passive; the first are distinguished even in pure active family members and partners, depending on the fact that they are simply operational in the firm or even partners of the same. They favour a low dividend policy oriented to self-financing and are interested in the *fringe benefits*. The passive family members (also pure or partners), who are members of the family, but are unknown to the firm's management, will tend to promote distribution policies, because the firm represents an investment for them and the profits generated by them its compensation (Zocchi 2008). The pseudo-active and pseudo-passive family members, category created ad hoc to include partners and juniors who aren't properly active or passive, combine to complete the family portrait, although the distinction between the two categories is at times rather unstable. Enterprise business can be performed in an individual manner or in a corporate form, but the *conditio sine qua non* so that the entrepreneur[44] realizes such practice is represented by the existence of a firm. Fabio Besta defined it thus: "sum of phenomena or transactions, or relationships to be administered regarding a mass of capital that forms a separate lot or a single person, or a family or any union or even a distinct class of phenomena, transactions or relationships" (Besta 1920). Although such definition has been conceived in a sociopolitical and economic context quite different from the actual one, the defining effectiveness appears unchanged. Zappa, instead, wanted to underline the firm's relational and dynamic component, defining it as an "economic coordination in act founded and held up for the satisfaction of human needs. Economic coordination of operations of which man and richness are vital elements" (Zappa 1927), as well as "economic institution bound to last, that for the satisfaction of human needs, orders and performs, in continuous coordination, the production or the gaining or the consumption of richness". Amaduzzi was, instead, promoter of a systemic

approach, defining it as "system of economic forces that develops, in the environment of which it is complementary part, a process of production, or consumption or of production and consumption together, in favour of the economic subject and the individuals who operate in it" (Amaduzzi 1967), that if on one hand sacrifices its social purpose, on the other has the benefit of being able to include in it also the family and the state, as consumers of goods and services. According to Masini a firm is synthetically defined through its borderlines, because it is the strictly economic order of an institution (Masini 1979). Three categories of institutions exist: families, enterprises, public territorial institutions; so it will be possible to point out three typologies of firms: supplying firms[45] (or of consumption) and family assets, production firms and public compound firms (Airoldi et al. 1994). In the economy of knowledge the firm can be effectively defined "as a network of intelligences, that in its turn can be expression of an intelligent system with its own identity, endowed with a learning ability that enables an evolutionary growth" (Miolo Vitali 2000). The presence of *feedback* mechanisms is an indicator of the fact that actual results are influenced, in some way, by past events, that implies an evaluation of the facts which tends towards the conservation of the system, removing the *gap* between targets and results, or a process of learning, growth and survival independent from the individual purposes, nourished by the store of knowledge acquired over time, by the developed sense of self-regulation and governance of the complexities, in a context in which the most effective weapons are represented by knowledge, information, creativity and integration of the enterprise's competencies with the *networks*[46] of the market. With regard to the variable of the entrepreneur's assets, it consists of revenues (insurance policies, legacies); *luxury* – jewels, antique and sports cars, artworks; *intangibles* (trademarks and patents); liquid assets (bank accounts in Italy or abroad, assets management); estate assets (real estate); and mobile assets (participations in the family companies and of third parties). Nonetheless it is frequent that the veritable richness of the entrepreneur (trademarks, patents, licences and *know-how*[47]) doesn't appear at all among the balance items, because research activity is aimed at the improvement of the product rather than to "the balance aesthetics". To this end, an incident narrated by Giovanni Rana is indicative: "One evening I was having dinner with my brother who in that moment was dealing in the sales of mineral water and told me: it's a market that goes very well and after the fizzy mineral water, Italians are starting to ask also for the natural bottled one. The problem is that the natural one, without bubbles, when bottled, lasts less than the one to which carbon dioxide has been added. After dinner I spent all night thinking about the bacteriostatic action of carbon dioxide on food conservation and trying to understand if, with that element, I could have solved one of the problems that we were then encountering in the growth of our business: the relatively brief saleability length of our tortellini. A few days later we had discovered the mix of carbon dioxide and nitrogen that would have given life to the modified atmosphere and to the long saleability of fresh products. If I had patented the idea, I would have stopped working now, but at the time I was only interested in selling the tortellini" (Salvatori 2006). That is, then, what Luigi Einaudi, Italian economist, said about family business is "[. . .] thousands, millions of individuals work, produce and save, despite

all we can invent to bother them, hamper them, discourage them. It's the natural vocation that pushes them, not only the thirst for money. The pleasure, the pride of seeing one's own firm flourishing, gaining credit, inspiring confidence in wider clienteles, enlarging the establishments, beautifying the offices, represent a progress motivating force as powerful as profit. If it wasn't so, it couldn't be explained how there are entrepreneurs who in their own firm use all their energies and invest all their capitals to often draw back profits widely lower than the ones that they could surely and comfortably achieve with other commitments".

6.3 Generational Succession: Under the Banner of Continuity and Cognitive Heritage

Over 5 million enterprises in the European Union equivalent to more or less 30% of all the European enterprises will have to face the problem of generational succession. About 30% of them, that is 1.5 millions, will disappear due to insufficient preparation for their transfer, compromising more or less 6.3 millions of work positions.[48] In Italy four enterprises on five are run by the first generation,[49] that still benefits from the "income" generated by the lead of the founder-entrepreneur[50] (Zocchi 2008; Corbetta and Montemerlo 2009); however, already the transfer of the ownership and control from the founders to the heirs in about 7% of the firms is sold to third parties. The most critical phase is represented by succession from the second to the third generation: only 3% of the firms that have reached the second generation pass on to the hands of the third generation and less than 3% lives, *in itinere*, a process of growth.[51] According to these surveys, the average life of a family business is about 24 years, the approximate interval in which the founder is still alive, and with his charisma feeds the dreams that have lead to the firm's birth. In handing over one's offices from one generation to the other, critical factors aren't certainly missing (to the point of generating the metaphor of the blocked flux); in particular two of them are[52]

- the vocation of the heirs, not always inclined to pass on the baton (*lack of interest*);
- the weak balance among the different family components,[53] if *juniors* from various proprietary branches decide to join the firm letting emerge the necessity of suiting personal strategic business visions and growth prospects.[54]

The generational succession is not only a worry for family businesses: any organization physiologically lives a transitional moment in the command cabin; it's sure, nevertheless, that in family business enterprises this event assumes a peculiar complexity, as it causes the meeting of two worlds, the family and the enterprise, in the light of the eternal dispute between reason and feelings. The more complex and traumatic the investiture, the more it can produce repercussions on the firm, in terms of

loss of competitiveness inside the sector with logical consequences. Unfortunately not many entrepreneurs plan the way out from the firm (*lack of planning*),[55] a bit for its charm, a bit because they have a great desire to "mould" the candidate to be their heirs to succeed them,[56] implementing a process of indoctrination that will end only when, thanks to an intergenerational *feedback* system, the heirs prove to have interiorized the values and can act in accordance with the expectations, in order to transfer, in their turn, the whole firm to their children (Boszormenyi–Nagy and Spark 1973), in the view of continuity.[57]

The *senior* unconsciously expects that the successors that he considered identical for knowledge and skills will have the same success in the enterprise that he did.[58] This implies that the *senior* has to plan a series of entry tests they have to be submitted to that faithfully follow circumstances to which himself has been submitted in the past and that he thinks will contribute to the successor's training, all fitted in an emotional frame, that social psychology with Heider defined as *Fundamental Attribution Error*.[59] It configures itself not as a simple handing over of one's offices, but as a complex process of integration/mediation among generations formed of subjects provided with more or less heterogeneous cognitive schemes. It is frequent, especially in the entrepreneurial reality of medium/small dimensions – where the bond between the entrepreneur and the enterprise is more cogent – that the entrepreneur is at the same time the depositary of a store of knowledge acquired through processes of "proofs and mistakes", for which he has elaborated useful management schemes. The binomial firm-family heralds remarkable advantages concerning the transfer of the tacit knowledge used for the enterprise's management. This untouchable richness flows into the start-up as an expression of the ability of conferring continuity and firmness to the enterprise. Unfortunately, for its intrinsic connotation, such *know-how* isn't formalized, but lives in the memories, in the anecdotes narrated in front of the fireplace or during the trips up in the mountains, to *juniors* that were rather waiting to listen to the tale of Little Red Riding Hood. "The coherent unity of fundamental assumptions that a certain group has invented, discovered and developed, learning how to face its problems of external adaptation and internal integration[60]" (Schein 1986) is systematically identified with the term business culture[61] to be intended either in an objective sense (technologies, formalized models of behaviour, managerial businesses adopted), either under the subjective/motivational profile (beliefs and values belonging to the business culture), that moves the organization towards determinate assumptions.[62] Business culture, especially if "strong", can represent the core of the power capable of feeding itself by obtaining new vitality from the adherence to the common system produced at an *intra* and *inter*-organizational level,[63] in the hypothesis that this culture appears to be predominant in a certain territorial area, only such s strong culture will be able to eradicate it.[64] It is indubitable that the enterprise is a human being able to produce knowledge. Likewise, however, this culture has to evolve under the thrust of external spurs (derived from the macro and micro surroundings) and of internal spurs,[65] through successors who adapt, renew or consolidate the original assumptions, bearing a new dynamism into the firm,[66] contributing, also, in designing the evolutionary course of the organization started by the founder using the

vision as an evaluation parameter of the achievement of prefixed targets; elaborating the hypothesis strengthened, afterwards, by empirical evidence and shared inside the firm, following with firmness some aims, reaching, finally, the stage of sharing and stratification of the value that contextually becomes an assumption. To succeed doesn't mean to perpetuate smooth routes. The experiences that are passed on, the traditions that are transferred to the heirs, if on the one hand represent a useful vehicle for the transfer of that *quid pluris* from which those who haven't "grown in the marc"[67] can't benefit, on the other hand they can create an obstacle considering the increasing competitive arena, because they tend to generate inert solutions founded on the *revival* of what "has already been done" (Calvelli 1990). It's not to be said, however, that the new values are incompatible with the previous ones; the cultural change according to Schein is characterized by "consecutive hybridizations" and adds new elements, without the pretension of cancelling or ousting the culture of which the organization is made. According to Watson (1963), to survive and have success an organization must have solid principles on which it bases all its politics and actions. Also at an individual level the most important component for the firm's success is a loyal adherence to the principles; if an enterprise has to face challenges of a world that is continuously in evolution, it has to be prepared to change everything except the principles that belong to a family with a long tradition which is both an honour and a duty.

With regard to this, Alberto Falck in a letter to his children wrote "you won't be simple heirs called to manage with honour the property left by the founder, but re-founders: each generation re-founds the firm, certainly on the base of what has been transferred , but also renewing it by adapting it at its times or actually changing it totally. [. . .] And what will you do? [. . .] You will proceed innovating and developing, because this is what an entrepreneur has to do, and this is what you have to prepare yourselves at". So a new imperative is taking place next to the *leader*'s one, the investment in training. Nowadays creativity, sense of initiative, the nose, the knack, have lost the exclusive podium because of the arrival on the scene of a new "actress": solid entrepreneur's preparation which is the result of an adequate training. Without an adequate training, in an economy of knowledge, you can't think of competing. You need to invest in training, thunders the imperative of *knowledge-based economy* and on this point the agreement is unanimous, but the question "what" training causes perplexity. The ancient Greek wouldn't have, certainly, skimped on the doses of philosophy, the erudition could enrich itself, according to Devecchi and Colombo, of ethics and values, given in small doses for at least 5 years, with smoothness, periodic incidence and the necessary contextualization. The approach to be used will be the one of the Jesuits: simple words, unequivocal, repeated with perseverance and sometimes with severity in order to discourage possible interpretations that may lead them astray. An adequate scientific, economic-financial and university training can't be neglected in the light of the scion's real nature, minding any sort of imposition. Finally a master associated to a period of stage will be certainly useful. Only at this point you will be able to proceed with the introduction in the firm (Devecchi and Colombo 2006),

paying the right attention in acknowledging to "the perfect successor" the benefit of mistake as it represents a basic stage of the learning process (Corno 1989), marked by a continuous comparison between *senior* and *junior* that could seem to represent the key to everything. It's Viviani, the alchemist of the long life elixir of family firms who stated that the success of an entrepreneur's initiative can last over time only in the presence of adequate competencies, shareholders unanimous[68] (Poster et al. 1985; Giaretta 2004) in supporting the strategic choices decisive for the firm and motivated successors[69] (Viviani 2006, p. 22). Piantoni (1990) outlines a definition framework of the succession modalities as an expression of business culture and paternal attitude. By using the term business culture, the author underlines the importance of evaluating, at the same time, the typology of the firm's business[70] – that contributes to the achievement of a specific type of business culture, influenced by the commodity sector it belongs to – and the dimension of the firm, other influent factor on the typology of culture and on the succession modalities. In the sphere of the first variable we can number the following typologies of *business*:

- *brain intensive*: it's typical of sectors such as high fashion, publishing and large part of the advising services. It concerns sectors in which it is indispensable to have "the knack", considering that you can't manage them without those inborn talents, and its representation worries the adult generation who carefully scans the baby to understand if certain scribbles could be or not the archetype of future suits and if it weren't like this, the metaphor of the blocked flux would materialize: the *business* will have to be alienated.
- Status: A weak or loser status, the "Achilles heel" of which can lead to a heterogeneous range of factors: suspicion of public opinion (as in the case of the armaments and the chemical sector), high manual skills (electrician, maintenance services manager), not very gratifying businesses (such as small *hotels* management). The business profitability, often, doesn't represent a sufficient spur for the successor to persuade him to accept the baton.
- *Risk* factor: Exposed to important and cyclic innovations, the risk factor that characterizes this *business* is the high rate of obsolescence that could "break off with" the previous generations, placing the new helmsman on a boat that has suddenly had to change route. In this case only his boldness and flexibility could guarantee the firm's continuity. Anyway, the problem of training (a mechanic engineer or an electrician?) remains unsolved, irreconcilable with the turbulence of the *business.*
- *High manual competence*: it concerns a sector that requires a long period of apprenticeship in order to "rob" the job. More than the enterprise, the object of transfer is the *know-how*, that causes not a few difficulties if the son has followed a course of studies scarcely compatible with the role of the "apprentice", inevitable for the above-mentioned transfer.
- *Capital intensive*: when the rhythm of growth and the perfect dimension solicit the investment of big capitals; let's think of the informatics, aeronautics or motor industry fields, but also the food industry, the building

trade, publishing. Also in this case expectations by the adult generation are very high.

- Structure: Structured as *network,* where the relational skills are winning. *Engineering*, residential building, *financing project* companies, etc. The relational qualities are out of consideration, such as the ones of replacing the father, in already consolidated relationships, without originating padding, of learning without "invading", without making mistakes, that although slight, could be followed by a long echo. These are the aspects that make the transfer in such fields complicated.
- Orientation: Oriented to the client, where prevails the logic of service. You can't learn the service (the father is not oriented to *docere, stricto sensu*), but you can discover it. Who operates in these fields benefits from an inborn inclination that makes the coding complex; moreover, the senior thinks that his successor must also have the same attitude to stay in tune with the business to ensure that the style flows spontaneously.
- *Business* with the logic of image, where communication and the distribution network are winning. A penetrating image and a widespread distributive network are the typical binomial of wide consumption products. Family and *business* are at the same time under the limelight; the new generation must be able to reconcile the good trend of affairs, image safeguard and relational skills. For a person who "grows under the limelight", to stop in limbo, working on oneself, becomes untenable (Piantoni 1990).

With regard to the variable dimension of *business* (Corbetta and Montemerlo 2009), its analysis is interesting in the light of the "sensitivity" to the typology of the distinctive business performed, following Normann's outlining (Normann 1979). It is possible to distinguish among big, medium and small enterprises, sensitive to the product (if this involves high costs to improve the process and the product), to the market (in case of instability of the demand and high competitive tension) or to the structure (if the men's professional skills have a fundamental importance) (Table 6.1).

Family businesses can engage themselves in dimensional growth processes, suggested by the will to increase the range of opportunities to be offered to the family members themselves, considering that technological growth guarantees the achievement of high levels of efficiency in spite of the medium/small dimension[71] (Womak et al. 1990; Ozawa 1984). Anyway, a firmly followed path of growth feeds itself by exploiting the operating lever.[72] Also the environmental complexity can affect growth[73] (Usai and Velo 1990; Velo 1991; Usai and Tagliagambe 1994; Lorenzoni 1990; Lorenzoni 1997). The modality of succession can't leave out of consideration the analysis of the father's attitude, conveniently interlaced with the son's. Succession typologies (Piantoni, 1990) distinguished from the point of view of the generation in charge include

- A limited inclination to participation and delegation generates an eluded succession if combined with farsightedness with respect to the future; a father falling

Table 6.1 The variable dimension of the *business*

Sensitivity dimension	To the product	To the market	To the structure
Big	Wide spaces for family members. Minimum threshold of competencies required to enter the firm. Leadership's attribution to who is able to keep together the group	Wide spaces for family members. Competencies in marketing and similar fields. The leadership will be conquered by who is capable to provide himself with a convincing external image	More limited spaces for family members. Organizational skills (of resources and men, including the family members), and charisma, are the winning weapons
Medium	Limited spaces for family members, especially, in relation to desirable positions (sales management, production, administration)	Limited spaces for family members who hold key positions (for instance: commercial functions)	Reserves wide spaces for the new generations. Flexibility of the hierarchical structure. Necessary co-presence of relational skills close to the ones required by the *business*
Small	Spaces for family members are more limited; the ideal successor has to be malleable and available to rise from the ranks; these features are often found in who has studied less	Offers major possibilities of introduction for family management. It's convenient that the functions are integrated, considering the dimensions of the business. The decisive factors of the leadership are initiative and pragmatism	Wide spaces for emerging youngsters capable of working in the business. The succession is based on the personal qualities more than the relations because the enterprise needs a guru

Source: Adaptation by Piantoni (1990, pp. 85–89)

into this category behaves as if the company should die with himself causing conflicts with the active efforts of his sons in their post-father designs.

➢ Succession with abdication is characterized by the pre-determination of the date (susceptible to delay) from which the senior will pass on the baton; until this date the management power is his exclusive prerogative. It is a typical succession modality, both of the big dynasties and of the people who don't live to work, but work to live. It is also possible that it evolves in the eluded succession.

- Succession can be delayed for the urgent worry of today, for a sense of protection towards the successor, for fear of being accused of ingenuousness or because delaying is the routine.
- Succession without abdication is characterized by two generations that live together, work in parallel, each one giving its best; the attention to the process more than to the result assures that the knots get undone while appearing. This typology of succession isn't without difficulties suggested by the hard cohabitation between succession and absence of abdication.

Corbetta and Preti (2006) underline the opportunity, in view of the generational succession of the family lead enterprise, for a progressive change of the entrepreneur's role who is inclined to transform himself from a specialist-technician to a generalist-manager, carrying out a process of depersonalization and institutionalization, that, at least theoretically, should allow tackling succession without appealing to the help of specific economic-business principles, placing in a subordinate role the atavistic family rules that amplify the negative effects derived by an institutional superimposition between firm and family. These authors define, therefore, succession as a process that, with the aim of guaranteeing the enterprise's continuity, arrives at devolving the responsibilities related to the entrepreneurial role. In view of the emerging generation, succession can be any of the following:

- Claimed, if the heir presents an irrational and uncontrollable determination to succeed without introducing any improvement in the firm, ambition being the only motive of the heir. Traumatic succession takes place when the heir, bearer of competencies and innovative ideas, is eager to enter the firm and to put them in practice to improve the firm's *performance*. Four different profiles can occur if the novelty consists in the mere alternative or if it is characterized by the coexistence of ambitions and opportunities, that recognizes in the obstacles an impediment to its own evolution. The enterprise could need a sudden maintenance intervention, realized through the use of consolidated *know-how*, or performing grafts that could give the enterprise a new life. If it force, dictated by ambition, prevails on the affections, it can cause incurable breakdowns (Piantoni 1990, pp. 126–127).
- Succession in continuity foresees, among the various candidates, the sub-entry of anyone who proves to have the necessary skills to guarantee the continuity. From the emotional point of view, it doesn't generate traumas, but there is the risk of suffering from the effects of the successor's myopia endowed with scarce sensitivity towards the environmental changes.
- It is succession that establishes, with the adult generation, a relationship of simultaneous growth that highlights the link between the progress introduced by the sons and the work of the previous generation.

From the interlacement of the possible typologies of father with the possible typologies of son, Piantoni (1990) deduces the following matrix that synthesizes

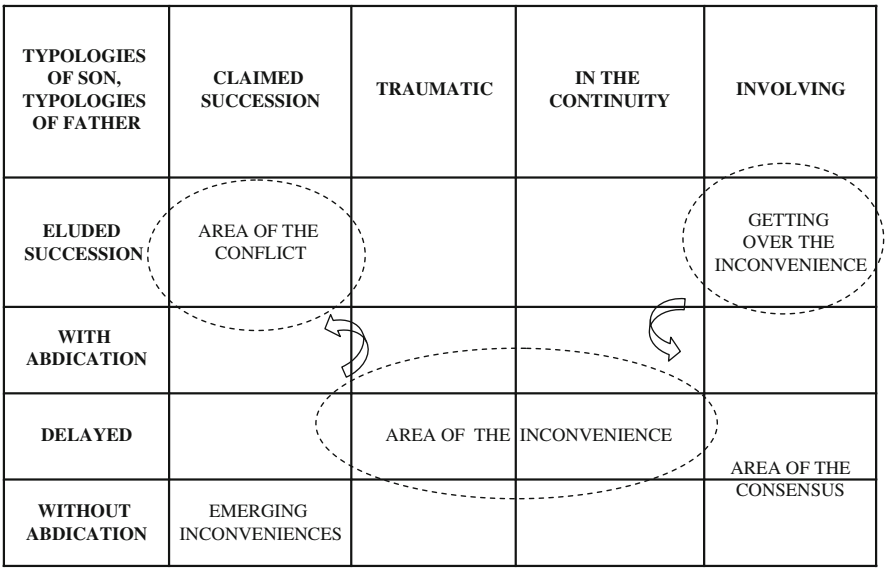

Fig. 6.2 The typologies of succession. *Source*: Adaptation by Piantoni (1990, p. 132)

the typologies of succession and the possible evolutions that can characterize it (Fig. 6.2).

One of the mistakes that you usually encounter, deciding to follow the way of transfer, is the so-called *lack of planning*, or improvisation.[74] The Brunello *kit* offers on this matter a valid support. It consists, first of all, of a personal/descriptive introduction part (the age, the sector, the competitive area and the dimension). Then, the point of the situation follows, the framing of the tactical/strategic aspects for the succession (the strategic factors are the ones that concern the *leadership* continuity, the tactical ones are those that lead back to the tax, insurance and economic-financial burdens). The phase of the transfer's planning is characterized by the analysis of the specific problems risen from the implementation of the previous phases, in the view of the firm's renewal. The individuation of the potential successor *leaders* and the introduction/acceptance of the changes in the *modus gerendi* follows; we can't miss, finally, the control of the relationships between the actors and monitoring of the transfer. Another modality to facilitate the enterprise's continuity is represented by the appeal to the enterprise pacts or family agreements[75] that, especially in family enterprises, facilitate the consolidation of certain management rules from generation to generation. Before the law of 14 February, 2006, number 55, which has introduced changes in the article 768-bis and following of the Italian civil code was promulgated, the prohibition of successor pacts was in force. The actual set of rules has introduced an exception to what prescribed by the article 458 of the Italian Civil Code[76] was still in force, assigning legal validity to the family pact, by which the

entrepreneur can transfer, in all or in part, the firm or his own shares to his descendants, remedying to the application of collation[77] and to the action of reduction[78] carried out by the legitimate heirs. The validity of the pact is, however, subordinate to the stipulation of the same in the presence of the partner and the legitimates who would be involved in case the succession in the entrepreneur's patrimony is opened. The assignors of the firm have to liquidate the other eventually legitimate heirs, by payment of a sum equivalent to the value of their shares, or goods in nature of equivalent amount

6.4 Finance and Family Business

The big entrepreneurial dynasties are the result of the stability of control, sharing of the strategic choices performed by the firm, cohesion of the family who leads the firm, a professional *management*, successful generational successions, all perfectly supported by a solid financial structure. There are two moments of *black out* in which especially a family firm can incur growth[79] and generational successions. Finance represents, in both cases, a critical factor. The financial behaviour of the Italian enterprises is influenced by two aspects:

- The presence of a myriad of medium and small dimension enterprises organized in the industrial districts, characterized by systems of *family governance*;
- A limited number of big dimension firms that, for an Italian peculiarity, can be characterized by a structure under family control with which a managerial direction is associated.

Family enterprise is characterized by a superimposition of two economic organizations of different matrices, the family and the enterprise. This superimposition involves the top-level management, implying the control – often the real confusion – of a great part of the risk capital with the family's patrimony. The latter, as well as introducing risk capital, grants entrepreneurial spirit, *management*, executive work, takes part in the high-governance functions of the enterprise and, last but not least, provides guarantees for credit capital suppliers. It is, therefore, a kind of enterprise in which potential conflicts and the supervision by subjects external to the enterprise seem less pressing than other typologies of economic units. Family business embodies a successful structure in the measure in which some organizational and environmental conditions are verified. In fact, it is favoured when

- strategy followed at business level is simple,
- the development trajectory feeds itself financially,
- entrepreneur and family hold the resources and the *know-how* necessary to implement the strategy.

Out of this context, that is when for personal or competitive choice, business strategy becomes more complex and its financing enriches itself with capitals different from self-generated ones, the structure of the family enterprise is mostly exposed to tensions.

However, we must emphasize that the process of structural change in family enterprises often encounters, a strong resistance about the perception of reduction of the margins of decisional freedom connected to the changes, so that these are avoided in any possible way. In the financial view, two different paradigms emerge: rich enterprise-poor family and poor enterprise-rich family, the first of which shows up when the value produced is kept in the firm to favour the development of the firm's income and competitive skills. In these cases, the family, provided with a deep industrial vocation, more than absorbing wealth, is oriented towards laying the bases of the continuity of the firm itself.[80] In similar conditions, to a greater solidity of the enterprise's financial structure and to the concomitant possibility of achieving higher development rates, corresponds a lower growth of the part of family patrimony extra-firm. A considerable movement of richness occurs, instead, when total or partial transfer to the heirs or to external investors, liquidation of an "exiting" family member are prefigured, or when, because of the fragmentation of the family nucleus, two categories of partners are formed: those engaged in entrepreneurial and managerial activities and those who don't work in the firm, but however concur to subtract liquidity from it. The second paradigm (poor enterprise-rich family) identifies that family that withdraws periodically richness from the firm's patrimony, exploiting formulas that minimize tax burdens. *Nulla quaestio* if the richness withdrawn is again introduced in the firm through capital increases, or through guarantees for bank debts. If, instead, these resources are directed towards financing other activities, it weakens the firm's financial structure, as well as of the firm-family link. It is obvious that in the light of fiscal considerations, the more common paradigm is this last one. It is also true, nevertheless, that in the presence of growth strategies[81] (Schumpeter 2002, p. 97) it is necessary to use part of the resources already achieved, and not only. In the light of the preliminary statements we have made, it is not a surprise that many of the "big-fat" multinational firms that dominate present-day *world markets* are family firms. An apt example is the SAES Getters[82] group that in 2006 had reached a turnover of €165.6 million; 99% of income was achieved in Asia 74%, in particular in Japan 25%, in Korea 21%, and 28% in the rest of Asia, 11% in North America, 12% in Europe and 2% in the rest of the world. The production poles, 10 in all, are located in USA (three), Asia (three, one of them in *joint venture*) and Europe (four, two of them with participations at 90% and at 50%). Up to now it has a staff of about 800 employees, 100 of whom are engaged in the research and innovation field, with more than 330 inventions registered, with an average of six a year. The percentage of turnover assigned to research support is more or less equivalent to 10. The centralization of directional activities in the office in Lainate allows the creation of synergies in the different fields. Is it possible to link the big numbers with the rationality, emotiveness, passion that characterize family firms? Yes, argues Massimo della Porta, managing director and vice-president of the group, who defines SAES Getters as a

multinational firm based on people, acknowledging at the same time, a strong inclination towards innovation: "I believe that right up to when the firm's dimensions allow it, the presence of one or more figures who represent the ownership and deal with management in the firm must be useful for the enterprise, because the impulse that an entrepreneur can give to the firm's growth is different from the one a manager can give. It isn't a case that, in the last 20 years, many formulas have been invented[83] trying to involve *managers*, drawing them near the concept of ownership (one, among all, the formula of the *stock option*)".[84] On the reserve of the changes in the market, also the new generation of SAES has had to follow Archimedes' traces, "I think that this is the reality the firms have to face, the market is developing a lot faster than in the past and products become more rapidly obsolete". It is necessary to innovate, and innovating means investing in research and development; only then you can support the *leadership*, but you have to settle accounts with the disaggregation between the research centres and the brain drain. "The innovation for us is undoubtedly the first motor of growth", an organic growth stimulated by the same object of the *business,* that has benefitted from the impulse to diversification, turned up at the beginning of the 1990s; but "considering that the world goes forward, we have started, also, to support the growth for acquisition". Between 1986 and 1988 SAES Getter has been quoted on the Computerized Stock Market[85] (Forestieri and Mottura 2002, p. 200) (CSM), in the STAR segment. The flux of financial resources assigned to non-quoted small enterprises, but with good growth prospects – both in the dimensional and income sense – provided with a qualified management, or with high possibility of achieving considerable capital gains, can be effectively directed also through the so-called institutional investment in risk capital. It is accomplished through subscriptions of participations (generally of minority) to the capital stock and convertible bonds, and it is provided with a medium/long time horizon. Similar typologies of investment are synthetically identified with the term private equity. They have as objective the start-up financing of the business (start-up financing), the phases of the enterprise's development (expansion financing), the intervention aimed to take over the control of an enterprise in difficulty, acquiring, generally, the majority of the capital (turnaround financing), the restoration of the stock base – if the investment is aimed at single operations of ownership transfer, the investor substitutes himself for the outgoing partners – or the replacement of the industrial activity (replacement), investments aimed at the substantial change in the ownership and the enterprises' assets, often by the use of the financial lever (leveraged buyout). The first two investment typologies (start-up financing and expansion financing) are included in the sphere of venture capital operations[86] (Gervasoni and Sattin 2004) and the activities related to change, instead, in the buyout activity. The appeal to venture capital has a double effect, besides the financial supplies, the strategic, financial, marketing and organizational competencies, offers visibility of the project's quality for other investors, multiplying the possibilities of acquiring credit (Sandri 1994).

The risk assumed by the *venture capitalist* is high, because we are dealing with non-structured enterprises to which a major volatility of the performance, instability to competitive pressure, dependence from the figure of the entrepreneur, *dominus* of

Table 6.2 Strategic choices (comparison among financing sources)

Risk capital	Debt capital
• Contribution of strategic and financial advice, useful in innovative projects, • Medium/long-term horizon, • Disinvestment by transfer of the participations and acquisition of *capital gain*, • The amount of the *capital gain* depends upon the income and dimensional growth of the firm, • Source of flexible financing	• Assistance supplied is of an accessory type to financing, • Short, medium and long term financing, • Regular payment of interests in the debt's service, • Refund at fixed deadlines, • Rigid source, connected to the existence of guarantees

Source: www.aifi.it

the project (Hornaday and Aboud 1971; McMillan et al. 1985; Maggioni 1997; Di Mascio 2007), are linked. In exchange, it requires the enterprise to share strategic choices, transparency in the relationships and the adoption of more evolved *budgeting* instruments (Table 6.2).

Recently, next to the institutional operators of the risk capital, an *informal* pole has taken place formed by the so-called *business angels.*[87] It consists in a still "unexplored" planet, the high entity of the phenomenon that filters through the *Business Angel Network* (BAN). Who is the *business angel*? He is an entrepreneur or a *manager,* who, contrary to the *venture capitalist*, has a banking matrix; the epicentre of his interest is represented exactly by small innovative enterprises, characterized by high levels of risk, but at the same time provided – in his opinion – with good growth prospects. The promoter of an active participation[88] (*due diligence*) of the financed reality, he carries out knowledge able to increase the possibilities of success of the enterprises in which he invests (we are talking about enterprises located inside his network of acquaintances, that allows the reduction of information asymmetry[89] (Akerlof 1970), privileging the phases of *seed capital* and *start-up*). The main differences between *formal* and *informal venture capital* are (Mustilli and Sorrentino 2003, p. 110)

- ➢ use of shareowners' equity for the *business angel,* against third-party capital for the *formal venture capital* (FVC);
- ➢ responsibility towards oneself, against responsibilities towards third-parties;
- ➢ more limited availability, concerning shareowners' equity (unless *angel syndicates*), in the first case, against a major amount of available resources in the case of FVC;
- ➢ the *business angel* privileges investments in small or very small dimension enterprises, not so desirable in the eye of the FVC;
- ➢ opacity of the *informal venture capital's* market, against the major visibility of the second;

➢ the reason for the investment is financial and not, for the *business angels;* it becomes, instead, typically financial for the institutional investors.

The disinvestment is accomplished through *sell back* or stock market quotation. The *informal venture capital* (*business angel*) can act as an intermediary in order to establish relationships between banks and SME. If recognition of the role of finance as an engine of growth is a *déja vu,* the role that local banks assume in financing *corporate* customers doesn't lack, instead, in originality. In financial literature, regarding the relationship bank-enterprise, a particular emphasis has been placed on the superior capability of local banks to acquire and manage the *soft information* that characterizes the above mentioned relationship among small and medium enterprises. The strong rooting in the territory they belong to allows them to find a big amount of information that reflects itself in a more efficient credit allocation, in a better evaluation of the risk and a minor inclusive risk in one's own credit portfolio (Bereger and Udell 1996). The distance that exists between the decisional centres of the big banking groups and the "common people" of the *small-sized* firm is translated in a sort of Tower of Babel, that, reducing the abilities of comprehension and contextualization, leads to the unhappy "passing away" of the *soft information* (Bereger and Udell 2002). Although some studies accuse credit rationing towards groups of small enterprises, the phenomenon hasn't still assumed a structural character, considering that the "weaned" enterprises can benefit from alternative financing solutions prepared by new and old banks (Peek and Rosengren 1998). A recent study performed by Rajan and Zingales (2001)[90] highlights the trustee meaning (a real and precise point of reference) of the role held by local banks with a view to the development of the existing entrepreneurial realities,[91] as well as for the birth of new ones, by virtue of the empirical evidence presented by the Italian regions in the North-East. If this virtuous link manifests itself, the store of knowledge that derives from it is unlikely to be transferable to *outside* intermediaries and eradication of the local bank generates negative repercussions on the economy of the territory that remains an orphan. This is what has happened, starting from the 1990s, in the south of Italy following the operations of reorganization by credit operators; emblematic, on this matter, is the case of Banco di Napoli[92] (De Rosa 2004, p. 133). It is indubitable that the south of Italy, characterized by a deep-rooted *banking market* orientation and an entrepreneurial structure formed by a myriad of small and medium enterprises, has been deprived of a crucial lever for the promotion of financial instruments able to encourage

➢ dimensional growth,
➢ harmony and balance of the financial structure,
➢ supply of risk capital,

because, in line with the *Resource Based View* (Golinelli 2002, p. 76) knowledge and competencies acquired on the specificities of credit demand have to be used to generate value, in a context in which *relationship banking* reigns. The south of Italy needs a bank "with a thinking head", argue Bongini and Ferri (2005, p.

132), promoters of "chameleonic" institutions, the vault of which has to be enriched by knowledge of the peculiarity of local demand in order to adjust the offer in the best way. Definitely useful appears, in the light of the technological character assumed by the macro competitive arena, the creation of technological and financial poles provided with a dense network of communication channels among companies, financing institutions and enterprises, in order to settle the basis for the creation and transfer of *know-how*, thus contributing to the repositioning of the areas in southern Italy, freeing them from superficial labels and colonialisms of other times, steering towards sectors with a high content of innovation and research (informatics sector, chemical, aeronautical, etc.), strengthening, moreover, *Made in Italy*'s qualitative profile. In *knowledge companies* the brains work and a great part of the capital has to be conveyed in immaterial investments (research projects, *software*, knowledge increase), *in loco* products or acquired through *outsourcing*.[93]

In which way can the quality of the bank-enterprise relationship support the growth of enterprises and economy? The matter is rather complicated and its crucial points are

- the necessity of directing the enterprises' financing models towards more modern management standards, by opening equity and reinforcing *corporate governance;*
- the necessity of managing a strategic discontinuity that facilitates structural interventions, of extraordinary finance and *advisory*, as well as credit *stricto sensu;*
- the adjustment to Basel 2 directives on credit management.

Starting from the 1990s, the banking system has enriched itself with general-interest banks, provided with *corporate* or *private* divisions, merchant banks, popular banks, cooperative banks, *private banking* and *wealth management* structures; the actors change, but the "recipe" is the same: knowing for financing and weighing without improvising. Probably only a part of the enterprises will be able to make the big jump, establishing relationships with the *partners* of the banking system provided with more resources and with a greater sensitivity towards the enterprises and the entrepreneurs. What will happen to the "dwarf stepsisters"? If there is strength in numbers, let's start with the "districtualizations". The 2006 Financial Law intended to facilitate the industrial districts on the fiscal and financial side; first, it allowed the enterprises included in the district[94] to benefit from the more favourable district taxation, becoming passive subjects of the companies' income tax,[95] further to the exercise of the option for unit taxation (Art. 73 Italian TUIR). Second, instead, it has introduced warranty funds for merit evaluation for the new Basel 2 agreement[96] (Sironi 2003, p. 10) and the emission of district *bonds*. Confidi, consortia of credit guarantee, strictly linked to the territory represented by them will be object of greater attention by the banks to minimize the credit risk and absorption of surveillance capital, in order to determine the price and the amount of financing distributable to the enterprises, since the quality of the released guarantees is becoming relevant, especially for the small and medium enterprises aggregated in the constellation. Sanpaolo IMI group has found it convenient to develop an

improvement strategy of Confidi's quality that is divided in the following points (De Nuzzo 2006):

- share with Confidi the internal *rating* models[97];
- being adopted by the Bank, rationalizing and accelerating the preliminary *iter*;
- evaluate the average quality of Confidi's guarantee portfolio and, on this basis, assign an internal *rating* as well as a operativeness plafond;
- offer Confidi advice on risk transfers, for the increase of base patrimony and the improvement of the available financial resources productivity.

The above-mentioned strategy also provides for the transfer of credit risk from Confidi to the bank that, through an operation of synthetic cartolarization[98] will place them on the capital market, giving rise to the emission of *District Bonds*. Therefore, Confidi immunizes its own guarantee portfolio from credit risk by means of a *credit default swap* contract that transfers the risk to the bank, while equity keeps the most risky part of its own portfolio. The bank, *protection buyer*, will purchase security from a *protection seller* on the *senior* risk, by means of a *credit default swap* and, for the part of risk mostly bearable by the investors (the mezzanine risk) it will issue, through vehicle companies, the *New District Bonds*, assigned to institutional investors. The second event that may cause a *black out*, especially in family enterprises, is represented by generational successions. In fact it causes problems concerning the reallocation of the enterprise's control. Such process can resolve internally outlining a solution that, if on the one hand promotes control continuity, and on the other determines limits to fund raising. Reallocation can happen also outside; in this case we assist the emancipation of the family business, a major transparency in management is created and further financing opportunities open. It is the case of *Family Leveraged Buy Outs* (Cantino 2002; Brealey et al. 2003, pp. 982–983) or, synthetic FBO, aiming to allow the interested family members to continue the family business (active family members), taking over the shares of the other family members (including the possible founder) who want to hand them over, assuming, thus, the role of passive members. This transaction can end both within the family itself, through the concentration of capitals in the hands of active members, and with the opening to *Private Equity*, preferable solution, because the member, generally of minority, brings advice as well as capital. Usually, after 5 years have passed, the *Private Equity* agent comes out from the enterprise's capital, obtaining *capital gain* (Palau 2006). In this kind of transaction, a vehicle company purposely founded by the active family members, the *newco*, provided with scarce equity, but with a solid financial supply (often the relation is a third of equity and two-thirds of debt; in this case, the *relational capital* assumes relevance, that is the capability to put together financial sources of different nature and different origin: *senior*, *subordinated* and mezzanine), acquires the entire participation in the *Family Business target*. It can happen that the active family members hand over their own shares to the *newco;* in this case, instead of subscribing the capital of the *newco* with a contribution in money, we assist to a contribution of participation shares that assign *ex ante* to the *newco* the role of

partner of the *target*. The *target* company has to comply with certain requirements (Cardascia 2006):

- low debt load,
- solid liquid assets,
- real estates with underestimated values compared with the market ones,
- high margin index,
- mature product or service,
- limited necessity of investments in fixed assets and working capital.

The debt contracted towards the financers is guaranteed by the above-mentioned participation, and minority interest, in the balance liabilities, is divided by categories following the refund priority order.[99] At this point we have to choose whether to merge the *newco* and the *target* or not. If the companies don't merge, the *target* will pay dividends to the *newco* so it can use them to reimburse the debt.

Summarizing, the distinctive characteristics of the transaction are

- coincidence between old and new ownership;
- financers introduce new finance and consultancy services, reserving themselves a minority slice of the risk capital;
- financers grant funds that have to be used to liquidate outgoing members, to whose amortization will be directed the *cash flow* produced by management, in the future accounting periods;
- a reinforcement of the role of family members, holders of management power, is set.

The *buy out* or *buy in management,*[100] instead, consists in the acquisition of a part or the entire firm by a *manager* of the firm itself (internal), or external (MBO/I). In both cases, the actors aren't members of the family, but the generational succession occurs in favour of the *manager*; in the hypothesis we are dealing with the "historic" *management,* the latter will establish the *newco*. The shareholders of the family enterprise grant the *manager* a purchase option, on the basis of the loyalty demonstrated, accompanied by an evaluation on behalf of the *management company*[101] (Cardascia 2006) of the quality of the contribution the *manager* intends to make. In the case of MBO/I, the investor's object of interest is the firm, with its capabilities which have remained unexpressed. The fund intends to take over the family business to assign it to a management able to increase its potentialities. A *stock option* plan allows to converge the management's targets with those of who has intended to take over the firm. At the end of the transaction the fund liquidates its own participation cashing in the *capital gain* (difference between the purchase value and the selling value of a participation). Alienation takes place through one of the following options:

- an IPO (*Initial Public Offering*) that provides for the transfer of the participation through the official market;

- a *secondary buy out*, that is through the purchase of the company by another financial investor, specialized, for instance, in *expansion financing* transactions;
- a *buy-back*, that is through the transfer of the participation to the member of majority or to a *manager,* within the terms fixed by law for the purchase of own shares (10% of the capital stock, considering, also, the shares held by subsidiary companies);
- a *trade sale,* that is the transfer of the participation through a private negotiation that considers the entrance of new *partners,* in other words merging with another company.

Business succession can avail itself, moreover, of a *trust*[102] that allows a subject (the *settler* or *grantor*) to transfer personal property and real estate, losing, therefore, their availability, to another subject (the *trustee*), creating a separate patrimony, provided that he manages them in obedience to certain operative rules according to the *trust* and legal terms. The goods of the *trust* are registered in the name of the *trustee* or someone in his stead. The disposer codifies the operative rules and the aim fixed by the *trust* inside an institutive act, the *deed of trust*. The latter will be able to freely dispose of these goods to reach the above-mentioned aims and only them, considering that the *trustee* is a person trusted by the disposer and because such trustee relationship (*intuitu personae*) is the quintessence of the *trust* that forbids him to delegate to third parties the power with which he is invested. The *trustee* can be either a physical or a legal person (*trust company*); the latter solution avoids the need to resort to further transfer acts of the *trust*'s goods in case of death or sudden impossibility to operate by the *trustee.* Beneficiaries are distinguished in patrimony and income beneficiaries, and must be identified/identifiable, except for the purpose *trust* (for instance the one for the poor), that generally have selfless aims. The designation of the beneficiaries occurs within the *deed of trust.* The guardian or *protector* (individual or committee, for which the articles of association of the *trust* define the circumstances of election, revocation and succession) is a figure designated by the disposer with assignments in the matter of control on the *trustee's* work. His powers range from simple supervision to the possibility of vetoing certain operations to safeguard the achievement of the constitutional aims of the *trust*. The reasons at the basis of the establishment of a trust are

- protection of excessively prodigal beneficiaries;
- avoidance of potentially negative publicity that could derive from the publication of a deed;
- selfless aim and advantage for the company;
- fiscal reasons;
- preservation of the goods;
- transfer of a private business.

Within the firm it places itself as a way through which it is possible to hold participations in more enterprises, benefitting from the fiscal facilitations offered by the different jurisdictions, or to separate the ownership from the *management*

or, also, to guarantee funds. Under the succession planning profile it allows (Palau 2006, p. 29)

- the redistribution of the inherited patrimony, assigning certain goods to designate heirs, releasing them from the legitimate share;
- avoiding the firm's dismemberment following the owner's death, obviating the entrance of third parties in the core business.

Finally, planning of the generational succession can avail itself of a further instrument that can lead to the discipline of private relationships: donation. It consists in a contract by which the donor transfers to the opponent, the donee, a right of ownership or usufruct that is part of his own patrimony.

6.5 The Family Office

"[. . .] the stuff wants to stay with who knows how to keep it and doesn't waste it [. . .]" (Verga 1988, p. 241) said Mazzarò, and his words re-echo in time reviving, in the *Family Office*, the figure of the administrator of the family's wealth accumulated from generation to generation. *Family Offices* are articulate structures, formed by groups of professionals, who intend to provide support to the family in the administration and preservation of the richness produced by them. The services offered are included in the following categories:

- advice concerning investments,
- training of young family members,
- elaboration of diversification strategies,
- management of relationships with the Treasury,
- cash flow management,
- risk control,
- real estate management (creation of real estate closed funds with contributions),
- investment in valuables and works of art (*luxury*),
- social security and insurance planning,
- philanthropic activity of the family,
- establishment and management of possible trusts.

They represent the medium for the aggregation of specialized competencies the client family requires. What distinguishes family offices from the other typologies of intermediaries is independence, i.e. the existing separation between themselves and the real suppliers of the financial services. The heterogeneousness and complexity of the services offered by the *Family Office* makes it irreplaceable by single advisors, embodying the answer to the demands of *wealth management*[103] (Ortenzi 2004, p. 122) of which *family firms* (Huges 2004) are bearers, that impose the juxtaposition of *in house* services with those *service providers*, in order to satisfy the

needs of the client families. The first *Family Offices* were born in the USA in the nineteenth century. The Morgans[104] were pioneers of these structures, with the creation, in 1838, of the *House of Morgan,* which had the scope of managing the family patrimony, arriving a little later to deal also with the management of the other families' patrimonies among which the Astor, the DuPont, the Guggenheim and the Vanderbildt figured prominently. In 1882, J. Davinson founded a private and independent company that dealt with the management of the problems concerning his family, preserving the amount of richness generated and allowing its generational succession. Also this organization, afterwards, took the way of supplying services to other families. The majority of American *Family Offices* were born when the head of the family had become a successful entrepreneur, removing the possibility of dealing with problems related to the tributary planning, family accounting, monitoring of one's own investments, etc. letting these activities flow in those in the competence of dedicated structures. Recent surveys demonstrate that the phenomenon is in definite expansion also in Europe, where more than 200 families avail themselves of *Family Offices.*[105] This is the case with the Zambons, a family of entrepreneurs from Vicenza who have been working in the pharmaceutical field since 1906 (at the moment managing a multinational that counts on 2,300 workers and operates in 16 countries, reaching an income of over €450 million per year), in which the complexity of the structure has made necessary the creation of a private *Family Office, in primis*, extending, *in secundis*, its services to other entrepreneurial families, determining the birth of Seconfind, in the shape of a limited liability company. These structures can grow as already existing bank branches and operating in the sphere of *private banking,* by means of *spin offs* (Dell'Anno and Del Giudice 2004, pp. 101–119).

In other cases it is preferred to create a consultancy company. Where the complexity is more emphasized, instead, you can select a *trust company*. Another circumstance that can lead to the creation of a *Family Office* is represented by the sale or the quotation of the *family firm.* Emblematic is the case of the Bassani family, that further to the sale of their own enterprise to the French multinational Legrand, it happened that they had to manage the liquidity produced by the operation, a task that they faced addressing themselves to a group of Swiss experts, employed by the family, also with the intent of availing themselves of financial structures, completely absent at the time in Italy (Dal Maso 2004). Also the young entrepreneurs could take advantage of the association to a similar organization, as those who have accumulated, in a rather short period of time, a huge wealth and want to perform acts of liberality could receive relief from it (for instance, Bill Gates). In the light of the aforesaid, we can infer that *Family Offices* can have the following matrix:

- banking (internal, SGR, trustee);
- family internal (*single-family office* or *multi-family office*);
- autonomous (associate office, ex *private bankers*, ex advisors, ex *asset managers*);

- ➢ the establishment process consists of three stages that characterize them also when the activity is set up;
- ➢ diagnosis of the patrimony and definition of the protection strategy (how much is it worth, what is the incidence of the costs, etc.);
- ➢ financial engineering and patrimony control (definition of the annual performances, defence of the value for the generational succession);
- ➢ training and tutorship of who is in charge of the *Family Office* (it is preferable that the choice falls on representatives of the new generation) by *tutors*.

The organization of the *Family Office* usually matches the needs of the family (or of who settled it); advisory councils subordinated to the family head itself are often planned (e.g. the *Family Offices* of banking matrix offer services to entrepreneurs who are, already, part of their client portfolio). They are classified as external and internal; the first guarantee discretion, independence, decision-making rapidity and a dedicated *staff*, but they have rather high costs, difficulty to attract and keep talents, organizational effort and *start-up* time, limited possibility of *one-stop solutions* with bank intermediaries. Those of internal origin, instead, can count on a greater efficiency, on the flexibility in the duration of the mandates, on a greater implementation rapidity and the possibility of approaching all the bank divisions/services. They, however, suffer the weight of a major constraint/dependence from the bank, the position of client and not owner in which the counter-party is, the absence of *in-house* offices. They exploit the previous trustee relationship, the economies of scale and scope obtainable through the integrated offer of *proprietary* services and originated from other activities of the intermediary, that contribute to the diversification of the portfolio. We have, nevertheless, to report the tendency to the offer of standardized services, although accompanied with the possibility of benefitting from multibrand products, considering the number of clients in the structure. The tendency for service integration is spreading between banks and *Family Offices,* to which the bank can offer many services, among which administrative supports, securities custody, or of works of art. Among the banking participation structures arranged by Italian *Family Businesses*, we can number the financial Canova, planned for the Marzotto, Boroli and Drago families. The amount of data regarding the diffusion of *Family Offices single family* is rather meagre; they operate in absolute discretion and without availing themselves of *marketing* operations; nonetheless it is estimated that over 3,500 of them exist (Di Mascio 2007, p. 334).[106] Recent surveys (Hamilton 2002) performed in the USA context highlight the tendency of these organizations to enlarge the clientele, share out the expenses with a higher number of participants, retrieving, thus, efficiency in the light of a major complexity of the financial services and the increase in competition that has circumscribed the recourse to traditional *providers*, causing, for efficiency reasons, the rising of the minimum threshold of liquid assets for the required family and the consequent evolution from *single* to *multi-Family Offices.*[107] Those of autonomous origin, instead, are free from single families or banking houses, with the aim of selecting the best products, the best managers, creating personalized packages, monitoring the activity carried out by them, and also

associating advice services to them. These organizations exploit the *outsourcing* of non-*core* businesses and with a low added value to retrieve margins of efficiency. However, they reach the *break-even point* in a reasonable time by virtue of the entity of the managed patrimonies. Among the limits that characterize the family offices of autonomous matrix, we number the absence of economies of scales and scope, not well known *brands* and the absence of mutual permeations between the activity of the *Office* and that of the involved intermediaries. Among the family offices of external origin we find FOX. Already in 2006 the *Family Office members* were about 67% of FOX (*Family Office Exchange*), while the corresponding *advisors*, distinguished in *advisor members* and *multi-family office members*, represented 32% of it (Fig. 6.3).

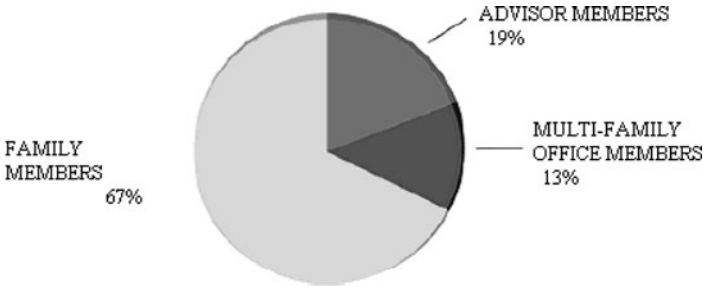

Fig. 6.3 The family office. *Source*: www.foxexchange.com

Case Study: *Pyrotechnics*, the Art of Manufacturing Fireworks and the Italian Family Business "Pirotecnica Iannotta"

The history of the evolution of civilization revolves around the use of fire that, according to mythology, was a gift from Prometheus to mankind (Cerbo 1972, p. 36).[108] Its artificial production has formed one of the most important cultural innovations in the path of human growth. It allowed the migration of the ancient populations of hominids from the hotter places to those with a more severe climate. Moreover, it could be considered the first big step of human civilization, since the scientific development of man starts exactly with the discovery of fire that allowed to cook foods, defend oneself against predators, produce light and process metals. The most ancient findings that witness their use date back to almost 1.4 million years ago and we think that they were produced by the *Homo erectus* of Ciu Ku Tien, in China. Among these, the most important are represented by Zhoukoundian's grotto (China) in Asia and by the sites of Vértesszöllos, Petralona and Atapuerca in Europe. The sacredness of fire, recognized by many religions, gave rise to the building of altars both in Greece

(altars of Athena, Apollo and Demetra) and at Rome (altar of Vesta), and is nowadays celebrated or implied in liturgical contexts of various religious faiths. The use of fire marks the borderline between man and animal, and the ability of dominating a force of nature, dreaded until then, represented for man the apperception of the will of dominating the world of nature, following, thus, the way of knowledge and its transmission by language, the use of which seems to date back to the Lower Paleolithic. What had been handed on, from generation to generation, did not only concern the biological inheritance, but also a real cultural patrimony, a set of knowledge concerning the manufacturing of weapons, the production of fire, planning of shooting parties and so on. Already at the end of the Middle Paleolithic, a serious of questions concerning his own condition started to cross the human mind forming new *inputs* for knowledge processes. The use of fireworks dates back to China in the first centuries after Christ; their primitive application concerned the military sphere. Only with the invention of gun powder, ascribed to the German monk Berthold Schwartz in 1300, it was possible to talk about real fireworks, and the first Italian text devoted to them, *De la pirotecnica*, was written by an artillery manufacturer from Siena Vannoccio Biringuccio (1480–1539). In the seventeenth century two big schools in Europe competed for the primacy, the Northern European and the Italian one (represented, especially, by the schools in Bologna and Florence), the latter superior from the aesthetic point of view. Starting from the nineteenth century, there was an increase in the frequency of pyrotechnical shows that became the usual completion of festivals and festivities. Pyrotechnics is the art of manufacturing fireworks, made up of combustible materials that, burning rapidly, thanks to the oxygen contained in them, generate various bright effects. The most common material used is the so-called black powder ("polverino" – "gunpowder"), a mixture of potassium nitrate, coal and sulphur that, depending on the combination, characterizes itself for different combustion speeds. The rainbow of colours is given by the combustion of substances such as, magnesium and aluminium that produce a white light, arsenic and antimony that produce a white-light-blue light, sodium compound that generates a yellow light, calcium and strontium a red light, and barium and copper a green light.

The pyrotechnical mixtures are then put into cases made of rolled-up paper ("cartocci" – "wrappers") that are tied at one end leaving the space necessary for the fuse to pass. The ingredients that form the mixture are pulverized and blended with caution by using wooden spatulas. The elements that form the fireworks can be set to burn still or in the air. Among these there are

- Fountains (*fontane*), that fling fire and sparks as a fountain;
- Crackers (*castagnole*), that produce explosions at the beginning and at the end of the shows;
- Bengal lights (*bengala*), that are used to light up castle drawings, armorial bearings, etc.
- Roman candles (*candele romane*) are fountains made of very long cases in which stars flung outside are alternated to live compositions. A variant of

these are the mosaics (*mosaici*), that instead of stars, fling small spheres of fire accompanied by a long bright trail;
- ➢ Puffs (*sbuffi*) fling stars accompanied by explosions;
- ➢ Fire-crackers (*mortaretti*) fling grenades;
- ➢ Flames (*fiamme*) are typologies of very big Bengal lights, that emit a white and coloured light;
- ➢ Rockets (*tracchi*), obsolete, that, while burning, leave a sinusoidal trail.

Besides the still and air fireworks, there are the decorative ones, which are added to the bigger fireworks (generally fountains and Bengal lights), whose effect they complete. Fireworks are an art and a passion transferred from generation to generation, and Pirotecnica Iannotta has already seen six generations, in spite of the mortality statistics of enterprises due to generational succession. From the surveys performed by Giovanni Iannotta, Pasquale's son, in the biennium 1982–1983, among the General Registry Office books of the Municipality of Casapulla and the Church of S. Elpidio, regarding only the members of the Iannotta family running the pyrotechnic business, it is clear that the progenitor initiator of the pyrotechnic art was Marcantonio in 1773, who ran the business on his own, in the Municipality of Casapulla, subject to the authorization of the Bourbon King. It is not known if he had learnt the art from his father or from the elder brothers.

1809–1879 Michele (second heir), Marcantonio's son, ran in primis the pyrotechnic business with his father, obtaining, in secundis, the authorization from the Bourbon King to carry on the business near Casapulla.

1816–1869 Domenico, Marcantonio's son, follows the same step, getting to run the business with his brother or on his own near Casapulla.

1845–1925 Giovan Giuseppe, Michele's son (third heir), at first ran the pyrotechnic business with his father, obtaining after the licence of P.S. in the Municipality of Casapulla, locality Centopertosere. He took with him a youth of almost 20 years old, who was interested in the business of his benefactor and continued it transferring it to his own children.

1853–1933 Gabriele, Domenico's son, carried on the profession of pyrotechnics with his father and his uncle Michele in Casapulla, obtaining, then, the licence of P.S. in the Municipalities of Maddaloni, Caiazzo, Piedimonte Matese, Alife.

1858 Daniele, Michele's son, carried on the profession of pyrotechnics with his father in Casapulla after he worked for the Buonpane family.

1880–1958 Michele, Giovan Giuseppe's son (fourth heir), also carried on the profession of pyrotechnics at the beginning under his father's aegis, obtaining, later, the licence of P.S. in the Municipality of Casagiove, locality Casalonga, Capua; in the Municipality of S. Prisco, locality Montagna and in the Municipality of Casapulla, locality district Maiano. He was Knight of Labour (Cavaliere del Lavoro).

1884 Domenico, Gabriele's son, was in pyrotechnics with his father in Maddaloni, migrated to USA where he probably worked for local pyrotechnic firms.

1886–1955 Salvatore, Gabriele's son, at first carried on the profession under his father's aegis in Maddaloni, then he was employed by the firms Galvani in Frassot (Benevento), Vigliotti in Cervino (Caserta), etc.

1888–1914 Ernesto, Giovan Giuseppe's son, ran the pyrotechnic business with his father in Casapulla.

1891 Vincenzo, Giovan Giuseppe's son, was in pyrotechnics on his own with his father in Casapulla, later worked as a railway employee.

1893–1964 Pasquale, Giovan Giuseppe's son, was in pyrotechnics on his own with his father in Casapulla until 1914. From 1920 to 1961, he obtained the licence of P.S. and ran this business in the Municipality of Casapulla, locality Maiano. Starting from 1930 he combined the factory of fourth category fireworks with the trade by storing first category explosives (powders and chlorates), powders for shooting, cartridges, various articles for shooting and related pyrotechnic products. He obtained the licence of P.S. in the Municipality of Casapulla, locality district Maiano, n. 3.

1897–1943 Michele, Gabriele's son, carried on the pyrotechnic profession, in primis with his father in Maddaloni, then becoming an employee of other local pyrotechnic firms.

1902 Pasquale, Gabriele's son, was in pyrotechnics with his father in Maddaloni, then he ran the business of shoemaking in Caiazzo.

1908 Giovanni, Michele's son, ran at first the pyrotechnic business with his father in Casapulla, then he worked for Mortini pyrotechnic factory in Rome and finally ran trade business on his own near Tivoli.

1909–1931 Pasquale, Michele's son, is remembered for his particular aptitude for the pyrotechnic art, which he carried out with his father in Casapulla.

1914–1943 Ernesto, Michele's son was in pyrotechnics with his father in Casapulla, but became a mechanic later.

1914 Gabriele, Vittorio, Michele and Pasquale, Domenico's sons, all carried on the pyrotechnic profession with their father Domenico and their grandfather Gabriele near Maddaloni. Later they migrated to USA where they worked, probably, for American pyrotechnic firms.

1920 Romolo, Michele's son, (fifth heir) was in pyrotechnics with his father; he obtained the licence of P.S. in the Municipality of Casapulla, locality Maiano.

1923–1955 Francesco, Michele's son, was in pyrotechnics with his father. He obtained the licence of P.S. in the Municipality of Casapulla, locality Maiano.

1930 and 1935 Giovanni and Rodolfo, Pasquale's sons, passionate about pyrotechnics, worked in the trade field by storing first category explosives (powders and chlorates), various articles for shooting and related pyrotechnic products. They obtained the licence of P.S. in the Municipality of Casapulla, locality district Maiano n. 3, and later near the locality 148/15 Appia National Road, with a business registered in Rodolfo's name.

1952 Michele, Romolo's son, ran the pyrotechnic business with his father in Casapulla, then employee of the firms Perfetto in S. Antimo (Naples), Farinaro in Aversa (Caserta) and others.
1955 Amato, Romolo's son (sixth heir, great-grandmother's generation), in pyrotechnics with his father in Casapulla, authorized by licence of P.S. in the Municipality of Casagiove, locality Boscariello, Capriolo street.
1963 Pasquale, Romolo's son, in pyrotechnics with his father in Casapulla, later employee of his brother Amato in Casagiove.

The transfer of the business within the family seems to be a distinctive feature of the *business* under discussion in fact, also the other firms that, as Iannotta, are part of *PIR.I.CO* (Italian Associated Pyrotechnics, a consortium that provides for the respect of certain standards of security by the firms that join it; it is not a case that in Caserta among the 10 existing pyrotechnic firms, only Iannotta is a member[109]), tend to highlight their ancient origins, devoting space to them in the respective websites.

Chiarenza fuochi was born in 1930 in Belpasso, under the Chiarenza Carmelo Firm, which, in 1964, was taken over by the sons Vittorio and Benito who, despite preserving the artisan tradition, have increased and embellished their father's business, also increasing the number of spectators who appreciate the quality of their shows. In fact, the use of electrical equipment that improves the sound-visual coordination of the musical-pyrotechnic shows has been introduced. Among their products the crackling and multichromatic willow spheres stand out, fireworks with sound effects and large-calibre spheres. The origins of the *Parente Fireworks* firm date back to the end of the nineteenth century, when the Parente family, lead by Mr. Romualdo, began their business performing, at the beginning, at religious shows. The establishment of the first real factory followed at the beginning of the twentieth century. In 1951 one of Parente's seven brothers decided to migrate to Melara, starting the building of a factory that actually reaches 85,000 m^2, provided with 20 laboratories, engaged in the continuous research of new fireworks and effects, and 16 authorized warehouses. *Parente Fireworks* stands as a role model for what concerns the respect of European security *standards*. It organizes shows at social and ecclesiastic events (cinema premières, European *tours* of world famous singers, sport events, the Barocco prize of Gallipoli and Miss Italy; it holds, also, the exclusive of Gardaland shows and has organized shows on the occasion of the Jubilee of the Sick in 2000, the visit of the Pope in Bologna and Verona). It has also began processes of internationalization (foreign direct investments in Rio de Janeiro, and *joint venture* with Chinese firms), becoming one of the most famous names of Italian and international pyrotechnics.

FAS s.r.l. (Fuochi Artificiali Sardella – Sardella Fireworks) actually features four generations of pyrotechnic specialists. From the mix of tradition, technology, cleverness and fantasy, shows of indubitable effect emerge (air, aquatic, pyro-musical). FAS is able to perform pyrotechnic shows for every occasion: festivals, exhibitions, historical commemorations, private parties and theatre events, it collaborates also with some of the biggest Italian theatre companies.

Pirotecnica Giuliani s.r.l., which has operated in the sector for over 100 years, has obtained in 2003 the Mercurio d'Oro prize and benefits from the UNI EN ISO 9001:00 certificate – CERT. SQ031483. It offers shows adaptable to any environment (big spaces, gardens, historical centres).

Pirotecnica Lanci, founded by Lanci Nicola has its origin in the first years of the twentieth century reaching the fourth generation. It was classified first in the Italian championship of Revere-Ostiglia in 2004.

The origins of *Scarpato Pirotecnica* date back to 1784, thanks to an ancestor who was part of the "Artigiani del Fuoco" (Fire Artisans) group, that prepared pyrotechnic shows for the Royal Court near the Royal Palace of Caserta and in Naples. In the 1930s Mario Scarpato proposed to make the Italian art of fireworks known and appreciated in Germany. In 1949 he moved to Rimini, establishing Pirotecnica Scarpato. Scarpato organizes computerized pyro-musical shows, congresses, business and promotional events, civil, religious and private festivals, indoor and outdoor effects.

After six generations, Pirotecnica Iannotta continues, nowadays, in the manufacturing and production of professional and high quality fireworks. Over time, the same attention and passion in manufacturing can be found in the people who devote themselves to the pyrotechnic art, creating a product able to mark special festivities making them unforgettable. A specialist in daytime and night fireworks, pyro-musical shows, water fireworks and big mosaics in Japanese style, it addresses its production to public and private corporations in total security, thanks to the presence of professional workers. The manufacture is executed by hand with a unique precision and care for details. Learning takes place directly in the firm; preliminary to the running of the activity is the achievement of the licence for the lighting and production of fireworks, issued by the Prefect[110] (licence of "fochino"). It consists in an art that keeps, integrally, the ancient procedure of the "craft's" transfer, representing until now a stronghold of the *tacit knowledge*. It is, as well, an expression of the pride of belonging to the family, typical of a *family business*. In spite of this, in the organization of the shows, technological innovations raise their weight, especially with respect to pyro-musical shows, in which the synchrony between the visual and the sound effect is guaranteed by the use of distance lighting switchboards; in this matter Pirotecnica Iannotta moves perfectly with the times. It is convenient to specify that, because the art under discussion is an art that develops by families, as certified – among other things – by the above mentioned monograph, the pyrotechnic master will, unlikely, reveal his own secrets in the absence of a blood tie. For this reason, because courses or schools in which pyrotechnics is taught do not exist, everything is based on the transmission of the secrets of each pyrotechnic from generation to generation. Learning in the firm generally starts at a tender age, and this is the route followed by Mister Amato Iannotta, as well as by his two sons, Angelo and Romolo, who at the moment are occupied in the firm.. Mister Amato was brought into the pyrotechnic art – by his father's will in the rival firm Farinaro (which still exists in Aversa, with which Pirotecnica Iannotta has competed on many occasions) – since the age of 13 to allow him to treasure himself, as a simple apprentice and without the prejudicial favouritism from which he could have benefitted in the

family business, of the basic techniques of fireworks creation. The father's plan was fully satisfied when, Mister Amato, proving to be a sharp and particularly talented guy, along with learning the above-mentioned production techniques, acquired, also, consciousness of the need to move towards high quality *standards*. Once he returned to his father's firm, where he could learn the secrets of the art, with the intention of continuing the business, he set up, in the biennium 1982–1983, an *s.n.c.* – transformed, after, in *Llc*- that began to stand out for quality and creativity among the other firms present in the market. There is no doubt that creativity is an indispensable element for the creation of fireworks, in fact *the art creates an incomparable and unique effect and after doing this it goes ahead. On the other hand, the nature, forgetting that the imitation can become the most sincere form of offence, continues to repeat that effect, until we are absolutely nauseated by it* (O. Wilde). To astonish the spectator with always new shapes and chromatic matching is therefore basically important for the firm's survival. Angelo and Romolo are perfectly conscious of this and, apart from dealing with bureaucratic duties, they support themselves in the creation of innovative products and in the modification of the pre-existent ones. While they run this business, they benefit from their father's support, which has an influential but not authoritative character. The Iannotta family enjoys the esteem of the employees, who, considering the danger of the business they run, appreciate its security levels, the seriousness and continuity (that is the non-seasonal character of the business they run), that, generally, persuade them to remain in the firm, preferring it to the rivals. In 2003 Piroter (the current Pirotecnica Iannotta) was first in the fifth fireworks championship, *Melody of fire 2003* of Ostiglia, (then followed Parente of Chieri (To) and Nanna of Pontedera), gaining the national title and the possibility of representing our country in the World Championship of Omegna held in 2005. The devotion demonstrated during the years has enabled the firm to make its way abroad too, exploiting the sales net of the firm *Parente Fireworks.* Among the main countries which import Iannotta *Llc* products are China, Korea, Germany, Russia, Canada and France. In a definitely hostile field such as the production of fireworks, where each family is brought up to close themselves in a radical isolationism, precluding themselves from group synergy, what is the secret of a success that perpetuates itself for so many generations? Family climate, pride of belonging to a famous family of pyrotechnics, the creativity and especially the passion for an art capable of penetrating the heart of the most sensitive ones, granting moments of great emotion. We are sure that from the Iannotta family many generations of pyrotechnics will still come, and therefore . . . FIRE!

Case Study: Giorgio Armani S. p. a.: *Made in Italy* Conquers the World

GIORGIO ARMANI

It withstands crisis and represents the true essence of Italian production, famous for its high quality and creative prestige: *Made in Italy*, even if born almost 60 years ago, is certainly topical and unquestionably valuable.

From the famous speech of the Duce Mussolini in the 1930s to the bright intuition of Marquis Giorgini in the post-war period to produce autarchic fashion, Italian high fashion industry has not met recession.

Marquis Giorgini organized the first Italian fashion show, involving the Fontana sisters, Jole Veneziani, Simonetta, Germana Marucelli, Emilio Pucci, Carosa, Schuberth, Fabiani and others, having realized the potential of our tailoring. In 1949, the Fontana sisters had made Linda Christian's wedding dress for her marriage to Tyrone Power, while Emilio Pucci's creations had been published in a long report on Harper's Bazaar. Giorgini had worked for a long time in the USA and, thanks to his acquaintances, had managed to convince many American buyers and even some international press journalists to participate in the event. It was a success that marked the advent of *Made in Italy*. American buyers became aware of the fantasy, creativity, refinement of material and simplicity of dressmaking of our creators. Moreover, and not an insignificant detail, Italian prices were affordable: clothes, accessories, leather cost half compared to France. Thus, the fashion show was held on 12 February, 1951 in Villa Torrigiani, the Marquis' home. Later, considering the flow of visitors, the shows took place in the White Room of Palazzo Pitti, a prestigious site that hosted fashion till 1982. Here stylists the likes of Valentino, Capucci, Krizia, Mila Schon, Irene Galitzine, Roberta di Camerino, Federico Forquet, Gattinoni, Missoni, Fausto Sarli and Renato Balestra presented their creations.

Nowadays, the future of the products made in Italy, fashion included, seems to lie in the ability to differentiate, taking advantage of the power of creating value for the consumers, by means of a synergic action that concerns, above all, design, besides functionality and the production process.

In fact, compared to the isolation and passiveness to which he had been confined in the mass production model, the consumer plays an active role in the creation of value and the redefinition of communication processes and building of meaning: nowadays consumption is configured as communication, participation and experience. These new spaces represent a challenge and, at the same time, an opportunity for design.

Design becomes a synthetic expression of a variety of management processes, from product innovation to communication, from distribution management to the redefinition of the relationships with the final customer, that contribute to qualifying the traditional product through aesthetic and communicative values. In the design markets, the consumer is willing to pay a considerable premium price to obtain a unique, almost artistic piece; limited series are reproduced with methods half way between industrial and hand-crafted; shape and aesthetics prevail on the functionality and utility of the object. Design represents a resistance, an opposition to the trivializing and anonymous world of industrial production. The designer, in fact, is an inspired artist, not very inclined to the requests of a market captured by the banality of seriality, and to sacrifice his own creative freedom to the demands of production technologies and processes. He moves comfortably in almost handcrafted production contexts and niche markets, populated by consumers who are capable of appreciating the artistic content of the product, even before its intrinsic value,

functionality and technological content. Furthermore, he becomes the manager of a process of integration and valorization of different skills, his role is part of a building process of meanings, images and cultures, in which an equally important role is played by marketing, research and development, interaction with consumption, distribution.

Besides, in the new competitive scenery, the ability to differentiate represents, for the *Made in Italy* enterprises, the only way to avoid competition with the competitors of the recently industrialized countries.

A lot has been said in the recent years about Asian enterprises, especially Chinese, that practise unfair competition against Western firms, including luxury firms. In the footwear industry, for instance, we have witnessed a real commercial invasion, which has urged the European Commission to introduce provisional anti-dumping measures.

However, we must say that style, high quality and flexibility remain the three elements that make the Italian product something unique, desired and appreciated all over the world. Thus, the firms' competitiveness facing the global competition is played on the ground of their valorization, as proved by the different surveys carried out by cross-checking the parameters of image, quality, price and service. It appears that Italian enterprises range from luxury brands (high know-how content, maximum attention to quality) to trend-maker designers (continuous evolution of the product, high emotional content of the brand), from accessible fashion (competitive prices and services) to ready-to-use fashion (high speed, good ratio fashion/price), from mass basic (scale dimensions) to value for money (cost competitiveness).

From the positioning analysis of jewellery firms, for example, it is evident that, if compared to the competitors, only those enterprises that point to a high quality image and a great innovative capacity receive a benefit. What is most important to be winners is that the firms make consistent choices and valorize the contents of style, product quality and flexibility of the supply chain.

Meanwhile, as also observed in the leading sectors of luxury, products are more and more copied and get rapidly outdated, technology is purchased, as well as good locations and talented managers. Therefore, a strong and attractive brand represents a strategic resource for those enterprises that make dreams their selling proposition.

In this dimension we move along a path of Italian enterprises that has contributed to legitimatize *Made in Italy* worldwide. We are talking about firms that have known how to radically renovate their strategies, especially from the viewpoint of communication and distribution of the product; a concept able to mix innovative forms, style and commercial communication; firms that belong, above all, to the fashion industry and have proved a constant tension towards the research of new forms and new expressive meanings. In fact, just some Italian fashion firms have been capable of overtaking more traditional firms: given the Stock Exchange values at the beginning of 2003, Luxottica was worth more than Fiat (€4.713 million against 3.392), Bulgari almost half of Pirelli (853 against 1.558 million). In the first semester of 2007, the growth of incomes continued: at a constant exchange rate value it was at 14% for Tod's, 11% for Hugo Boss and Bulgari; Marzotto and Prada touched the double digit, widely overcome by Giorgio Armani. Therefore, the latter is rightfully

included in the process we have described, representing, together with Fendi and Versace, one of the fashion empire's exporters of the excellence and luxury made in Italy.

Besides haute couture, refined design and the preciousness of creations, what associates these three fashion houses is their origin from family dynamics, because they represent very reliable examples of family businesses.

The founder of Armani s.p.a., Giorgio Armani, was born in 1934 in Piacenza, in a very close middle-class family environment, at the dawn of World War II: his father was an administrative employee, while his mother, who was a housewife, orphaned at a young age, came from a family of furniture dealers from Piacenza.

The value of family, the importance of unity have always been decisive for the growth of the stylist, who, since he began, gave room to "indoor" emerging talents, who will later occupy fundamental positions in his empire.

Giorgio spent his childhood in the local schools, surrounded by the natural affection of his brother and his sister Rossella. The stylist said that his mother transferred to her children the sense of a decorous posture and a certain tone in the way of dressing.

Giorgio worked for La Rinascente till 1965, when he was hired by Nino Cerruti to redesign the menswear of the label Hitman, tailoring of the products by Lanificio Fratelli Cerruti. His name appeared for the first time in the fashion universe with the leather clothing label Sicons. In 1974, in fact, the clothing line Armani by Sicons was born: this definitely convinced him to create a personal brand. His first collection dates back to 1975, when he established the firm with his name. In 1982 the "Times" magazine devoted him a cover, consecrating him as an artist of international level. The Armani style became an unmistakable sign of elegance; production ranged among clothes of all kinds, beginning from jackets, whose design he revolutionized. Suddenly, Armani offered new and unusual perspectives to clothing elements which were already taken for granted, such as for menswear precisely. His famous jacket freed itself from the formal restraints borrowed from tradition, with its square and austere lines, to arrive at free and fascinating shapes, but always controlled and classy.

In July 2000, Armani and the Zegna Group signed an agreement to produce and distribute in joint venture the Armani Collection lines. Similarly, in 2002, Armani signed an agreement with the firm Safilo for the production of an exclusive eyewear line, named Emporio Armani Eyeglasses.

Besides the line of perfumes (such as, for example, Acqua di Gio or Black Code) of great commercial success, among his most famous brands we must mention Emporio Armani and Armani Jeans. In the second half of 2006, Emporio Armani launched Remix, the new perfume for men and women, inspired by the latest album of Madonna and the world of discos.

In 2006, the first biography devoted to the stylist came out, *Essere Armani (To be Armani)*, written by Renata Molho and published, in Italy by Baldini Castoldi Dalai.

At present there are 57 boutiques of Giorgio Armani, 12 Armani Collezioni, 115 Emporio Armani, 66 A/X Armani Exchange, 10 Armani Jeans, five Armani Junior, one Giorgio Armani Accessori and 12 Armani Casa in 35 countries. His

wealth has been estimated by Forbes magazine at about $4.5 billion, which makes him the second richest stylist in the world (after Ralph Lauren), the fourth richest man in Italy and the 177th richest man in the world. Highly appreciated also for his humanitarian commitment, in 2009 he became "ambassador" for the Internet for Peace movement, created by the monthly magazine Wired Italia, with the aim of proposing Internet as candidate for the 2010 Nobel Peace Prize.

Recently Giorgio Armani reorganized the management of his Italian fashion house, expanding the board of directors, upgrading it to seven members and also giving more power to non-family members. Armani, 75 years old, holds 100% of Giorgio Armani S.p.a. and, unlike other designers, manages both the creative and the administrative part. In fact, this past 30 September the transition of the general management of Giorgio Armani S.p.a. from Gianni Gerbotto to Livio Proli, who till then had been at the helm of Simint, the casual subsidiary, was made official. Gerbotto, managing director since 2002, will be empowered within the board of directors to control financial management and the group's investments; Andrea Camerara, Giorgio Armani's nephew, has recently become non-executive director appointed by the president; another niece, Silvana Armani, designs some collections for the fashion house while Roberta Armani is engaged in public relations and takes special care of the connections with famous people. Severity, discipline and great commitment are the determiners "uncle Giorgio" requires from his nephews/nieces, to whom he reminds that teaching should be transferred by gesture and behaviour, talking to the young generation through your own daily life. In fact, he recalls a sentence by Borges: "Don't listen to what they say, watch what they do". The group is strongly integrated and interdependent, sharing the same work activity and collaborating on a continuous basis. Whereas, sharing of the same practice represents the essential requirement for the diffusion and circulation of knowledge.

The vice-managing director John Hooks has been promoted to vice-president, a position that will be effective this next year. The manager should achieve during the next 2 years a growth rate similar to 2009, the period when the label opened around 50 stores. With regard to export, it is said that Russia is less important for Armani than other markets, with 5% on global sales against 10–11% of China. Nonetheless, this percentage does not take account of the many Russians who are abroad for work or tourism. At present, the network retail in the former Soviet Union includes 11 single brand stores, two Giorgio Armani, one Armani Collezioni, four Emporio Armani, two Emporio Armani Caffè and two Armani Casa and is present in 220 multibrand stores, but it seems that the fashion house intends to open at least three new stores in a few Russian cities.

Meanwhile, suppositions about the potential contenders to the fashion house continue to follow one after the other: in fact, it seems that Carlyle Italia, the fund that refers to Marco De Benedetti, Carlo's son and Rodolfo's brother, is interested in purchasing 30% of the fashion designer's empire.

The bets on who King Giorgio's throne will go to are just wasted, even if replacing his domineering and bright figure is a tough task even for his natural heirs. Giorgio Armani has always been not only a creative genius, but also a far-reaching business man, because his presence has been predominant in the development of the fashion house.

Case Study. Gianni Versace S. p. a.: Managerial Cognition and Strategic Action

Reggio is the reign where the fable of my life started: my mother's dressmaker's shop, the High Fashion boutique. The place where, since I was a child, I began to appreciate the Iliad, the Odyssey, the Aeneid, where I started to breath the art of Magna Graecia (Gianni Versace).

Sometimes, the origins of the big firms seem to date back to the dawn of times; in fact, it is hard to imagine how a multinational, a big fashion house, was generated from suburban laboratories, and yet, in many cases, it is similar. Thanks to a remarkable initiative, inborn entrepreneurial and technical skills, from a room under the stairs or a garage and a few tools, realities of outstanding importance are born, and are now an emblem of *Made in Italy* that conquers everyone.

Thus, in Reggio Calabria, Gianni Versace worked, from his childhood, in his mother's dressmaker's shop, until 5 February 1972, the day he left his native city and transferred to Milan, where at first he designed some collections for Florentine Flowers. In the same year he worked with De Parisini from Santa Margherita: in this manner, the name Gianni Versace began to circulate among the people involved in the fashion business. The work of those years was of fundamental importance, because it represented the primary formative background that made the young stylist gain his experience.

In 1976, Santo Versace, Gianni's elder brother, arrived in Milan: he had a degree in economics and had his own office in Messina. The two brothers, together with Claudio Luti, decided to start a fashion house that bore Gianni's name. Already in March 1978, the first Versace collection was shown in the Permanente in Milan and it was widely appreciated. From this point on, the history of Gianni Versace Group consists of an irresistible rise that lead to the firm's conquest of top positions in the fashion world. In 1988, Donatella, Gianni and Santo's younger sister, entered the firm: she was given the direction of the label Versus, Versace's young line and the company permanently assumed the typical features of a family business. The assignment of the young line to Donatella represents the first step towards the hereditary management of the knowledge and competence acquired: in fact, the creativity and freshness of the stylist can be conveyed with the tailoring know-how of the fashion house and Gianni's refined taste.

Curiosity and the desire to extend creativity to other fields made Gianni tie his name to those of successful choreographers, such as Maurice Béjart, Bob Wilson and Roland Petit, for the making of costumes for theatrical representations and ballets (at the Scala in Milan, but also on the stages in Leningrad and Brussels), work for which he also received many awards. From the viewpoint of production autonomy, we must point out that Versace Group is one of the few big designer names that control the entire product cycle, from the creation to the final sale.

When, in 1993, the stylist was diagnosed with a rare form of cancer in the inner part of his ear, Versace managed to recover from the cancer, but, after such experience, he decided to entrust part of his business to his family.

Over the years, the brand assumed an always more extremely glamourous, but revolutionary, connotation, thanks to the technological innovations, achieved by the choice of new material and fabrics and Gianni Versace's propelling force, that made the fashion house always follow new trends.

Nonetheless, a dramatic event shook the company and the entire high fashion world: Gianni Versace was murdered in 1997 in his own mansion in Miami. The stylist's death caused an inevitable economic crisis of the brand, till Giancarlo Di Risio, managing director of the group, arrived in the firm in 2004 and reorganized it. After the stylist's death, the position of creative director passed to Donatella Versace, designer of unmistakable style and with an irreplaceable background of competence and experiences forged in the years of hard work next to her brother. In fact, Gianni's premature choice of entrusting his sister with the creation of the label Versus appeared so rewarding that, the year after the tragic death, Donatella designed the first creations for the first Versace line.

In that sense, we can foresee how the matrix of experience heredity and creativity can find a solid seed in the knowledge transfer given by structuring the firm in family business.

Donatella has managed to promote her own style, impressing upon the Versace brand her own name and temperament, half way between glamour and rock. The same celebrities that loved Gianni more than any other stylist show their appreciation for Donatella similar to her incomparable brother. Because they see in her, despite being so different, the same determination in discovering, season after season, what is anyway missing on the most disparate catwalks.

Gianni Versace, intelligent man, gifted with initiative and creativity, entrepreneurial spirit and responsibility, has created a flourishing and highly competitive firm that has produced economic wealth and given a remarkable social role to all its members. Management has always been backed by his brother Santo, but the creative part, that was really propellant for the fashion house, was safely in his hands: therefore, the his replacement became a difficult obstacle to overcome. Nonetheless, the planning alliance between the two brothers, sharing of space, time and manner of working allowed Donatella to assert herself as the natural heir.

Right away, she did not position herself as a clone of the late lamented stylist genius, but as his productive "pupil", gifted with her own personality and aesthetic taste.

In Versace's case, the generational succession occurred in a quite traumatic and sudden manner: in fact, although Donatella's creative imprint was immediately evident, the premature death of her brother and founder created a cognitive gap that needed to be filled at once.

Santo Versace was in a different position, being President and Managing Director of the company, of which he maintains the formal leadership.

This year, on occasion of the second edition of the 2009 Long Life Family Business Award, the prize has been awarded to the company Gianni Versace S. p.

a., in the light of the targets achieved and thanks to the innovations and strategies pursued as a family firm.

Case Study: Fendi and the Female Leadership

Similar to Versace S.p.a., the Fendi fashion house also owes its origins to remote family traditions and to a generational succession, that, over the years, has allowed to keep intact the values of high quality and glamour.

Considered as the fashion house of "extremes", because it originally produced large fur coats and very small bags, today it boasts international appraisal and a well known and appreciated brand awareness.

A strong example, similar to Versace, for the *Made in Italy* brand that conquered the world is Fendi. Industries, such as textile, haute couture, leather, tanning and footwear, show Italy in a leading export position, although in the last 2 years the financial and economic crisis has had a strong negative impact on the Italian fashion system, penalized both by the considerable decrease in export and by internal phenomena of unfair competition. However, the above mentioned industries remain, for our country and in the eyes of the world, strategic industries that generate considerable turnover shares on the national total: this is the reason why it is necessary to define a relaunch plan of the Italian style.[111]

The first appearance of the Fendi fashion house has to be researched in the far-off 1925, when Edoardo and Adele Fendi opened in Roma, in via del Plebiscito, a small bag shop with an additional fur laboratory, where they mainly used to deal with private customers. They say that work was so engaging it required even 20 h a day, so Adele used to take her children to the shop, since they were little, converting the drawers into cradles and handing down to them, since the very first years, the secrets of the fur art. In 1946, the small workshop was turned into a bigger size shop: here, the five daughters worked strenuously to promote the stylistic qualities of the brand. Nonetheless, the strong awards arrived after Edoardo's death: in fact, 8 years later, Fendi's modern image conquered much consensus, thanks to the initiative of the second generation that attracted new and promising young talents.

The first generation ended completely in 1978 with Adele's death: from that date every sister devoted herself to the implementation of a business branch: Paola developed the primary core business, furs; Anna devoted herself to leather, a highly rising sector; Franca was responsible for customer care; Carla developed coordination among the various production sectors and Alda was engaged in sales.

Around the end of the 1980s, the Fendi logo boasted international prestige, thanks to the double F designed by Karl Lagerfeld, the Franco-German brilliant stylist, number one of the Chanel fashion house, who became one of the leading

stylists of the Roman fashion house and, thanks to the research in dyes and tanning, led the firm to the top of its industry.

In 1999, Fendi joined its label with LVMH (Louis Vuitton MOËT Hennessy) and Prada, but always keeping intact its family-run business.

Today Fendi has reached its third generation with Silvia Venturini Fendi, Anna's daughter, who, in 1987, was appointed, together with her sisters, creative director of the Fendissime line, younger and more affordable than the first Fendi line. In 1992, she was next to Karl Lagerfeld in Fendi's creative direction, and in 1994 she became responsible for the accessories. Since 2000 Silvia is also designer of Fendi Uomo collections. The relaunch of the fashion house is due to her. In fact, in 1997, Silvia created the baguette, that in a few months became a real fashion cult object and an international success, winning in 2000 the American prize awarded by The Fashion Group International. Following the baguette, Silvia created, in 2005, another very successful bag, the Spy, and in 2006 the B Fendi.

The new Fendi generation has started to be talked about, because Silvia, as her mother, has made her job her life choice, influencing her children's style: in fact, her daughter, Delfina Delettrez Fendi, all along raised among glamour stores, luxury furs and tanning, today is the most interesting jewellery designer of the new generation. The merit must be ascribed to the context and the education; the matriarchal leadership handled years before by Adele and perpetuated by her daughters years after has led the fashion house towards a female family-run business, in which, besides creative figures borrowed from outside, the hard core has always been represented by the Fendi women.

Particularly important is also the legacy of the surname, because to not lose the prestige of the Fendi brand, the women acquire the matriarchal surname, besides the patriarchal one, as required by law.

"To know how to renovate remaining faithful to oneself" is Silvia Venturini Fendi's catchphrase: over the years she has reinterpreted the industry's trends, offering new life blood to the fashion house, when it sailed through troubled waters.

Fundamental, without any doubt, was Lagerfeld's contribution, but the propelling spirit of renovation and reorganization was always female and based on that research of "quality inside quality", as suggested by Adele Fendi.

Though, the pink setting of the fashion house hasn't penalized the attention towards men's fashion, considered as a fundamental piece in the creation of a complete style, Silvia herself has taken care, over the years, of the men's line, interpreting the industry's trends and inserting them in the label's uniqueness.

The transformational path of this pink family business leads to the evolution of a style that interprets not only the needs of the catwalk, but also of modern women and men.

The generational succession develops naturally: creative and entrepreneurial heredity is transferred from mother to daughter and the attention to high fashion appears as a union point for different generations. From the grandmother Adele to Delfina we count up to 85 years of history, in which the Fendi brand has been an international emblem of *Made in Italy* and the fine female stratification of the firm acts as an added value.

Notes

1. Represent the difference between the firm's production capability and the market's maximum receptive capability.
2. When the activity of an economic subject directly affects someone else's wealth, not by means of a market price change, the effect is defined as externality. Unlike the effects transmitted through market prices, externalities alter the economic efficiency conditions. When an individual creates a positive externality, the effects of which are perceived by everyone, externality is a pure public good. Sometimes the borderline between public goods and externalities is not well defined. Let's suppose that I decide to install in the garden a device to kill mosquitoes by electric shock. If I kill the entire mosquito community, I will have created a public good. If only a few neighbours benefit from it, I will have created an externality. Equally we may have a negative externality, in the event that a factory pollutes the environment. The origin of the externality problem resides in the failure to attribute ownership rights. With regard to this, see Coase's theorem.
3. Centres, in which entrepreneurial business is particularly intense, exist in every country, for example the Silicon Valley in the USA, Arezzo, Modena, Belluno, Brescia, Sassuolo, Prato in Italy, Valencia in Spain, Norimberg in Germany, Gnosjö in Sweden.
4. A firm can decide to share the management with one or more foreign firms through the creation of a common-capital third firm, the control of which can be equally divided, or there can be a concentration of management power in the hands of one partner alone. This system assures many advantages, because sometimes it is the only means of penetration in a certain market, for reasons of a political nature, and because it allows risk and cost sharing. Main disadvantages linked to joint ventures consist in the possibility that the firm gives up the control of its own knowledge to the partner firm, or that it loses, completely or partially, control over the foreign firm (for in-depth examination see Valdani and Bertdi 2006).
5. The greatest part of the factors that can inhibit dimensional development is to be linked to the owner's and the firm's control structure: the high level of ownership concentration in Italian small firms, in which control is basically detained by physical people. A large number of informal groups that don't present the consolidated group balance and the firms that participate and/or have important participations in other companies of the group; only 28% of the small firms belongs to a formal group. Prevalence of family control forms, accompanied by instruments such as ballot syndicates and parasocial pacts and agreements on participation transfer. Low opening level to external partners: Venture Capital, Private Equity. Governance informal structures, non-codified, able to encourage discretional management by the family groups in whose hands management power is concentrated. Individualism, insufficient attitude to create a "critical mass", remaining in a state of isolation in managing one's own activity. Deficiencies under the management aspect. SME under concentrated control show an indubitable ability in managing effectively the operational and administrative processes, but offer less brilliant performances in the management of change processes.
6. In studies on SME samples, extended to European level, we can note a positive correlation among firms that export and growth.
7. Pavitt distinguished four sectoral groupings: supplier dominated, scale intensive, specialised suppliers, science based.
8. At times, salary differentials are the consequence of particularly compromised working conditions, not only in terms of security, of obstacles to trade union freedom, but also of child exploitation. In a context of increased international competition, this is seen as a form of unfair competition.
9. Cf. ISTAT Report 2010 (accessible from www.istat.it).
10. Cf. http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/.
11. The importance of external collaborations for the purpose of growth has been proved time after time.

12. The survey performed on a sample of over 11,000 balances shows that the greater number of firms in the solvency area is represented by those with more than 10 employees (cf. http://www.unioncamere.gov.it/).
13. SME, in order to satisfy the needs of always more global niche markets, in which they compete, are obliged to achieve higher qualitative *standards* always, moving towards continuous improvement, because in the world of *globals*, where everything takes place under the sign of *time to market* and *no-limits* innovation, instability from being a variable has become a constant. That's why SME are more creative, more sensitive in receiving the firm's potentialities and using them in an effective and original way compared to the big enterprises.
14. A firm that adopts frequent changes as an answer to new market opportunities, that is to set as *first mover*, anticipating the trends of the served market, introducing products and/or services before its competitors, is a pro-active enterprise. Pro-activity settles the enterprise in a future oriented view, to research new growth opportunities.
15. Growth processes by internal lines can be considered: the creation of new units, the purchase of new enterprises, the foundation of new enterprises, the creation of joint venture companies with majority participations.
16. Let's think about the advantages that economy cars and two-wheeled means of transport can explicate in urban traffic, whereas the "opulent", less agile, four wheels are, inevitably, protagonists of traffic jams.
17. Policy Breif, *Small and medium enterprises: local forces, world capabilities,* OCSE June 2000. The share of product innovations, in small enterprises, is more than proportional compared to research and development formal activity; this explains the high level of the development rates that characterizes, in particular, those operating in technological sectors.
18. The grouping choice can be particularly useful for the small firms that, because of their reduced dimensions, cannot finance certain internal services such as training, research and marketing, receiving indubitable benefits, also on the competitiveness level, from the creation of enterprise consortia: "With the consortium contract two or more entrepreneurs found a common organization for the discipline or the development of certain phases of the respective enterprises".
19. In the new theories elaborated starting from the 1980s with regard to interorganizational evolution processes, rehabilitation of the role of SME, in the view of economic development, takes place in the light of the role of change agents carried out by them, in concert with the statements of the *knowledge-based economy.* In the flourishing of the small enterprise, processes converge, which in part can be brought back to vertical disintegration of the big enterprise, to the research of direct responsibilization of employees and co-workers; and partially to the trend of dependent workmen to emerge from the over-structure, focusing their ability to do, following the route of small business.
20. In the district view, economic growth is achieved above all through the entry of new subjects, not much through the growth of some, that on the contrary create asymmetries, unequal strength relationships and *leadership* positions, which could lay on the line the delicate balance internal to the districts. Entry doesn't require heavy capitals, and the subjects who enter are even able to self-finance the entry simply through intense labour, perhaps building on their own the physical capital, without the need for accumulating savings. Investment profitability is rapidly achieved, and family anyway represents the main source of funds.
21. The Technical Committee AICQ (Culture and Quality Italian Association) "Excellence in the Corporate Governance" has defined the corporate governance system as an organizational sub-system made of an organic set of (decisional and control) structures, rules (regulations, behaviour codes), intermediation processes between the stakeholders' and the shareholders' interests and the management processes of the single bodies in order to

balance the interests of the control partners, the management structure and the stakeholders; create economic value in a medium/long term perspective; minimize all the risks the enterprise is exposed to; and promote equal distribution of the created value among the various social interlocutors. In any enterprise, of any dimension, governance system carries out three fundamental functions: strategic, control function, the one of environment relationship management.

22. We define a family firm as a firm in which "one or a few families, linked by family bonds, kinships or solid coalitions, detain a share of the risk capital enough to assure control of the enterprise and manage the business without involving managers external to the family".
23. "Better small than big, we used to say a few years ago. Today the slogan could be better familiar than listed on the Stock Exchange. According to a research published by Handelsblatt, the first 30 German family enterprises – among which there are Aldi, Bertelsmann and Oetker – have registered in 2005 a turnover increase of 9.7%, compared with the Dax-30 firms which have scored an increase of 5.5% [...]. According to the scholars, family enterprises do better because, among other things, they are free from quarter deadlines and their view is long termed, even generational". Based on the article "In Germany family firm runs", published in Il Sole 24 Ore, Tuesday 14 November 2006, n. 309.
24. Cf. data from www.istat.it (2010) and from http://www.ffi.org/ (Report 2010).
25. The firms or groups of firms can be grouped into *total family control firms* (e.g. Max Mara, Marcegaglia) or listed on the Stock Exchange (e.g. Italcementi, Bulgari or Tod's), or participated by *private equity* companies. *First generation firms* (Luxottica), or where second generation members (Rana, Marcegaglia) are already involved, or of following generations (De Agostini, Guzzini, Marzotto). With a fairly high number of family members (Benetton), or with a lower numerosity (Mapei). Of small, medium, big and very big dimension. With the family members involved in various managerial positions (Veronesi, Zucchi), or engaged only in the role of managing director (Bulgari), or in the one of president of the Board of Directors (Indesit). With a strong and recognized identification between owner family and firm (Ferragamo), or with a less evident connexion (Campari). With a strong connexion with the territory of origin (Barilla in Parma, Fontana in Brianza, Merloni in Fabriano, Miroglio in Alba, Sella in Biella), or less identified with a certain geographic area (Moratti and Nocivelli). With a high internationality level (Ermenegildo Zegna, Ferrero, Mapei, Technit, Versace), or more reduced (Falck and Costa).
26. Reports from the data quoted (2010) by the International Institute for Management Development (IMD) according to which family enterprise diffusion is equal to 92% in Italy, 90% in Switzerland, 93% in Sweden, 86% in Spain, 79% in the United Kingdom, 75% in Portugal, estimating that, altogether, family enterprises generate around two-thirds of GDP and workplaces in Western Europe. Moreover, it is on record that one-third of the enterprises included in *Fortune*'s 2009 chart of the 500 major US firms is represented by family enterprises. It is confirmed that the presence of family enterprises exceeds 90% of US firms and 95% of the Italian ones.
27. States that, according to the analysts, the average duration of an enterprise is equal to 24 years, that is analogous to the period of time during which the entrepreneur usually gives his contribution.
28. Continuity and survival of family enterprises are essentially linked to the phenomenon of generation transit. States that in every year of the next future the ownership of 3,400 small and medium French firms could change – data provided (2010) by the Centre National de la Recherche Scientifique (CNRS); one in five Swiss family enterprises has succession problems and two-thirds of these enterprises could be given away to strangers – data recorded (2010) by the Credit Suisse bank institution; 50% of Italian small enterprises is over 50 years old and 20% is over 60.

29. Family enterprises are not obliged to grow, although the dimensional increase offers undeniable benefits, in fact it contributes to increase the firm's value, leaving the heirs the faculty to hold only the role of owner or manager, and it extends the strategic options among which there is capital transfer. Firms can undertake virtuous processes of growth provided that they offer a high degree of cohesion of the ownership's structure; young entrepreneurs or motivated children; unpretentious entrepreneurs always ready to learn something new; cohesive and periodically renewed management; high investments linked to strategy and market, more than bound to the competencies existent in the firm; competitive strategy based on innovations; availability to consider also external growth paths through buyouts; constant commitment in order to improve productivity, also through international repositioning of the business; monitoring of income and financial performances.
30. Cf. Pirotecnica Iannotta Llc, see *infra* case studies.
31. A sentence by the Italian Court of Cassation, Labour Section n. 1917, of 6 March 1999 (Pres. De Tommaso, Rel. Roselli), declares that the difference of roles between the owner and the components of the family enterprise can justify, though, the difference in the rewards. "Within the family enterprise the positions of the different components have to be kept distinguished. To the owner appertain the management and labour organization powers, which imply a subjection of the family members who assist him, so only he lies with the qualification of entrepreneur. As a consequence, also in the quantification of working contribution the judge on merit hasn't got to level the one of the entrepreneur with the one of the family member who has performed his own activity in a position of subjection, but he can well keep account of the greater commitment lavished by the first, with regard to the most numerous commissions and the most onerous responsibilities undertaken".
32. Article 69 of the Italian Law 19 May 1975 n. 151 (Reformation of Family Law) adds the sixth section of the Italian Civil Code entitled: About Family Enterprise. The innovative importance is remarkable, because, before the above-mentioned reformation, working performance by the family members was intended as free, giving the family member who performed a working activity the burden of demonstrating the existence of a job relationship, putting it at the base of the wage payment request.
33. Two partners, in fact, can establish a company, object of which is the production and sale of clothes items; in this case, the rules about companies stated by the legislator will find their application.
34. It is configurable as family enterprise also the activity that the partner performs with others in the form of company. In such case the sentence of the Italian Court of Cassation, 19/10/2000 n. 13861, in Foro it. 2001, I, 1226, finds its application.
35. Besta considers start-up as a differential value, namely as the higher value that the enterprise's goods assume because of their joint use. According to Amodeo, instead, there isn't a value of the goods that remains unchanged, whatever are the circumstances of their profitable use, and to which you add another value, represented by the start-up, when that use leads to over-normal results. It's the value itself of the goods, of the enterprise's capital, that changes dependent on those circumstances.
36. The entrepreneur's nuclear family is formed by the partner, the relatives within the third level (up to the nephews) and the kinsmen within the second (up to the brothers-in-law).
37. The individual firm is a sign of the performance of entrepreneurial activity in a lonely form or at the most by means of the contribution of some family members, realizing the authentic family firm as in Art. 230-bis of the Italian Civil Code. In this sense, (family enterprise remains however an individual enterprise); sentence by the Italian Court of Cassation, 27/06/1990, n. 6559, in "Rivista di Diritto Commerciale" (Journal of Commercial Law), 1991, II, 155; sentence by the Italian Court of Cassation, 02/04/1992, n. 4030; in Civil Justice, 1992, I, 2339; sentence by the Italian Court of Cassation, 19/10/1995, n. 10893,

therein, 1996, I, 739; sentence by the Italian Court of Cassation, 06/03/1999, n. 1917. Although the thesis of the collective enterprise appears in minority, they expressed themselves in its favour: the Italian State Council in the legal opinion of 11/02/1976, in Foro It., 1977, III, 708; sentence by the Italian Court of Cassation, 13/10/1984, n. 5124, in Civil Justice, 1985, I, 372; Santhià, 14/07/1986, in Italian Justice, 1987, I, 518; Justice Court of Rovereto, 08/05/1987, in "Rivista di Diritto Commerciale" (Journal of Commercial Law), 1990, II, 317. On the individual or collective nature of the family enterprise.

38. Sentence by the Italian Court of Cassation, 27/06/1990.
39. A family business is every business in which the majority of the ownership or control is linked to a family, whose business involves two or more family members. Therefore, the system is made of a family and an entrepreneurial business. The family members involved in the business are at the same time part of a system, the firm, and part of a group, the family. The family is an emotional system, characterized by the interest for relationships, a system which rewards loyalty. The entry in such system is obtained by right of birth and participation is almost permanent. The role covered inside the family (father/husband, wife/mother, son/daughter/brother/sister) is linked to the responsibilities and the expectations inside the business. Moreover, the family has its communication and conflict resolution techniques, it has spent years to improve; these techniques can be effective inside the family, but could not be so in solving the conflicts at business level.
40. The prevalent definition of family business assumes that the firm's ownership and direction are concentrated in the hands of one family member. According to theory of the agency, this implies the line-up of the director's and the agent's targets. In theory, from this, cost saving and a competitive advantage towards non-family enterprises should derive, but, from statistical studies on this matter, data that unmistakably confirm family enterprise advantages don't emerge. The theory of the agency demonstrates that the line-up between management and control is a necessary condition to achieve better economic performances. Therefore, although family business firms concur to corroborate the theory of the agency, the existence of the link among family, ownership and improvement of economic performances has not been scientifically proved. This can be understood if we think that the "ownership" doesn't necessarily grant to the family member the necessary abilities/capabilities of managing the business. What was previously said leads us to the conclusion that the ownership variable should be studied as a variable that contributes to the success of family business.
41. With regard to the dividend distribution policy, Davis and Tagiuri, exploiting the scheme by Gersick et al. (1997), affirm that every generation of participants in the family business can be characterized by different interests. The founder of the first generation will worry about how to reinvest in growth all the *free cash flow*, without paying out any dividend. The family enlargement with the correspondent participation of new members to the *business* will give rise to new needs; so dividends could become an important point of discussion. Further problems could arise in the presence of hesitation in remunerating the invested capital. Often in the third generation liquidity policies for the shareholders are lacking, and this creates problems, because of the absence of a clear discipline of share selling.
42. The self-financing process arises from maintaining the profits in the firm, profits not distributed to the co-participants with the aim of subsequent reinvestment. Self-financing is differentiated into self-financing *stricto sensu* and *lato sensu*, the first is performed through the saving of net profits, in a manifest or occult way. The economic phenomenon under examination is made of the surplus of wealth produced as a consequence of management, gradually reinvested in the purchase of new *inputs*. Self-financing broadly speaking includes also regenerated capital, as well as the self-generated one, "this way of seeing abandons the way, followed until now, of seeing self-financing through reserves, provisions and correction amounts that are differential concepts, but it operates paying

attention to the minuend of that difference, which . . . moreover includes amortization of all the other management costs . . . and at last also the net income".

43. Family is a social institution and in this sense it is defined by the Constitution as natural society based on marriage; therefore, it is a social group that the state acknowledges as a community which has its own sphere of independence and with its bodies equipped with powers-duties. First of all, family is a group. It is considered so by social psychology, on the basis of the studies by K. Lewin, who has intended (1972) to consider the group as something more than the sum of the single individuals who compose it, or as mere aggregation of subjects provided with their own laws, but as a constitutional factor for the definition of the individual and for his dynamics of change. With Lewin the group becomes one "field" that can be an autonomous object of study and clarification matrix of behaviour phenomena of the individuals who belong to it.
44. In Art. 2082 of the Italian Civil Code we can read "An entrepreneur is who professionally performs an economic business organized for the production and the exchange of goods or services". The profile of the ideal entrepreneur prefigures endowments of dynamism (Marshall), innovativeness (Schumpeter), efficiency in coordinating the production factors (Aoki and Williamson), capabilities linked to self-employment (Vivarelli), as well as of deep connoisseur of one's own territory (Becattini).
45. Supply or consumption firms are those which haven't a lucrative purpose, and operate to satisfy directly the needs of the subjects who form them. Supply firms in their turn can be categorized into pure supply firms, when no production activity is performed and their management is aimed to use the goods that come from outside; and in firms created for supply purposes, characterized by the performance of production activities, at times with lucrative purposes, and the wealth thus achieved is used to satisfy the needs of the respective economic subjects. Family is an example of firm which has supply purposes.
46. Besides the economic value, the affective value, together with the sacrifices undertaken by the entrepreneur to acquire such typologies of goods complicate their transfer to the heirs, attributing to them a subjective value difficult to quantify, next to the indisputable objective value.
47. See § 2.2 with regard to the link existent between tacit knowledge and *know-how*.
48. Communication by the European Commission, GU n. C 93 of 28 March 2009.
49. According to InfoCamere (http://www.infocamere.it/) the Italian enterprises born between 1960 and 1970 are 239,081, 27,464 of which are corporations that adopt articulate solutions in the processes of generational transition. The positions held by people aged over 65 are almost 110,000 and, among these, 43,290 are held by the founder entrepreneur.
50. Peiser and Wooten (1983) have analyzed the moments of discontinuity and crisis that a family-led enterprise can encounter in its evolution cycle – focusing, in particular, their attention on the transit from the first to the second generation – in arriving at their definition: (1) increase in the level of interpersonal conflicts; (2) higher attention to immediate profits; (3) introduction of management procedures that emphasize short- term problems; (4) scarce or no definition of processes to facilitate integration by the family members; (5) absence of career plans, no spur to the entrance of the youngest generation into the firm; (6) difficulty in securing financial resources available outside; (7) difficulty in evaluating the different contributions of the various family members; (8) lack of long-term targets shared by everybody.
51. Concentration of the ownership structure, together with the absence of managerial ability and external capitals, works things in such a way that 90% of Italian firms is of small-medium dimension; among the other factors that can influence the Italian firms' dimensional development there are, in particular, the operators' concentration and the life cycle phase.
52. Factors that can influence the result of generational transit are tendency to delegate, presence of managers, presence of external advisors, individual skills, progressive entry, tendency to opening, concentration of powers, dynamism of the sector.

53. If there is harmony in the family, the firm has a lever more. Because there is something special that links you to the firm and makes you go further on always.
54. Failing of family value and the increasing number of divorces and separations have caused the increase in the genealogical tree's complexity, another ballast in the generational succession's view.
55. The more the enterprise is dependant on the entrepreneur, the more it is vulnerable. This is one of the main problems detected by business economists: the incapability by the owner to delegate, his difficulty in "abandoning the throne". The senior's attitude has been described by Levinson (1971) as resultant of two elements: one conscious and the other unconscious. While the father consciously would want to transfer his enterprise to his son, unconsciously he feels that, by handing down the enterprise, he would lose part of his personality: thus, the refusal of the succession becomes, finally, a sort of will to defeat death. The combination of these problematic situations involves at times a lacerating conflict that can lead the son to abandon the father's firm, to research elsewhere a space that in the family firm is denied to him. Thus, succession represents, also in Levinson's opinion, one of the most dramatically problematic aspects of the life of a family enterprise.
56. According to Toman (1976), the ideas that the parents figure out about family life derive from the practice and life experience they have gained inside the respective families of origin; that same experience has guided them when they decided to create their own family, organize their lives as a couple and the relationships with their children. Even when the young parents want to act in a manner different from that of their parents, family life of the previous generation influences the life they are going to begin and will then develop on their own. Minuchin states that the family, since it is an open system and therefore subject to transformations (that is, it receives and transmits, in its turn, spurs from the external world), has to be able to adapt to the various requests of the evolution stages it faces (Minuchin 1976 [1974], p. 53).
57. Passion is a specific feature of family enterprises, together with the very long-term vision, linked to the desire of family enterprises to hand down their own business.
58. This expresses the seniors' conviction that a DNA segment exists and determines the inclination towards "being an entrepreneur". Of the same opinion is also Sonia Vedani (fourth generation representative of Vedani metals, the 100-year-old family firm), who admits "I must admit, I have genetically inherited an inclination towards risk, in fact I could have opened an architecture office and instead, as my parents and grandparents, I felt the desire to build something important" (based on the article: *Inherited the taste for risk,* in Corriere Lavoro of 7 February 2003).
59. The term was coined by sociologist Lee Ross, although the researches on the determinants of human behaviour have begun with Heider and Ichheiser. There has been a long tradition of researches within sociology which demonstrates that the observers draw conclusions, corresponding inclinations, from other people's behaviour, even when the other people's behaviour is strongly influenced by situational factors. This phenomenon is named "the correspondence bias". The most frequent explanation is linked to the theories on the determinants of human behaviour, according to which situational factors have a light impact on human behaviour. This all-present underestimation of situational influences on human behaviour is usually called "the fundamental attribution error".
60. Schein (1986, p. 396). Problems concerning internal organization are linked to the elaboration of group techniques, with regard to language definition, research of the agreement on the definition of the group's borderlines, criteria of power allocation, levels of confidence and friendship, rewarding and punishing systems, ideology and "religion".
61. Business culture is seen as taken by orientation to *problem solving*.
62. According to Schein the basic implicit assumptions on which cultural paradigms are established are the relationship existent between the firm and its environment, nature of man, human activity and human relationships, nature of reality and truth.

63. Hegel in the work *Outlines of law philosophy* (published in 1821) assumes the vision of ethics as sharing of rights/duties that are neither freely chosen by the individual, as happens for moral values, nor imposed by someone, as in the case of law rules, but they develop from a relatively stable being together; from this derives that the firm's ethics isn't determined so much from the content of its behaviour, as from what originates the need for that behaviour.
64. Nonetheless, not always such circumstance must be considered virtuous; think, for example, about areas characterized by a dominant culture and at the same time backward, incapable of orienting themselves towards the acquisition of competitive advantages. In such contexts, the presence of cells of enterprise bearers of different cultures will not be able to produce any profitable pollination, if performed through a mere delocalization of phases of the production process that don't require the presence on the spot of specific technical/organizational knowledge and environmental economies, nor encourage their development.
65. Ancient roots play an important role in our philosophy, but haven't ever inhibited our innovative spirit (Marchese Piero Antinori).
66. As happened in the generational transit of Perissinotto Corporation, Italian firm dealing with pumps.
67. See above for a reference to an expression uttered by Mrs. Nonino during the interview for the series MASTER 24, volume n° 17, 2007, edited by Il Sole 24 Ore.
68. "A strong sharing of values gives people a sensation of success and satisfaction, a sane and less cynical estimation of the values and ethics of their colleagues, subordinates and chiefs, and a greater respect for organizational targets". Sharing of values is an extremely important factor for the personal and firm's vitality. Enterprises with a solid firm's culture and a high level of value sharing reinforce Pascale and Athos' thesis, according to which "big firms make the difference". Greatness mustn't be considered in a dimensional key.
69. "After examining and rejecting intelligence, character, type of personality, degree of introversion, [. . .] all features that can be present or not, give their contribution, even be dominant, the only really general element present in all is motivation".
70. At times male children don't succeed their father, rather the daughter succeeds with her husband. It's the small hotels' sector, lived as an emblem of eternal servitude, therefore it's the nature itself of the business that dissuades the male children to take over from their father (Cf. interview to Elisabetta Fabri, by Letizia Olivari, in Family Business News n. 1/2, January/February 2007, pp. 27–34).
71. With regard to the analysis of the effects of technological variables on the firms' strategies.
72. The operating lever is given by the ratio between fixed costs and total costs and creates a relationship between the variations of the operating profit (the result of characteristic management) and those of the turnover. Higher is the lever's value (and therefore higher is the volume of the fixed costs), higher will be the growth of the operating profit determined by the turnover's increase.
73. The markets' opening appears for the enterprise both under the active aspect (capability of a competitive presence of the enterprise outside its own market of origin) and on the passive side (risk to undergo, inside its own environment of reference, the competitive presence of external enterprises). Variety and changeability of the situations, that characterize the enterprises' environment of reference, represent the determinants of the firm's complexity. Variety attains the complexity's synchronic dimension and inserts the numerosity of the strategic options that can be followed: because they are known options, variety prefigures a situation definable in terms of "complication", that means it is potentially possible for it to develop an effective decision process. Different is the problem of uncertainty, diachronic expression of changeability: under this aspect the non-predictability of the events reduces the effectiveness of every activity of prediction and planning, since cause-effect relationships are not completely identifiable.

74. The planning of a succession to be effective has to consider (a) the timetable and the exit methodologies from the enterprise on behalf on the entrepreneur, (b) the aims of the family and the enterprise, (c) the patrimonial structure, (d) the firm's present and prospective features, (e) the subjects involved.
75. A set of principles and rules shared and subscribed by the family members-partners contribute to the definition of family pact: they can have as object themes such as the family's entrepreneurial mission, the enterprise's development path, transferability and evaluation criteria of the shares, the dividend policy, the rules for the entry of juniors in the firm, functioning of the partners' meeting and the top bodies, the use of the firm's resources by the family members. The Swiss Civil Code, that came into force in 1907, assures the possibility of settling one's own goods or part of them, by will or succession contract, within the available portion, by means of which the settler can bind himself to leave his succession or a legacy to the counter-part or a third party (Art. 494 cpv. 1 CCS). Erbvertrag (succession pact), also known to Austrian law, provides for at least one-quarter of the succession to be free from such pacts. The French Civil Code prohibits them, but praxis has created the "institution contractuelle", that is a contractual legacy.
76. It confirms, in fact, the nullity "of every agreement with which somebody settles his own succession", as well as "the rights that can be due to him on a succession not opened yet, or the renunciation of the same".
77. Collation is an institution able to fulfil equal treatment among the co-heirs, requiring who has already received goods by means of direct or indirect donation, to confer on the others what they have received, because we assume that the *de cuius*, by donating certain goods to some, in life, intended to anticipate the effects of hereditary succession, without modifying the value ratio among the shares. The *de cuius* has the faculty of exempting the donators from the collation burden.
78. In order to safeguard his own interests, the heir can try out the action of reduction (which has a 10-year limitation)which is divided into declaratory of ineffectiveness and action of restitution. The first affects the *de cuius'* arrays detrimental to the reasons of the legitimate heir; the second, instead, has the aim of recovering the goods towards the successor in title from the *de cuius'* beneficiary, already met in the action of reduction.
79. The motivations that can lead a small/medium dimension firm to follow the route of growth are the dynamics of the sector it belongs to (for example, the concentrations in action in many industrial sectors), the role of export (the need to enter foreign markets caused by saturation of the internal market), motivations which can be brought back to cutting down costs (exploiting global *sourcing* and scale economies), the greater visibility (a big firm benefits from a greater visibility in the market and is able to attract the best human resources), the achievement of a greater contract power towards the *stakeholders.* The growth deterrents are fiscal and legal burdens arising from the greater dimension, difficulty in finding financing sources coordinated to the firm's requirements, incapability of planning and estimating the true economic convenience of the investment to be performed, the fear of not being able to manage growth.
80. With regard to this, it is revealing that the baton passed on from generation to generation in Banca Sella (that claims 14 generations indeed) is represented by the love for the client: "we don't do a favour to the clients by serving them, but they honour us with their choice".
81. Schumpeter's teaching emphasizes the positive impact of finance on the birth and development of the enterprises; in fact, the author affirms that "the entrepreneur's function, in principle, isn't linked to the ownership of a patrimony, as analysis and experience teach in some way, as far as the accidental circumstance of owning a patrimony represents a practical advantage".
82. In 1947 families La Porta, Canale and Baldi brought risk capital in SAES Società di Apparecchi Elettrici Scientifici (Electrical Scientific Appliances Company), opened by an engineer who had patented a pure barium getter that allowed the maintenance of vacuum in many devices, characterized by versatility in the applications.

83. With regard to the *stock options,* Antonio Malaguti states "to me the *stock option* system doesn't seem very healthy. It inserts a short term earning prospect, the manager aims at reaching the refund of the *stock options*", based on the interview with Antonio Malaguti, performed by Letizia Olivari, 2006.
84. The *stock options* are option rights of subscription granted by a company to its officers or promoter partners, of purchasing shares at fixed price and quantity conditions, in a future moment, but usually within a set date. Often the price at which you can exercise these option rights is lower than the securities' market price, to assure the people to whom they are granted a potential profit in the moment they are exercised. Just for this reason, nonetheless, and in order to avoid speculation, the agreement generally provides that whoever exercises this type of option right engages himself to resell the securities only after a set period of time has passed.
85. The electronic stock market is the market in which shares, obligation bonds, certificates that represent shares of movable and immovable closed funds are quoted. It is articulated in more segments on the basis of the dimensional and economic features of the issuer: *blue chips* (shares with a high capitalization, higher than 800 million euros), *stars* (for issuers with a capitalization lower than 800 million euros and responding to further computer and liquidity requirements), ordinary segment that gathers all the other issuers. The New Market, instead, is committed to the quotation of the enterprises with a high development potential, or with a high technological content, because they are based on product or process innovative approaches.
86. The strict link existent between entrepreneur and entrepreneurial reality, especially in the first life phases of the same.
87. The *business angel* tends to exploit the acquired cognitive store, and at the same time invests in innovative sectors. The above mentioned cognitive store is formed by previous knowledge and cultural training, while the variables that bear on the *investment expertises* are technical and managerial *skills*.
88. The relationship existent between the financed enterprise and the angel is full of subjective components, that let the interest for the enterprise's destiny prevail on the "cold" *trade-offs* between risks and earnings. Landström defines the *business angel* as a *co-creator* (Landström 1998).
89. The informational asymmetries substantiate themselves with hidden information that shows the disparity in information between the parts, regarding facts or features of the product/service object of services; or of hidden action, that is the informational disparity between the parts regarding the services existing between them. They can originate during the pre-contract phase (*adverse selection*), or the post-contract phase (*moral hazard*).
90. Of course there are conflicting opinions about this: in fact, some scholars believe that no virtuous connexion is established between local banks and entrepreneurial development.
91. Big dimension banks favour financing more mature small and medium enterprises, less hidden in the financial point of view and more available to use alternative sources.
92. Italian bank "Banco di Napoli's" 1994 and 1995 balances were closed with a total loss of about 4,600 billion liras, even after an analytical inspection by the Central Bank, that lead to the annulment of the risk capital. The long lasting economic crisis in the South, more marked because of the end of the state facilities linked to the promotion of the entrepreneurial business, has weighed on the results at the end of the financial year. The governance bodies of the banking institution prepared a reorganization plan approved by the Bank of Italy and made operational from October 1995. In March 1996 the majority shareholder performed a recapitalization for 2,000 billion liras, 1,000 of which derived from the resources already allocated to sustain the economy in the South and proceeded to sell his own participation shares by means of a competitive auction, knocked down at a price of about 62 billion liras by another banking institution owned by the Treasure

Department, the Banca Nazionale del Lavoro (National Labour Bank). Such acquisition occurred without considering the more favourable offer bid by Mediocredito Centrale that had complementary businesses tending toward the South, as well as a free capital of 2,000 billion liras, against the negative one for over 6,200 billion liras of the same Banca Nazionale del Lavoro. In order to reduce the riskiness of the assets and demobilize the credits of uncertain collection, in December 1996 the Company for the assets management, S.g.a (Società per la gestione degli attivi), was established, on which credit positions for a value of about 12.3 billion liras, net from doubtful results, were conferred. In 1997, 1998 and 1999 the operating results returned positive in a higher measure than the ones foreseen by the *budget* and they started to talk about Banco di Napoli's new *mission* and no more about survival. Near the end of 2000 a public purchase offer was launched by San Paolo IMI (occurred in absence of a definite project of commercial expansion and functional integration), that truly aroused from an exchange object between the insurance company Generali, of which San Paolo IMI itself held an amount of shares and INA, of which the new ownership of the Bank was shareholder, Banca Nazionale del Lavoro. To define, in January 2001 the cancellation from the Stock Exchange list hasn't been the decision taken consequent to a strategy of growth and expansion of the incorporator, but the result of a compromise (Giannola 2002, p. 121). Thus the multi-centuries-old Banco di Napoli has been "confidently sunk, when less famous, but not southern, banking institutions, and in even more difficult conditions than the ones in which Banco di Napoli was, have survived thanks to generous supports and rescues".

93. Knowledge is a *quid pluris* compared to capital; even if we want to level the respective contributions brought on the production processes, it can't be denied that the first cannot be subject to the same rules: in fact, its first attribute is truthfulness, not usefulness. A subdued knowledge, not generated, kept silent, not shared, surely generates less value than its potential (Del Giudice 2008).
94. In Article 366 of the Italian law referred above, the industrial districts are defined as "free aggregations of enterprises articulated on the territorial level and functional level with the aim of increasing the development of the areas and the sectors of reference, improve organization and production efficiency, according to principles of vertical and horizontal subsidiarity".
95. The taxable income of the district includes the one of the enterprises that are part of it which have contextually opted for group taxation. Assessment of taxable income, taxes and charges due, occurs on an agreement basis for at least 3 years. In fact, the districts will be able to agree, in a preventive and binding way with the Tax Revenue Agency, for a period of at least 3 years, on the volume of direct taxes pertaining to the district enterprises, to be paid in any accounting period, considering the nature, typology and entity of the enterprises themselves, their attitude to contribution and other objective parameters, even determined on a presumptive basis. The distribution of the tax burden among the enterprises concerned is referred to the District that provides for it on the basis of criteria of transparency and equal treatment, on the basis of mutuality principles. The accomplishment, by the enterprises belonging to the district, of the ordinary duties and fiscal compliances and the application of tax penal provisions remain firm. See Art. 366 and 372 introduced by the law 23 December 2005, n. 266, Italian financial law 2006.
96. The Basel Committee was established at the end of 1974 by the governors of the central banks of the G-10 countries. At present, the member countries are Belgium, Canada, France, Japan, Germany, Italy, Luxembourg, Netherlands, United Kingdom, Spain, USA, Sweden and Switzerland. The countries are represented by their own central banks, as well as the authority formally responsible for prudential supervision of the banking sector, if it isn't the central bank itself. The European Commission has suggested a directive aimed to acknowledge the new normative frame that considers the specificities of the EU countries. In particular, the proposal for a European directive of the Commission regarding the patrimonial requisites of the banks and investment companies is presently object of discussion in view of the approval by the European Parliament and the European Council. COM(2004) 486 def. Proposal

for European Parliament and Council directives that found the European Parliament and Council's directive 2000/12/CE of 20 March 2000, regarding access to the credit corporations' business and its running, and the Council's directive 93/6/CEE of 15 March 1993, regarding the patrimonial adequacy of the investment enterprises and credit corporations. It is possible to acquire such documentation at the following address http://europa.eu.int/comm/internal_market/bank/regcapital/index_en.htm.

97. Rating is an assessment expressed by a rating agency, on the capabilities of a company to pay or not its own debts. The rating agency assumes to assign an assessment on the capability of the same to generate the resources necessary to face the commitments undertaken towards the creditors. Such assessment is subject to periodical revision. A particular typology of rating is the credit one. To release an assessment on the quality of a company's debt the rating agency starts up a procedure that schedules the analysis of the economic-financial features of the company under discussion. For that purpose the balance is analyzed in all its components and parameters, such as the firm's profitability, its capability to produce resources and income, capital remuneration, cash flows, the relationships between personal assets and debt and so on. The rating agency's analysts, in fact, have to compare the parameters of the company under examination with those of the other companies in the sector in which it operates and therefore they have to analyze also the features of the sector itself and the market's performance. Besides the quantitative factors, the rating company's analysts must try to evaluate qualitative factors, such as the reliability and skills of the firm's *management* and the credibility of the projects and the targets that the company under examination has imposed on itself. As a guarantee of the correct performance of this set of analysis, the company under discussion commits itself to supply all the information and documentation required by the rating agency itself, filling out a questionnaire elaborated by the rating agency on the basis of the first information obtained. To start a correct analysis of the business, and the reliability, of a company, it is also necessary that the rating agency refers to the "Risk Centre" and monitors all the movements of money and the activities of the firm referred above. In the second phase, the analysts go to the firm to meet the management and evaluate its actions: after meeting the firm's top managers, the analysts, complete the last control procedures on the data obtained, submit an advice to a credit committee, formed by sector specialists, the general director and the agency's credit experts. The process of rating assignment usually lasts 90 days, but time can be accelerated to face specific deadlines or other needs. Once the evaluation to be assigned has been set and the publication of the results has been decided, the rating is published through a press release on the agency's website and through the major financial information means at world level (cf. www.borsaitaliana.it).
98. Synthetic cartolarization provides for the permanence of the cartolarized *assets* in the balance of the *Originator*, who buys protection from the risk that arises from them, by means of a *credit default swap* contract, a type of contract part of the *credit derivates*, financial contracts that allow to transfer only the credit risk regarding the underlying *asset*, and its *pay off* is determined and corresponds to the happening of the *credit event* specified at the stipulation of the contract. The *credit default swap* is a contract by means of which the holder of a credit business, *protection buyer*, commits himself to pay a certain commission, in favour of the counter-party, *protection seller*, who, in his turn, keeps him indemnified from the credit risk bearing upon that business, in the hypothesis that the future uncertain event occurs (*credit event*).
99. The actual formulation of Article 2501-bis of the Italian Civil Code (merging after acquisition by debt) produced by the recent reformation of corporate law has undone the knot about the lawfulness of *leveraged buy out* operations, previously supposed to be detrimental to the prohibition of purchasing and subscribing one's own shares, as well as the prohibition of offering guarantees and-/or funds for the purchase of one's own shares (Art. 2358 of the Italian Civil Code). Article 2501-bis, in the following paragraphs, states precise rules about the operation's transparency (that is the non-subjection to a mere predatory logic), among which inclusion inside the merging project of an economic financial plan from which results the amount of financial resources to be used, as well as their

origin; a report written by the administrators showing the reasons for the operation; the statement of reasonableness of the indications contained in the merging project; and, if one of the companies involved is subject to auditing, also the report by the latter must be enclosed.

100. *Buy-out* operations are concentrated in northern Italy, mainly in traditional sectors, and involve industrial partners. Their object is a high number of small and medium enterprises.
101. Both in FBO and MBO operations, the *management company* of the fund deals with the evaluation of the financial lever to be used on the basis of the enterprise's refund capability and oversees the financial flows, verifying that the family enterprise reaches the turnover growth targets, necessary to refund the invested capital.
102. For trust we intend the legal relationship established by a person, the establisher, through an *inter vivos* or *mortis causa* act, if the goods have been set under the control of a *trustee,* in the interest of a beneficiary or for a specific purpose. Aja Convention (on the recognition of foreign trusts) of 1 July 1985, acknowledged by the measure of 16 October 1989, n. 364. The recent introduction of Art. 2645-ter of the Civil Code has allowed overcoming the reticence about the opposability to third parties of the binds linked to the *trust*. The trust is not a person but a legal relationship. Actually there are two types of relationships; the first is between the settler and the trustee: it dies at the same moment when the second legal relationship is born, that is between the trustee and the beneficiaries, which is moreover the moment when the trust is established.
103. The banks' offer in the segment under discussion is distinguished between *private banking* (object of which are the operations existent with the wealthiest clients) and *wealth management* (that deals instead with the richness of the wealthiest client): the family office brings them both together. The increase in the patrimonies to be managed (the High Net Worth population segment with an investment capability equal to €75,000, and the Mass Affluent with an investment capability of €150,000), also due to the generation transits, the greater entrepreneurial spirit and work mobility, the ageing of the population, find in the *wealth management* the correct compensation. *Wealth management* offers typical services of the financial world and services promoted and run by specialized financial entities.
104. J. P. Morgan, son of a banker, in 1971 entered the banking company Drexel-Morgan & Co. of Philadelphia as a partner. Afterwards, he undertook its direction, transferring the headquarters to New York. When the last member of the Drexel family died, he changed the name of his own bank to Morgan & Co., setting it up to become a financial empire of international nature. He played an active part in the creation of certain trusts (the steel one for example: US Steel Corporation 1901 created to hinder Carnegie's trust, the US Steel Corporation). It was the most important American trust with a turnover of a billion dollars and control of about 70% of the American iron and steel production. Actually, J. P. Morgan Chase is the most important world operator in the derivatives sector and aspires to become an exchange of the OTC markets, as shown in the article by M. Crabbe, JP Morgan the new giant of derivatives, Risk Italia, December 2001, www.risk.net. With regard to the US bank system in the nineteenth century.
105. M. Lynch, Cap Gemini Ernest & Young, 2002, p. 13.
106. Regarding this, visit the website www.foxexchange.com Family Office Exchange (FOX): founded in 1989, it offers services to the firms, supplying research, training and assistance to more than 500 members in 22 countries, helping the families preserve and increase their financial, human and intellectual capital.
107. According to FOX only the families with considerable patrimonies can find that it is convenient to set up a *single Family Office.*
108. Prometheus represents the possibility of acquiring knowledge by man, by means of a process based on reminiscence and transmission.
109. Source: www.doctorfire.it

110. To obtain such licence you need to pass an exam about the rules on safety and explosives (among these: ministerial decree of 23 September 1999, circular of 20 December 1999, n. 559, circular 11 January 2001 n. 559, decree 19 September 2002, n. 272, law 626 of 1994, set of rules about safety at work). Then you have to submit the request to the Prefect. You have to wait for the answer from the Prefecture with the indication of the day of the exam. If the technical committee pronounces an assessment of suitability for the licence to light fireworks, a registered letter will be sent to the person concerned, with the certificate of suitability released by the Prefecture. The certificate isn't the licence: to obtain the latter you need to take the Prefecture's certificate to your own town hall of residence to have the firework licence released. This licence bestows only the authorization to light the fireworks, (it doesn't allow the purchase, or the transportation). To be able to transport explosive materials you need to own a special licence: the ADR (European Agreement for the transportation of dangerous goods) licence.
111. Well, consistent with what is reported by Unioncamere, the recipe to relaunch the Italian style, within the project "M^2 – Meridiano Moda", passes through nine points, beginning from the promotion of innovation and the improvement of the effectiveness and efficiency of the production chain, in order to improve stability and competitiveness. Moreover, solutions and instruments are needed to make access to credit easier and incentives to allow the firms in this industry to receive benefits, increasing their size, also through associations. Furthermore, by establishing specific funds, and with the support of the banking system, it is necessary that the Italian style has an adequate capitalization and an adequate financial structure. Last, but not less important, is the fact that from project "M^2 – Meridiano Moda" emerges the need to promote labelling and traceability, even by introducing voluntary certification mechanisms, reinforcing the actions and assigning more resources to control campaigns.

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Part II
Family Business Entrepreneurs as Creative Destroyers and "Knowledge Weavers"

Chapter 7
Definition of Terms and Concepts

Elias G. Carayannis

> *Excellence is an art won by training and habituation. We do not act rightly because we have virtue or excellence, but we rather have those because we have acted rightly. We are what we repeatedly do. Excellence, then, is not an act but a habit.*
>
> Aristotle

Abstract Change is the essence of life – in both business and society – and the heart of change is creative destruction. In this sense, family business leadership and management processes, including business creation, transfer, succession and termination and events are at the heart of evolutionary and sometimes revolutionary change. How that occurs, that is, in more or less intelligent, effective, and efficient ways, is determined by both chance and necessity as stated by Jacques Monod in Chance and Necessity in 1971, and in this context lie the concepts of strategic knowledge arbitrage and strategic knowledge serendipity coined by Elias G. Carayannis in 2008. Heterogeneity may indeed be one of the central reasons why and how the human species survived, evolved and prospered both biologically as well as socioeconomically. In this chapter, we view the family enterprise as an adaptation triggering and moderating mechanism and we thus focus on the socioeconomic aspects of heterogeneity and, in particular, whereas "adaptation" has been the biological manifestation of the forces of variety and selection acting on the natural gene pool, we postulate that "innovation" has been the socioeconomic manifestation of the forces of co-opetition, co-specialization, and co-evolution (C3) acting on the knowledge economy and society. In short, better family business leadership and management methodologies enable the undertaking of bigger risks in a manner that is more calculated and can be better managed along the way resulting in systemically superior results from both a strategic as well as a financial perspective and this in the end may be the key determinant of the long-term survival and prosperity prospects of a family business as it inexorably becomes part of the socioeconomic process of creative destruction.

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7.1 Heterogeneity and Socioeconomic Analysis

In the Middle Ages, "sorcerers" of sorts (including the Medici family), were reputed to be turning lead into gold – nowadays it may well be family businesses that develop tools and methodologies to extract and realize value from business transactions. Economics since Adam Smith identifies three chief productive factors in any economy: *land, labour and capital*. Thereafter, Schumpeter (1934) added *technology* and *entrepreneurship* as key inputs to economic activity and Drucker (1985) added *knowledge*. The shift in the West from an agrarian economy to one based on manufacturing was marked by the shift from land as the most important factor to physical capital – factories, machinery and resources which composed these assets – and the financial capital to acquire those assets. The rise of a "post-capitalist" society as described by Drucker (1991) suggests that other assets are approaching ascendancy as contributors to economic productivity. The manufacturing-based economy appears to be giving way to a "knowledge-based" economy.

Specifically, we see in Fig. 7.1 the juxtaposition and differentiation of the conceptual context of heterogeneity in the socioeconomic versus the natural domains and the ensuing linkages with innovation versus adaptation respectively. Moreover, in the context of heterogeneity dynamics, we distinguish across three classes of heterogeneity (input, process and output) (see Fig. 7.2). Specifically, in Fig. 7.2 we depict in summary form a socioeconomic system for adding value via cascaded, interconnected and interacting stages of socioeconomic being and becoming where the concept of C3 as discussed above drives the creation, diffusion and use of knowledge.

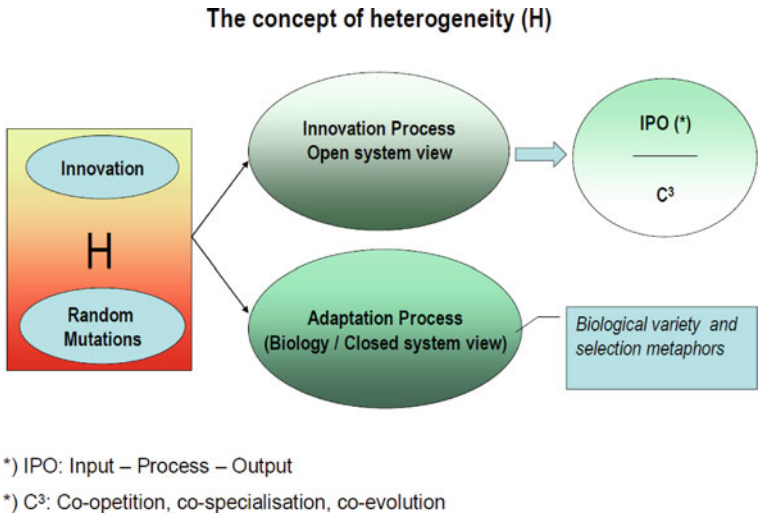

Fig. 7.1 The concept of heterogeneity

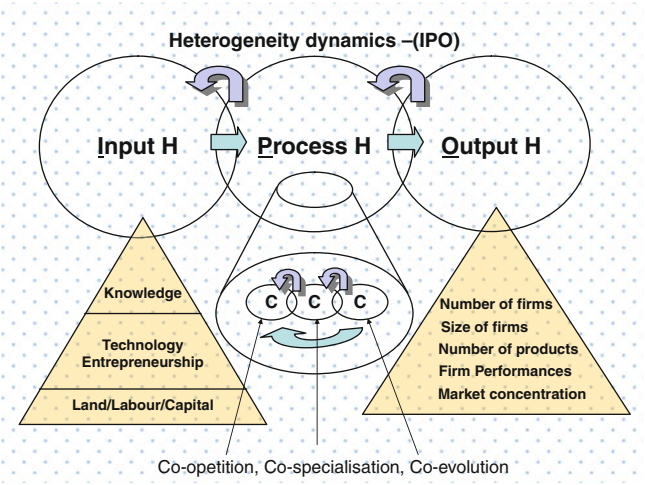

Fig. 7.2 Heterogeneity dynamics

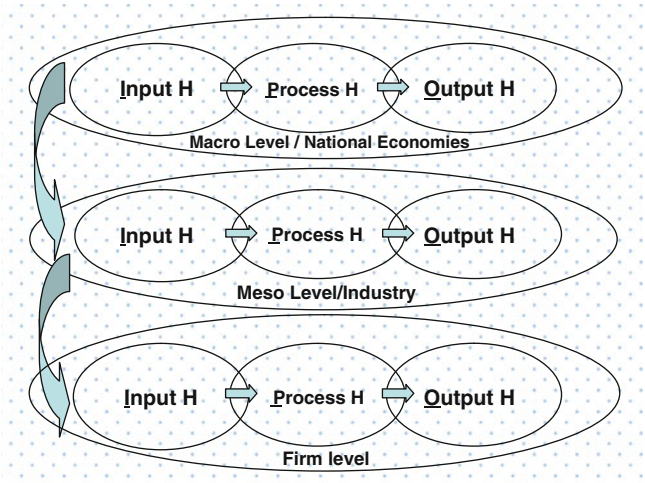

Fig. 7.3 Heterogeneity and levels of socioeconomic analysis

This system consists of multiple layers (macro, meso, micro as shown in Fig. 7.3) as well as modules (*input, process, output*). The presence of heterogeneity in these layers and modules acts as both cause and effect for driving the value-creating, diffusing and potentially destroying, processes of *co-opetition, co-specialization* and *co-evolution* (C3) as shown in Figs. 7.2 and 7.3 (Carayannis 2005; Carayannis and Campbell 2006).

Input, process and output heterogeneity deals with the issue of value creation in a socioeconomic context as later discussed briefly in the chapter summaries included in this proposal:

- *Input heterogeneity* refers to the variety and diversity of the key inputs to economic activity namely, land, labour, capital, technology and entrepreneurship as identified by Adam Smith, Ricardo and Joseph Schumpeter among others. Intrinsic to all these inputs is knowledge, which has been increasingly the key source of value addition of most human endeavours.
- *Process heterogeneity* reflects the variety and diversity intrinsic to the ways that the key inputs to economic activity are leveraged, allocated, re-combined and re-created as part of the processes of technology innovation and entrepreneurship aiming at the maximization of value added.
- *Output heterogeneity* reflects the diverse ways and means that the value added of economic activity combining and leveraging the key inputs discussed earlier, is captured and exploited, namely, number and size of firms, firm performance, market concentration, number and rate of renewal of products and services, as well as public-private sector partnership structure and performance.

Again, these issues are further delineated, profiled and discussed in the chapters summarized below and also depicted schematically in Figs. 7.3 and 7.4. In Fig. 7.3, we show the macro-, meso- and micro-levels of socioeconomic analysis where heterogeneity manifests itself and shapes as well as is impacted by socioeconomic processes. In Fig. 7.4, we show at the microlevel, the key success factors for *sustainable entrepreneurship* that is one of the major pillars of *robust*

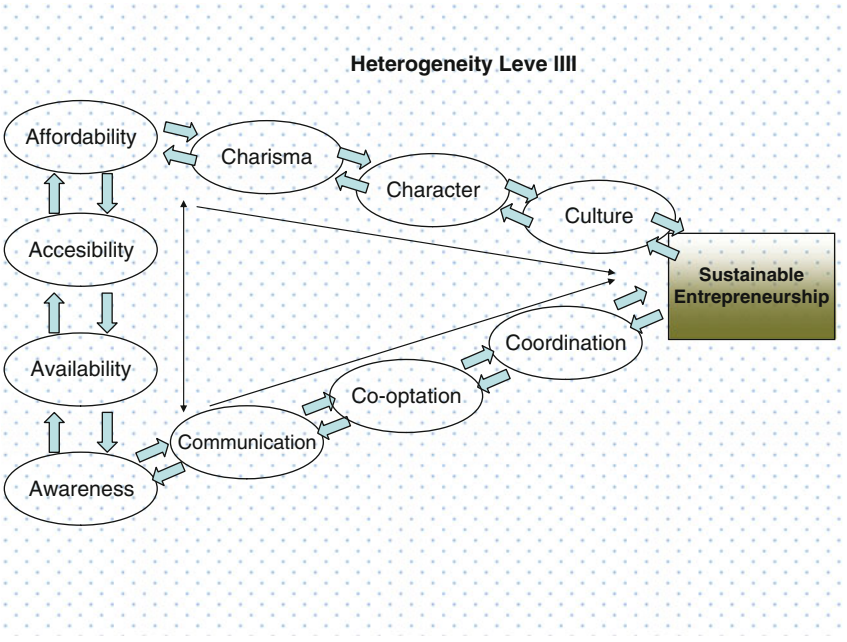

Fig. 7.4 Heterogeneity and sustainable entrepreneurship

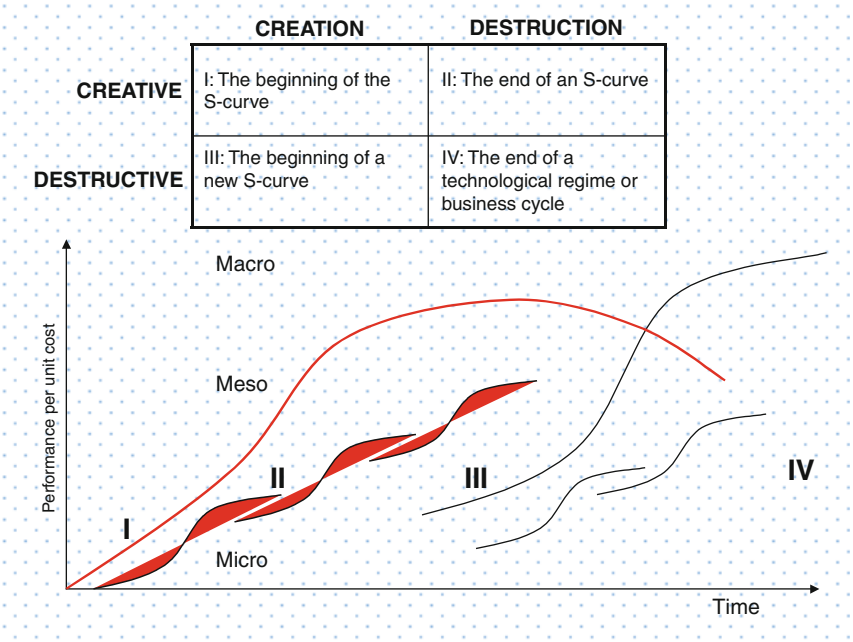

Fig. 7.5 The Schumpeterian process of "Creative destruction"

competitiveness as discussed earlier. In Fig. 7.5, we show the Schumpeterian process of *Creative Destruction* combined with its complements (*Creative Creation*, *Destructive Creation* and *Destructive Destruction*) mapped onto the technology lifecycle curve (S-Curve) also providing the context for the "Horizon" and "Memory" dimensions of a system's lifecycle discussed later.

7.2 "MODE 3" Innovation Ecosystem: Perspectives from Socioeconomics and Biology

Most contemporary theories of heterogeneity emphasize the *learning potential* (Carayannis 1993, 1994, 1999, 2000a, 2003, 2004, 2005, 2006) of belonging to a heterogeneous and complex super system, which integrates several sub-systems, and accordingly enables coordination. The upshot is that heterogeneity may – under conditions yet to be specified – enable combinations of different forms of knowledge, different specializations. By comparison, the evolution of a species in nature is established within the development of the geology of the earth, global climate change and several other naturally given macro factors, which shape and transform ecologies. Within these ecologies, species compete, struggle for survival and try to adapt to changes or fail.

In the context of socioeconomics, an emerging "species" is the form of knowledge creation, diffusion and use paradigm called "Mode 3" Innovation Ecosystem[1] by Carayannis and Campbell. The "Mode 3" Innovation Ecosystem is based on a number of distinct building blocks of a twenty-first century innovation ecosystem as earlier defined, namely innovation networks[2] and knowledge clusters[3] (Carayannis and Campbell 2006):

The *Mode 3 INNOVECO* is in short the nexus or hub of the emerging twenty-first century innovation ecosystem, where *people, culture*[4] *and technology*[5] (forming the essential *Mode 3 INNOVECO* building block or "knowledge nugget"[6]) meet and interact to catalyze creativity, trigger invention and accelerate innovation across scientific and technological disciplines, public and private sectors (government, university, industry and non-governmental knowledge production, utilization and renewal entities) and in a top-down, policy-driven as well as bottom-up, entrepreneurship-empowered fashion (Carayannis 2004). One of the basic ideas is *co-existence*, *co-evolution* and *co-specialization* of different knowledge paradigms and different knowledge modes of knowledge production and knowledge use as well as their co-specialization as a result. *We can postulate a dominance of knowledge heterogeneity at the systems (national, transnational) level. Only at the sub-system (sub-national) level we should expect more homogeneity. This understanding we can paraphrase with the term "Mode 3"* [emphasis added] (Carayannis et al. 2005; Carayannis and Campbell 2006) (see Figs. 7.2, 7.3, and 7.5).

As a point of departure, the interest in the concept refers to its successful use in biology, where the heterogeneity of an inter-breeding population is an important element in the theory of the evolution of the species founded by Darwin. Accordingly, let us, in passing, consider the relation between socioeconomics as explored in the social sciences and economics, and biology.

Heterogeneity is a collective property of *the population*. It follows from the previous discussion that heterogeneity as a concept refers to at least three levels of analysis:

- The *context* of the inter-breeding population, in biology often referred to as ecologies, in the learning economy we call this context *embedding* of knowledge. This context determines the borders of the inter-breeding population
- The *size* of the inter-breeding population – where heterogeneity is measured
- The variation between and among *individuals* making up the population

The definition of the population in biology partly may be conditioned by natural barriers (mountains, glaciers, oceans) leading to conditioned *loss of reproductive capacity*. In the learning economy, we refer to specialized knowledge. Similarly, we have seen that *in a learning economy*, barriers around a specialized path-dependent innovation system, reducing the capacity for absorption of new forms of knowledge, may be changed or removed, through various forms of corporate or business strategies (horizon scanning), through innovation policy interventions, like "foresight", and through entrepreneurship – crossing the institutionalized borders between forms

of knowledge. Heterogeneity may be seen as created through various combinations of the following:

- Variations *among individual members of the population*. In our case, individual members are specialized forms of knowledge and products in the national economy.
- Variations in *relations between individual forms of knowledge*. Variations in relations, we would like to argue, may create heterogeneity even though the individuals are pretty similar.

In the simple case, there is a 1:1 relation between knowledge and market product. The function of the knowledge is the direct product on the market, with no intervening networks or market relations. This is the case with a craft-based industry, based on harvesting of natural products, where the skilled craftsman knows pretty much everything there is to know in the production of the product – and the tastes of the customers. In other cases, the knowledge we are referring to may be input into larger and more complex value chains, combining several forms of knowledge through various forms of economic relations, like markets, employment contracts, projects, etc.

Our basic unit of analysis is *heterogeneity* in terms of types of shared and living *knowledge organized as structured innovation networks and knowledge clusters (being part of existing and emerging innovation systems).* These networks have two core properties:

- A *structure*, which is a fixed set of relations between the forms of knowledge involved in the network.
- The structure enables the system to generate a *function.* The function may be some form of economically useful *performance*, like producing one or more competitive products.

7.3 Evolutionary Economics

Turning to many of the basic works within the tradition of evolutionary economics and population ecology, one hardly finds the concept of heterogeneity (Nelson and Winter 1982; Metcalfe 1998; Aldrich 1999), although the principle of heterogeneity may be regarded as an underlying precondition for many of the evolutionary approaches (Andersen 1994).

While a key focus in analyzing evolution is on mechanisms related to variation and selection as the two most focused, the principle of heterogeneity may be more implicit in the analyses; mechanisms inducing variation contribute to increased heterogeneity, while selection mechanisms contribute to the reduction of heterogeneity.

Schumpeter is a natural starting point for discussing heterogeneity. His perception of innovation is seeing the production process as the process of combining various resources in specific ways. The combination of various resources, or combining "materials and forces" as he phrased it, is a key to understand his concept of development. According to Schumpeter, development is something that basically comes "from within" the economic system, and is related to changes in the way production is organized, i.e. resources are combined in new ways. Based on this, Schumpeter introduced the concept of *new combination* (1934/96, pp. 65–66) and defined development by the introduction of a new combination. His most famous definition of entrepreneurship is related to five different ways that new combinations may be organized: (1) introduction of a new good or quality of good; (2) introduction of a new method of production; (3) opening a new market; (4) the conquest of a new source of supply or raw materials or half-manufactured goods, and (5) the carrying out of a new organization of industry.

The concept of *context* is fundamental for our analysis of entrepreneurship and diversity. Although Schumpeter was not very explicit in defining the context in which he analyzed entrepreneurship, and for instance did not address various and specific environmental factors which might have an influence on the entrepreneur, he very clearly related the role of the entrepreneur to the economic system. When discussing entrepreneurship, he did this in the context of the capitalist system, and his major concern was how the intervention of entrepreneurs contributed to disturbing the existing system and the current "circular flow".

Schumpeter's theory on economic development was originally written during the early parts of the twentieth century.[7] In this work, the role of the entrepreneur was regarded as much more important for economic development than was the case in Schumpeter's later works, in particular his work, Capitalism, Socialism and Democracy (Schumpeter 1943). This shift in Schumpeter's view on the role of the entrepreneur demonstrates how important the systemic context is for understanding the phenomenon of entrepreneurship, and this has been an important background for developing the concept of technological regime and applying this concept in a number of evolutionary analyses. In the following we summarize some of these differences, and relate them to the concept of *technological regime* (TR).

A number of authors have discussed these principles and summarized the mechanisms of evolution. The seminal work of Nelson and Winter (1982) may represent the starting point of the evolutionary approach (Saviotti 1997), and their approach was based on the three building blocks of organizational routines, search behaviour and selection environment (Van den Berg 2004). A number of authors have followed up on this and summarized the principles in different ways (cf. for instance Aldrich 1999; Carlsson and Stankiewicz 1991; McKelvey 1997; Peneder 2001; Saviotti 1997). Among them Edquist (1997) has stated that evolutionary theories often include the following elements (p. 6):

1. "The point of departure is the existence of reproduction of entities like genotypes in biology or a certain set-up of technologies and organizational forms in innovation studies".

2. There are mechanisms that introduce novelties in the system (i.e. mechanisms that create diversity). These include significant random elements, but may also produce predictable novelties (e.g. purpose-oriented development work). In biology the novelties are mutations and in our context they are innovations.
3. There are mechanisms that select among the entities present in the system. This increases the relative importance of some and diminishes that of others. The selection process reduces diversity and the mechanisms operation may be the "natural selection" of biology or the "market selection" of competition as regards technical change. Together the selection mechanisms constitute a filtering system that functions in several stages and leads to a new set-up of, for example, technologies and organizational forms. There might also be feedback from the selection to the generation of new innovations.

The simple version of this is that a population, system or technology develops through mechanisms of variation and selection. Diversity is a necessary condition for change, i.e. evolutionary change depends on the existence of diversity in economic actions (Peneder 2001) which means that an initial variety is required. The continuing creation of variety, for instance through new information, is also required, as the initial diversity will be "consumed" during the process of selection (Peneder 2001). This means that the variation and selection processes are working continuously and in some kind of interaction, it is no stage model or sequential model, but rather "a sort of harmonica movement" (Van den Berg 2004).

Diversity is a necessary condition for evolution. The formation of new firms may be regarded as the manifestation of diversity, and it is the variety in the system that governs the pace and direction of change (Metcalfe 2004). However, this does not mean that it will make sense to focus on diversity in isolation. Diversity per se will not create evolution, it is how the "system" reacts to diversity that is important, and these reactions may be described through the type of selection processes that are at play. This means that evolution is determined by efforts to exploit diversity, and these efforts will depend on available competencies and the system's learning processes (Cohendet and Llerena 1997). *The continuous interplay between variety, creation and selection mechanisms governs evolution.*

7.4 An Open System Perspective

In focusing on system learning dynamics, we have to pay attention to the relation between *Creative Accumulation*, with a low level of heterogeneity, and *Creative Destruction*, with a high level of heterogeneity (see Fig. 7.5). One could consider *Creative Accumulation* (see Schumpeter's Mark I and II comments in Schumpeter, 1943) as a manifestation of co-specialization, an interim point between *Creative Destruction* (Schumpeter 1943) and what we call *Destructive Creation* (see Fig. 7.5). This move is possible through opening the issue of the specific *heterogeneities of human knowledge*. Heterogeneities of *human knowledge* – as

opposed to forms of biological life – are feeding into a particular form of *knowledge "mating"* or *knowledge "osmosis"* (Carayannis GWU Lectures 2000–2005; Carayannis 2005), which, as described by Niklas Luhman, is the act whereby humans share knowledge with each other – through shared *understanding* of what they are doing, enabling expectations and, hence, learning and adapting.

In saying so, however, we must at the same time remember that *knowledge* in this context is not an abstract substance. We are not interested in knowledge from the perspective of *stored symbols and texts,* whether it is found carved into a stone, in a library or on a hard-disk. Our interest is in *living knowledge*, used in practice for policy making and useful economic purposes, in contexts of shared understanding. Niklas Luhman argues that shared understanding is a basic form of autonomous human self-organization, which may be seen as a form of life. This should not be regarded as allegorical. Quite the contrary, shared understanding – or social systems – is created interactively, it evolves through reproduction – and dies when it goes out of practice.

Living knowledge is *embedded* in bodies, brains, spaces, institutions, organizations, communities of practice, as well as communities sharing formalized forms of knowledge. This is why, in analyzing the heterogeneities of knowledge, we must relate to the deeper layers of organizational, regional and institutional arrangements within which different species of inter-breeding knowledge is embedded. As argued by Lam (2000), these forms of institutional embedding of knowledge are crucial in *structuring* the relations between different forms of knowledge in the processes of interactive learning leading to innovation. We wish to better understand the tension between *heterogeneity* – which opens for major changes generated by random events (radical innovations) – and *structure*, which tends to give evolution a specific direction. This question is accordingly similar to another problem, that of the relation between an open and a closed system. Whereas a closed system follows its own internally defined path – until it eventually is struck by some unforeseen disaster – an open system may adjust to changes in the environment. This, again, is a part of an even wider debate.

7.5 Co-opetition, Co-specialization and Co-evolution of Technology and Institutions

The discussion of the relation between *random processes* and *structures* in innovation system theory[8] was opened by Nelson and Winter (1982). They were concerned with *differences in productivity between national economies*. In their attempt to explain contemporary *differences*, they emphasized the dualism between two phenomena to be located at two different points in time: "variation", followed by "selection". The corollary was *co-evolution of technology and institutions*.

> Technology and the structure of industry co-evolve, and this process leads to growth in productivity, which is a statistical property of the system as a whole (Nelson 1991, p. 21).

His basic model of evolution took as a point of departure *systematic selection where somewhat random variation plays a central role*. These more or less fixed structures, which Nelson and Winter – based on Abernathy and Utterback – referred to as dominant *technological paradigms*. A dominant technological paradigm may be considered as a special case, a sectorial innovation system, which selects only what fits into the paradigm from the beginning. Hence, the technological paradigm starts to close. Abernathy and Utterback were criticized by Blauwhof, who, based on Hughes and Latour, pointed out that in the invention process, prior to the phase of closing in on mature products described by Abernathy and Utterback, the networks of the entrepreneurs were wide open.

By including the process of invention – innovation – Bauwhof argues, Huges and Latour identified a communicative process (*interactive learning*) where different forms of knowledge were integrated through processes of "translation", which enabled new knowledge combinations. In this early phase of inventions, the market product (the innovation) was an abstract idea, which was redefined and transformed by actors trying to find some way into the market. The "invention system" was *open*, as different options were tested (see Fig. 7.5). Unlike the phase of invention, the mature product within an existing technological paradigm emerges with a fixed set of different forms of knowledge, linked within a specific structure. In this case the internal complexity of the innovation system may be larger than in the phase of invention, but the "strengths of loose ties" are not as prominent as before. This is the parallel in the learning economy of forming a new species. In nature, part of a population which is specializing in a new direction may sooner or later discover that it has lost the capacity to mate with the population from which it once came. This loss of mating capacity is the birth of a new species.

7.6 Closed Systems of Human Knowledge?

There is some merit in claiming that there are distinct and closed knowledge species among the humans. For instance, anthropologists like Bourdieu (1977) argue strongly for the position that communities of practice, sharing tacit knowledge, are likely to disintegrate and disappear if their knowledge is integrated into modern, codified knowledge systems. The reasons for this are the radical differences between the logic of practice – and the logic of codified discourse. The elements structuring systems of tacit knowledge – "Doxa" (ancient Greek for shared tribal beliefs in a closed system view) – are likely to be discredited. This, according to Bourdieu, unleashes processes of orthodoxy – defence of Doxa – which destroy the traditional order from within.

This position may be questioned, as several authors like Polanyi, Granovetter and others have identified forms of "traditional" organization, like reciprocity, which not only prosper – but also succeed in competition in modern markets, as illustrated in the case of industrial districts. Moreover, closing in completely is a special case. In the history of science, there may be paradigmatic revolutions (Kuhn 1971), which

may turn old forms of scientific knowledge obsolete. Beyond this, the market as a selection mechanism is destroying forms of knowledge all the time. Among other things, knowledge destruction has to do with the speed of transformations which are generated by the market. Even though there might *in principle* be "mating options", the speed of destruction may be too fast. Closing in too much is a mortal sin.

7.7 Opening up Through Increasing System-Internal Heterogeneity

In looking for species of specialized human knowledge, then, we must regard strategies of specialization in the context of the external threats of the market, and the capacity for agility, adaptation and turnaround. Given this rapid speed of destruction, even highly integrated clusters may – at least if they are forced to by the market – open up for new forms of knowledge. What enables this strategy is the *multidimensionality* of human knowledge systems. Humans may embed their various forms of specialized knowledge *in layers*. These layers may be interrelated through points of dense interactivity, where interactive learning is possible, such as organizations, regional clusters, or single humans. Here, complex processes of interactive translation and communication across different specializations is possible. For instance, two widely diverse knowledge systems may be mating inside a single human body, resulting in an entrepreneurial achievement.

Indeed, the drive towards increased specialization has resulted in the evolution of specialists who reap the profits of crossing borders and initiating unusual or unheard of acts of mating – the *Schumpeterian entrepreneur*. This peculiar form of socializing of the humans – and their entrepreneurialism – enhances the adaptability of human knowledge to changes. In nature, this option is lost; once the new species is formed and the barriers against mating are established, there is no return. To systems which are contextualized by the global market, staying specialized should always – as pointed out by Blauwhof – be balanced by diversity – creating buffers, enabling rapid mating with new forms of knowledge if times are changing.

7.8 Open and Close as Strategic Options

To *open or close* may be seen as optional strategies. The standard arguments for closing in are

(1) *Reducing external transaction costs*. Instead of investing in the transaction costs involved in contacting external sources of knowledge – the system may focus on its own specialization, thus.
(2) *Avoiding internal complexity*. Closing in and specializing may be seen as a strategy to avoid the internal complexity which is necessary to be able to relate

to and integrate external knowledge. It is better and more efficient to make it simple, and stay specialized within a narrow niche.

(3) *Specialization may be profitable*. Specialization on the function of the system may prove to be a profitable strategy which is rewarded by the market, as the specialist may avoid price competition from other, less sophisticated competitors.

Strategies of specialization have their downsides as well.

1. *Exposure to random events*. A closed system is a system with no knowledge of its environment. It may be exposed to random and rapid destruction triggered by the market.
2. *Loss of "adaptive capacity"*. A too narrow specialization may run the risk of turning the system into a unique species – which lose the mating option which may be necessary when the niche becomes obsolete.

The normal case is a "semi-open" system, which combines a *border* with a *horizon*. The border is protecting the inner core from the complexities of the environment allowing internal specialization strategies to proceed. *By monitoring the horizon, the system is able to see what is coming and adjust before it is too late*.

In an era of globalized, highly mobile financial capital, multinational corporations can essentially "arbitrage" across national borders to find the best firms to integrate into their mode of production. The increased velocity of commerce (especially through electronic commerce) and competition demand multifaceted expertise from a firm. Only through the judicious and experienced application of knowledge can firms hope to outperform their counterparts and achieve sustained competitive advantage (Carayannis and Alexander 1997).

In post-capitalist economies, wealth flows not to those who control financial capital, but to those who can acquire and direct intellectual capital. The term "intellectual capital" refers to intellectual assets (i.e. skilled workers, scientific knowledge and business information) which create knowledge into the future through their utilization. Intellectual capital has been defined by analysts at Ernst and Young as "intellectual material that has been formalized, captured and leveraged to produce a higher-value asset" (Stewart 1994, pp. 68–74). Brooking views the enterprise as a collection of tangible assets and intellectual capital, with intellectual capital composed of market assets, intellectual property assets, human-centered assets, infrastructure assets (see Fig. 7.6) (Brooking 1997).

The post-capitalist knowledge-based economy operates with dynamics which differ radically from those assumed by neoclassical economics. Unlike other forms of capital, intellectual capital is not only unevenly distributed, but it also tends to grow without physical limits. A firm which captures and exercises unique knowledge capabilities will tend to attract more expert employees, thus exhibiting "increasing returns to scale". According to Arthur, this dynamic leads to a new form of economics – knowledge economics – that is very different from traditional,

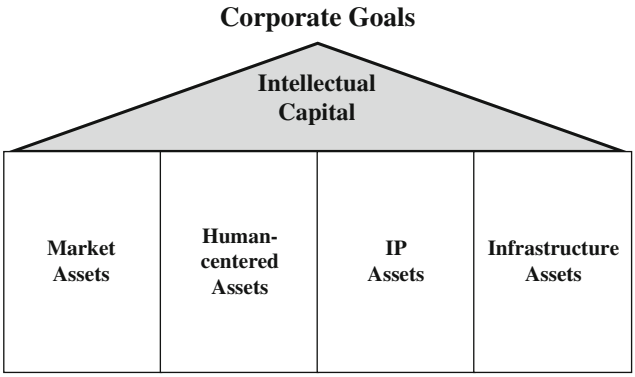

Fig. 7.6 Components of Intellectual Capital. *Source*: Brooking (1997, p. 13)

process-oriented economics. The rules of this new paradigm "call for different management techniques, strategies, and codes of government regulation". The task of management becomes "a series of quests for the next technological winner" (Arthur 1996, pp. 100–109). The core activity of firms in increasing-returns markets is research: the generation of new knowledge which leads to products with competitive commercial value. The strategic goal of the firm is to establish a stream of innovations, each capitalizing on the success of its predecessor. Intellectual capital is thus the primary source of wealth creation, since it enables the generation of new knowledge within the firm to establish and maintain technological leadership.

In today's globalized and hypercompetitive marketplace, knowledge and learning are the only capabilities which can provide sustained competitive advantage:

- Knowledge is the content of learning, where a firm gains competitive superiority by either knowing something that its competitors do not know, or by having a certain type of knowledge that cannot be easily replicated.
- Learning is the process of gaining new knowledge, so that the firm is constantly accumulating and assimilating new knowledge which becomes the basis for creating and improving organizational routine.
- Learning is the basis of what strategists are calling the dynamic capabilities of a firm, where firms build new competencies in an evolutionary cycle to maintain an edge in an ever-changing industry environment.

Learning broadens the potential of the firm, giving it new strategic options to pursue and gain more operational flexibility than its rivals. As stated by the management theorist Peter Huber, "An entity learns if, through its processing of information, the range of its potential behaviors is increased". We deal here with three fundamental, mutually complementary and reinforcing types of learning that we define below:

- *Operational learning* in family business refers to task-specific improvements in family business activities. This is an organizational-level improvement in how such tasks are conducted – for example, achieving more accurate firm valuation to achieve better deal pricing, or better human resources management.
- *Tactical learning* in family business refers to improvements across the entire business life cycle, such as, better overall management of the product/service development or commercialization processes. This requires improvements in the integration and coordination of tasks, so that the family business processes are more efficient across all future transactions.
- *Strategic learning* in family business refers to improvements that yield improved corporate performance across the entire business. This level of learning requires that the firm gains a better understanding of synergies and how to produce them, or shows superior judgement in selecting business targets that will provide sustainable increases in competitive advantage.

The family business process is essential in enabling and streamlining the recombination and reallocation of strategic tangible and intangible assets (and with less – if any at all – embedded slack compared to larger businesses) and in this sense is a central value-adding process for firms and entire economies alike. At the heart of a successful family business activity is a resident – and continually enhanced through learning – capacity to possess, manage and leverage *strategic knowledge serendipity* and *strategic knowledge arbitrage* (Carayannis and Juneau 2003; Carayannis and Campbell 2006; Carayannis 2008, 2010). We define *strategic knowledge serendipity*, *arbitrage*, *co-evolution*, *co-specialization*, *and co-opetition* (SKARSE_C3) below:

- *Strategic knowledge serendipity*: The unintended benefits of enabling knowledge to "spill over" among employees, groups and functional domains (*"happy accidents" in learning*) or more specifically
  - the capacity to uniquely identify, recognize, access and integrate knowledge assets better and/or faster to derive, develop, and capture non-appropriable, defensible, sustainable and scalable pecuniary benefits (Carayannis, GWU Lectures 2000–2005; Carayannis et al. 2005, 2005a, b, 2006a, b, c; Carayannis 2008, 2009, 2010).
- *Strategic knowledge arbitrage:* The ability to distribute and repurpose specific knowledge for applications other than the intended topic area for that knowledge or more specifically
  - the capacity to uniquely create, identify, reallocate and recombine knowledge assets better and/or faster to derive, develop and capture non-appropriable, defensible, sustainable, and scalable pecuniary benefits (Carayannis, GWU Lectures 2000–2005; Carayannis et al. 2003a, 2005, 2005a, b, 2006a, b, c; Carayannis 2008, 2009, 2010).

- *Strategic knowledge co-opetition:* Deriving new knowledge through the healthy balance between competition and cooperation involving employees and business partners (Carayannis et al. 2007; Carayannis 2008, 2009, 2010).
- *Strategic knowledge co-specialization:* Learning and knowledge that encourages individuals or groups to expand their roles into new areas and new domains in a complementary and mutually reinforcing fashion (Carayannis et al. 2007; Carayannis 2008, 2009, 2010).
- *Strategic knowledge co-evolution:* Creating new knowledge through a series of interactions and changes at various levels of the organization, spurred by the co-generation and complementary nature of that knowledge (Carayannis et al. 2007; Carayannis 2008, 2009, 2010).

In this context, we rely on the following concepts to provide the framework for our review of industry merger and acquisition (M&A) practices and develop the case for the unique value-adding potential of the Valchemy methodologies and products, that almost approach "unfair competitive advantage" status, in our opinion, towards enabling *sustainable entrepreneurship* in a *robust competitiveness* context:

- We define *sustainable entrepreneurship* as *the creation of viable*, *profitable and scalable firms that engender the formation of self-replicating and mutually enhancing innovation networks and knowledge clusters leading towards what we call robust competitiveness* (Carayannis et al. 2007; Carayannis 2008, 2009, 2010).
- We define *robust competitiveness* as a *state of economic being and becoming that avails systematic and defensible "unfair advantages" to the entities that are part of the economy and is built on mutually complementary and reinforcing low-*, *medium-*, *and high-technology public and private sector entities* (government agencies, private firms, universities and non-governmental organizations) (Carayannis et al. 2007; Carayannis 2008, 2009, 2010).
- In other words, robust competitiveness results from an emerging twenty-first-century *innovation ecosystem* (also called *"Mode 3" Innovation Ecosystem*) (Carayannis 2005; Carayannis and Campbell 2006; Carayannis and Campbell 2009; Carayannis 2010) which is defined as follows:
    - A *twenty-first-century innovation ecosystem* is a multilevel, multimodal, multinodal and multiagent system of systems. The constituent systems consist of innovation meta-networks (networks of innovation networks and knowledge clusters) and knowledge meta-clusters (clusters of innovation networks and knowledge clusters) as building blocks and are organized in a self-referential or chaotic/fractal knowledge and innovation architecture, which in turn constitutes agglomerations of human, social, intellectual and financial capital stocks and flows, as well as cultural and technological artifacts and modalities, continually co-evolving, co-specializing, and co-opeting. These

innovation networks and knowledge clusters also form, re-form and dissolve within diverse institutional, political, technological and socioeconomic domains including government, university, industry, non-governmental organizations and involve information and communication technologies, biotechnologies, advanced materials, nanotechnologies and next-generation energy technologies (Carayannis and Campbell 2006, 2009).

- *Innovation networks* are real and virtual infrastructures and infra-technologies that serve to nurture creativity, trigger invention and catalyze innovation in a public and/or private domain context (for instance, government-university-industry public-private research and technology development co-opetitive partnerships) (Carayannis and Campbell 2006, 2009).
- *Knowledge clusters* are agglomerations of co-specialized, mutually complementary and reinforcing knowledge assets in the form of "knowledge stocks" and "knowledge flows" that exhibit self-organizing, learning-driven, dynamically adaptive competencies and trends in the context of an open systems perspective (Carayannis and Campbell 2006, 2009).
- *Heterogeneity is the quality of being diverse and not comparable in kind* (*Webster's Dictionary*). Why are we concerned with this concept? Heterogeneity may indeed be one of the central reasons why and how the human species survived, evolved and prospered both biologically as well as socioeconomically. *In this study*, *we view the M&A process as an adaptation triggering and moderating mechanism* and we thus focus on the socioeconomic aspects of heterogeneity and, in particular, whereas *adaptation* has been the biological manifestation of the forces of variety and selection acting on the natural gene pool, we postulate that "innovation" has been the socioeconomic manifestation of the forces of *co-opetition*, *co-specialization and co-evolution* (C3) acting on the knowledge economy and society (see Figs. 7.2 and 7.3) (Carayannis and Campbell 2006, 2009).

Specifically, we see in Fig. 7.3 the juxtaposition and differentiation of the conceptual context of heterogeneity in the socioeconomic versus the natural domains and the ensuing linkages with innovation versus adaptation respectively.

- Moreover, in the context of heterogeneity dynamics, we distinguish across three classes of heterogeneity (input, process and output) (see Fig. 7.2). Specifically, in Fig. 7.2, we depict in summary form a socioeconomic system for adding value via cascaded, interconnected and interacting stages of socioeconomic being and becoming where the concept of C3 as discussed above drives the creation, diffusion and use of knowledge. This system consists of multiple layers (*macro, meso, micro* as shown in Fig. 7.3) as well as modules (*input*, *process*, *output*). The presence of heterogeneity in these layers and modules acts as both cause and effect for driving the value-creating, diffusing and potentially destroying processes of *co-opetition*, *co-specialization*, and *co-evolution* (C3) as shown in Figs. 7.3 and 7.4 (Carayannis and Campbell 2006, 2009).

Input, process and output heterogeneity deals with the issue of value creation in a socioeconomic context as later discussed briefly in the chapter summaries included in this proposal:

- *Input heterogeneity* refers to the variety and diversity of the key inputs to economic activity, namely, land, labour, capital, technology and entrepreneurship as identified by Adam Smith, Ricardo and Joseph Schumpeter among others. Intrinsic to all these inputs is knowledge, which has been increasingly the key source of value addition of most human endeavours.
- *Process heterogeneity* reflects the variety and diversity intrinsic in the ways that the key inputs to economic activity are leveraged, allocated, recombined, and recreated as part of the processes of technology innovation and entrepreneurship aiming at the maximization of value added.

7.9 Benefits of Managing Organizational Knowledge

Following the concepts introduced by Polanyi, many writers categorize knowledge into two types: tacit and explicit. Tacit knowledge is gained through "learning by doing"; it is knowledge that is internalized through practice. This knowledge is not easily depicted in words, diagrams or other forms of communication, and may in fact not be verbalizable at all. In contrast, explicit knowledge is knowledge that can be identified, codified and isolated more easily. For example, explicit knowledge can be captured in a database and transferred between individuals without the need for direct interaction. Tacit knowledge is the result of "learning by doing", and usually requires the "learner" to rub shoulders with the "teacher" to enable knowledge transfer.

In one conventional view, these two forms of knowledge are distinct and exclusive. A new view of knowledge proposed by Tsoukas holds that "tacit and explicit knowledge are mutually constituted. the two are inseparably related". From this perspective, the artificial representation of knowledge in explicit form distorts that knowledge. It ignores the tacit component of knowledge consisting of intangible elements such as, expertise, judgment and intuition, which are necessary for the proper application of the explicit component. Therefore, *in any case of knowledge transfer*, *direct interaction between personnel is necessary to capture the full benefit of the knowledge.*

If, as Tsoukas (1996) states, the firm is a "distributed system of knowledge", it can exploit individual knowledge only when transformed into organizational knowledge. That is, knowledge possessed by one employee needs to be readily accessible to anyone in the organization who needs it. Organizational knowledge can be classified into three general categories: tacit, rule-based and background (see Table 7.1). Tacit knowledge concerns the intuitive aspect of knowledge. Rule-based knowledge concerns the behaviour and functioning of the organization, and can be both tacit and/or explicit. Finally, background knowledge provides the proper context for understanding other forms of knowledge.

Table 7.1 Three types of organizational knowledge: tacit, rule-based, and background knowledge

Type	Form	Examples	Use
Tacit Knowledge	Procedural, embedded in action	Know-how, heuristics, intuitions	Ensures task effectiveness
Rule-based knowledge	Declarative, encoded in programs	Routines, standard operating procedures, record structure	Promotes operational efficiency and control
Background knowledge	Contextual, expressed in texts	Stories/metaphors Mindsets/worldviews Visions/scenarios	Instils commitment through shared meaning

One implication of this typology is that any firm needs to be able to capture and transfer all three types of knowledge as effectively as possible. Focusing only on explicit knowledge is not optimal, because explicit knowledge is inherently less valuable when separated from tacit knowledge. Also, a firm is not optimizing if it has important knowledge "locked up" in the minds of a few individuals, because those experts can be hired away. Knowledge needs to be embedded in the organization to make it a true source of competitive advantage.

7.10 The Role of Learning in Building and Maintaining Strategic Advantage

The acquisition and integration of knowledge leads to the development of new competencies through organizational transformation (Nonaka and Takeuchi 1995; Spender 1996). These processes of knowledge-based transformation are organizational learning activities. The result of improved organizational learning is enhanced "strategic flexibility" (Sanchez 1993), meaning that the firm faces a greater range of potential options for action that can then be leveraged to achieve a better fit to its competitive environment. Such a view of organizational learning is analogous to the general concept of learning advanced by Huber (1991, p. 89): "An entity learns if, through its processing of information, the range of its potential behaviors is increased".

An understanding of the dynamics of organizational learning helps to provide a better grasp of the relationship between a firm's ability to grow and change in its capabilities, and its future strategic performance. Analyzing how organizations learn new routines provides a map to the ways that organizations and the people therein generate, process and alter their explicit knowledge and tacit skills, as well as the paths of change that such styles of organizational cognition can follow and [thereby] create questions and motives for further research on the dynamics of the creation and evolution of firm core competencies (Carayannis 1994b).

In an operational context, learning is "a process by which repetition and experimentation enable tasks to be performed better and quicker and new production opportunities to be identified". Learning is conceived as an *individual and organizational process*, so that improvements in organizational processes lead to the creation of new strategic capabilities. In addition to categorizing knowledge by its nature or type, one can also categorize learning based on its level of significance to the organization. In this framework, learning can be observed at three levels of organizational dynamics: operational, tactical and strategic:

- On the operational learning level, we have accumulated experience and learning by doing: we learn new things (Carayannis 1994b). This is the short- to medium-term perspective on learning, focusing on new or improved capabilities built through the content learned by an organization.
- On the tactical learning level, we have learning of new tactics about applying the accumulating experience and the learning process: we build new contingency models of decision making by changing the rules for making decisions and/or adding new ones (Carayannis 1994b). This is the medium- to long-term perspective on learning. Tactical learning enables firms to approach new organizational opportunities in a more efficient and more effective manner, and to leverage or combine existing core capabilities in novel formations for greater competitive advantage.
- On the strategic learning level, we have development and learning (internalization and institutionalization) of new views of our operating universe; hence, we learn new strategies of learning (Cole 1989). This is the very long-term perspective on learning that focuses on reshaping, reinventing, and reengineering our organizational "tools" (methods and processes).

These three levels of learning activities are linked through a series of feedback and feed-forward loops so that cumulative learning at lower levels may lead to improved learning at higher levels, while learning at higher levels can reconfigure learning processes occurring at lower levels.

Deconstructing each of the three levels of learning, we also need to look at four elements involved in the life cycle of organizational learning:

- *content* (*what* is being learned, whether it is a skill, a theory or a new way of thinking);
- *process* (the *conceptual level* of learning, whether it is simply learning new content, learning to learn or learning to learn-how-to-learn);
- *context* (the *environmental conditions* of the learning activity under study); and
- *impact* (the *change resulting from learning* on the firm).

Evaluation of the benefits of learning focus, of course, on impact. But to understand what produces that impact requires identifying content, process and context.

A variety of indicators would help to produce a multidimensional, multilayer framework for analyzing the significance of learning in specific business processes at the operational, tactical and strategic levels.

7.11 Technology Transfer and Commercialization, Modalities, Metrics

Technology is information that is put to use in order to accomplish some task. *Transfer* is the movement of technology via some communication channel from one individual or organization to another. *Technology transfer* is the useful application of knowledge into use or "a process involving the transfer and use of human knowledge and expertise". As Brooks has stated, "Technology transfer differs from ordinary scientific information in the fact that to be really transferred, technology must be embodied in an actual operation of some kind" (Rogers 1995; Massey et al. 1997).

Technology transfer usually involves some source of technology, possessed of specialized technical skills, which transfers the technology to a target group of receptors who do not possess those specialized technical skills, and who therefore cannot create the tool themselves (Carayannis et al. 1997). In the USA especially, the technology transfer experience has pointed to multiple transfer strategies two of which are the most significant: "The first, licensing intellectual property rights to established firms, is important because of the high incidence in current practice. The second, the provision of intellectual property rights and technical assistance to start-up enterprises, is important because of its potential to contribute to local economic development" (Radosevich 1993, pp. 596–610).

The major categories of technology transfer and commercialization involve the transfer of

(a) technology codified and embodied in tangible artifacts;
(b) processes for implementing technology;
(c) knowledge and skills that provide the basis for technology and process development.

7.11.1 Cooperative Research and Development Agreements (CRADAs)

Cooperative Research and Development Agreements function as one mechanism for technology transfer linking a federal laboratory with a private company: CRADAs are comprehensive legal agreements for the sharing of research personnel, equipment and intellectual property rights in joint government-industry research. CRADAs are based on a model of partnership with industry in which each partner

is expected to pay its own expenses. The government typically contributes by paying the salaries of researchers and the research costs related to the activities of its researchers. The government is prohibited from making payments to firms (Berman quoted in Carayannis et al. 1996a).

Research by Carayannis et al. (1998) shows the importance of (1) information dissemination to private companies about CRADA opportunities, (2) the need for the easier exchange of technical information between CRADA partners, and (3) the achievement of CRADA objectives of both partners. This research also shows that the main obstacle in the CRADA process was complicated procedures. CRADAs are considered as a trigger for commercialization and technology transfer in that CRADAs often prevent the cancellation of research and development (R&D) research within (1) private companies, and (2) federal laboratories. CRADAs may also function to keep R&D functions operating at a normal pace. Finally, such collaboration between two organizations with quite different organizational cultures may be valuable to each of the partners because each has certain resources that the other needs. However, successful collaboration depends on the federal R&D laboratory and the private company finding enough common ground to be able to communicate effectively about their mutual interests. Because of their differences, such effective communication is often problematic (Rogers et al. forthcoming).

7.11.2 Spin-Offs

A *spin-off* is a mechanism of technology transfer because it is generally formed to commercialize a technology which originated in a parent organization such as a university, a federal R&D laboratory, or in a private company. "A spin-off is the commercial application of a product or technology originally developed for a particular government mission. It can refer to commercial products stemming from government R&D – a *vertical* transfer of technology – and also to *horizontal* transfers in which military devices, tools, or technology are adopted in new civil applications" (Alic et al. 1992).

The term *spin-off* is often associated with a new company arising from a corporate parent. In this scenario, an employee leaves a private company, often taking, directly or indirectly, trade-secrets, company technology or intellectual property in order to compete with the parent company. Recent research has defined a spin-off as a new company (1) formed by an individual or individuals who are former or present employees of a federal R&D laboratory, (2) around technologies which originated at a federal R&D laboratory (Carayannis et al. 1997).

Radosevich et al. comment on the experience of high tech spin-offs from the national laboratories as a form of technology transfer that "the laboratory context within which the decision to become a technical entrepreneur is made, varies significantly from laboratory to laboratory, and very few analyses have been made to

improve understanding of the spin-off phenomenon". Carayannis and Rogers (1998) study in depth a number of spin-offs from both US and Japanese research laboratories that deal with the factors motivating and guiding the launching of high-tech spin-offs: "In the case of high tech spin-offs, technological learning and institutional contingencies such as mechanisms for financing high risk ventures, as well as cultural and organizational ones can act as significant success and/or failure factors in growing and managing such new technological ventures" (Radosevich 1995, pp. 879–893).

Stankiewicz remarks that spin-offs (especially from universities) are viewed as a particularly important mechanism for technology commercialization, due to a broader belief in the crucial importance of new technology-based firms (NTBFs) which were said to introduce a disproportionally large share of commercially orientated innovations to the market place. Stankiewicz makes several observations about academic spin-offs which apply equally to spin-offs from public laboratories:

Formation of a spin-off can be interpreted as an attempt to create an institutional space for activities which do not quite fit into the established structures of academia and business; a space which would allow the scientists and engineers to preserve their professional identities while acquiring new roles in the process of commercializing technology.

7.11.3 Strategic Alliances

Yoshino and Rangan (1995) define *a strategic alliance* as a trading partnership that is endowed with three necessary and sufficient features:

(a) The two or more firms that unite to pursue a set of agreed upon goals remain independent subsequent to the formation of the alliance.
(b) The partner firms share the benefits of the alliance and control over the performance of assigned tasks – perhaps the most distinctive characteristic of alliances and the one that makes them so difficult to manage.
(c) The partner firms contribute on a continuing basis in one or more key strategic areas, e.g., technology, products and so forth.

There are four kinds of benefits associated with forming an alliance (Carayannis et al. 1996):

(a) economies of scale of the static and dynamic kind, and economies of scope;
(b) quick and easy access to knowledge and markets;
(c) reduction of the capital requirements and the risks involved in the development of new kinds of products and technologies; and
(d) the possibility of influencing the structure of competition in the relevant markets.

7.12 Intellectual Property and Intellectual Capital

To steal a book is an elegant offense
Chinese Proverb, Anonymous

We possess all things. I set no value on objects strange or ingenious
and have no use for your country's manufactures.
The Qianlong Emperor to King George III of England, 3 October, 1793.

Over the last 20 years the impact and scope of technological change and innovations in diverse areas, such as information technology, media, telecommunications, software, electronic commerce, biotechnology, advanced materials, entertainment and health care, have built a global infrastructure for the exchange and combination of assets which exhibit explicit and implicit, and individual and social features. Firms can add value by leveraging these assets through competitors and complementors alike in a "co-opetitive" context.[9] Instead of viewing all players as competitors, this approach can reveal that some opponents are in fact "complementors", who may add value to others. Co-opetition is exercised through the formation of "value nets", where the firm interacts with suppliers, customers, competitors and complementors to maximize its own added value, in turn raising the returns to the other players in the net. Brandenburger and Nalebuff argue that by turning apparent zero-sum situations into positive-sum games, firms achieve the greatest gainsharing among all players (Carayannis and Alexander 1997).

Intellectual capital encompasses the intellectual property rights defined under law, but the concepts are very distinct. Intellectual property laws attempt to map traditional systems of diminishing returns onto knowledge. An intellectual property right, like a real property right, is a legal construct which enables an entity to claim ownership of an asset which might otherwise disseminate out of control. In this case, the asset is an invention or other creative act which the firm wishes to use to generate revenues. The value of an intellectual asset is assumed to depend primarily on its ingenuity, but also on its scarcity. An intellectual property right grants the holder of that right sole power to determine who can exploit an intellectual asset.

Due to their nature and the structure of the law, intellectual property is a highly stylized form of knowledge. First, most knowledge is not limited by scarcity. Information and other codified knowledge can be observed, copied and applied by others without diminishing the knowledge held by the originator. This makes it difficult to detect or prevent the misappropriation or illegal imitation of proprietary firm knowledge (Liebeskind 1996, pp. 93–107).

Second, intellectual property must be codified in some recordable form so that it can be identified, defined and protected under law. But knowledge often cannot be recorded for documentation as mentioned earlier. Intellectual property rights are capable of protecting explicit knowledge, but not tacit knowledge.

A new view of knowledge proposed by Tsoukas (1996, pp. 11–25) holds that "tacit and explicit knowledge are mutually constituted . . . the two are inseparably

related". From this perspective, the artificial representation of knowledge in explicit form distorts that knowledge. It ignores the tacit component of knowledge, consisting of intangible elements such as expertise, judgment and intuition which are necessary for the proper application of the explicit component. More importantly, tacit knowledge is necessary for understanding the dynamics of knowledge creation. Hence, reverse engineering, which focuses mostly on extracting the explicit knowledge embodied in products, is of limited value in terms of intellectual capital because it does not contribute significantly to the capture or generation of critical tacit knowledge.

While explicit knowledge may be easily appropriable, the significant tacit component of organizational knowledge makes transfer difficult. Some tacit knowledge can be transferred across and between organizations through the movement of individual employees. However, since organizational knowledge is the aggregation of individual knowledge, in most cases a single employee will not possess all the tacit knowledge needed to reconstruct the core competence of a firm.

7.13 Implications of Intellectual Capital for Firm Strategy

Past experiences show that competitors may find ways to reverse-engineer products and "design around" existing patents. Alternatively, competitors can subvert the patent system to block the effective protection of existing intellectual property rights. This is particularly true in the present global economy, where lack of international harmonization of intellectual property laws allows multinationals to arbitrage across nations and exploit weaknesses in national IP systems. One example of this is the well-known case of the Kilby patent on the integrated circuit, which Japanese corporations successfully delayed in prosecution in Japan until after they used the technology in their own products. By the time the patent issued, the Japanese firms had overtaken US chip manufacturers in the market, making the legal protection virtually moot.

While explicit knowledge is not scarce and is easily replicable, tacit knowledge is scarce and difficult to appropriate. While information about a given technology or innovation may be easily stolen, the knowledge on how best to apply that knowledge in a given situation tends to reside within the inventing firm. As the application of technology is the basis of its added value, firms should concentrate on the protection and exploitation of tacit knowledge as the basis for their corporate strategy. While the legal protection of intellectual property should be exercised to the greatest extent appropriate, by nature they cannot be used to protect knowledge which is predominantly tacit. Tacit knowledge, the internalized "know-how" of the firm, is best protected through organizational mechanisms; for example, by ensuring that such knowledge is dispersed among employees so that few employees are in a position to capture corporate knowledge for their personal gain.

The analysis of intellectual capital (IC) produces two immediate implications for firm strategy:

- First, the firm must recognize that explicit knowledge is inherently difficult to protect, even under well-developed regimes of intellectual property law.
- Second, to leverage the full benefits of a firm's IC, it must manage its stock and flow of both explicit knowledge (intellectual property) and tacit knowledge (other intellectual assets).

By controlling and directing the idea migration and the osmosis of knowledge across firms through IPR enforcement and through appropriate organizational configurations, one can maximize the wealth of the firm-specific knowledge and know-how that is captured by the firm. The practice of designing mechanisms to improve the generation, intra-firm diffusion, and inter-firm protection of knowledge is the subject of a new field of theory and practice called "knowledge management".

7.14 The Concept and Practice of Knowledge Management

> Bill Gates is the perfect symbol of the new centrality of intellectual property. For more than a century, the world's wealthiest human being has been associated with oil – starting with John D. Rockefeller in the late nineteenth century and ending with the Sultan of Brunei in the late twentieth century. But today, for the first time in history, the world's wealthiest person is a knowledge worker. Thurow (1997, p. 96).

If we accept that the knowledge held by organizations and their employees is the primary source of innovation and market advantage, then the organizations should develop mechanisms to ensure that knowledge is being utilized effectively and efficiently, and distributed appropriately to all potential users. Hence, much as financial management and human resources management address the optimal allocation of those resources within the firm, knowledge management consists of the practices and policies for deploying intellectual assets to support key business objectives. The need for knowledge management arises from the failure of traditional financial and accounting practice to recognize the value of intellectual capital.

Knowledge management deals with knowledge as a corporate resource which "if properly managed, can improve a whole range of organizational performance characteristics by enabling an enterprise to be more 'intelligent acting' . . . Thus, knowledge management has a key role in determining the competitiveness and business performance of many organizations" (Oates and Taylor 1996, pp. 296–315).

Knowledge management is rapidly gaining credence in major corporations. The first industry conference focusing on knowledge was organized by Digital Equipment Corporation and the Technology Transfer Society in 1987 (Rogers 1996, pp. 5–7). Companies now have executives with the title of "Chief Knowledge Officer" to coordinate their knowledge management efforts. Interest in this area has been catalyzed by the well-publicized practices of pioneering companies, such as Dow Chemical Company with its effort to manage its intellectual property, and the intellectual capital management initiative of Skandia, a Swedish insurer (Sullivan and Edvinsson 1996, pp. 261–266). Accounting firms including Ernst & Young and Arthur Andersen Business Consulting now have knowledge management practices,

which develop metrics and evaluation tools for measuring the accumulation and use of intellectual capital.

The first task for knowledge management is to capture the tacit-based knowledge held by individual employees and collect it in a shared, corporate knowledge pool. This is the basis of the distinction between two components of IC: human capital and structural capital. While the human capital component of IC leaves the company when its employees go home at night, structural capital is a true corporate resource which endures even as employees come and go.

The task of knowledge management is to recognize that not all knowledge has equal importance to the corporation's core competencies. Knowledge must be prioritized in terms of business relevance. For example, Dow Chemical uses "intellectual asset management teams" composed of cross-disciplinary employees "to identify the 'key technology know-how,' or expertise that gives Dow a competitive advantage in the production of key products" (Mullin 1996a, pp. 56–59). The process of determining relevance is very qualitative and subjective. In practice, it is difficult to know ex-ante which knowledge will be most useful to particular individuals at any given time. The best strategy for knowledge management is to codify and categorize the knowledge of the corporation and to ensure that it is available throughout the firm. This can be accomplished through two mechanisms. First, companies need to create appropriate information systems which provide widely distributed access to the "knowledgebase" of the corporation, using sophisticated database architectures. Second, companies need to foster a "knowledge-sharing culture" to encourage employees to disseminate their tacit individual knowledge throughout the organization (but preferably no further).

A key challenge for knowledge management is the identification of the fundamental intellectual assets which drive firm performance. To date, most solutions have attempted to use new accounting methodologies to quantify explicit and tacit knowledge and to develop metrics for IC. As an alternative, the practice of technology management can help companies to better understand the importance of particular intellectual assets, and to manage those assets in ways which support their core business. Specifically, the integration of knowledge management and technology management will produce a theoretical framework that improves the description and explanation of new trends in intellectual property generation and transfer, and that provides better prescriptions for how firms should manage and share intellectual property.

7.15 Concepts in the Management of Technology

Technology is a Greek word derived from the synthesis of two words: "techne" (meaning art) and "logos" (meaning logic or science). So loosely interpreted, technology means the art of logic or the art of scientific discipline. Formally, it is defined as "a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome. A technology usually has two components: (1) a *hardware* aspect, consisting of the tool that embodies the technology as a material or physical object, and (2) a *software* aspect, consisting of the

information base for the tool" (Rogers 1995). Although technology is often embodied in a product, technology in general should instead be conceived of as a process, as dynamic rather than static and as social rather than disembodied. It is a combination of both creative and structured tangible artifacts, codified knowledge and tacit know-how embedded in individual, group and organizational routines. Thus, technology is systematic knowledge, which from an information theoretic and metacognitive/linguistic perspective emphasizes the role of knowledge stocks and flows in linking technology management and technology strategy with business strategy (Carayannis 1996).

Technology management is the set of policies and practices that leverage technologies to build, maintain and enhance the competitive advantage of the firm on the basis of proprietary knowledge and know-how. The U.S. National Research Council in 1987 defined management of technology (MOT) as linking "engineering, science, and management disciplines to plan, develop, and implement technological capabilities to shape and accomplish the strategic and operational objectives of an organization" (National Research Council 1987). While technology management techniques are themselves important to firm competitiveness, they are most effective when they complement the overall strategic posture adopted by the firm. The strategic management of technology tries to "build advantage on the basis of technology", or "bring the potential opportunities that technology creates to bear on the formulation of corporate strategy".

The practice of technology management and the development of technology strategy must include an understanding of the different forms of innovation and the features of each form. Knowledge is one input in innovation; therefore, knowledge management must also integrate definitions of innovation and identify the types of knowledge and styles of knowledge management appropriate to each form of innovation. Technology management is important to knowledge management because it defines a firm's technology "in a way that clarifies what the technology does for the business instead of just stating what the technology is" (Roussell et al. 1991).

For intellectual capital, technology management helps in prioritizing knowledge by business impact. The management of technology is also an analytical tool for identifying the proper management practices for exploiting innovations. One area of this practice is the development of a strategy for prioritizing, coordinating and integrating a firm's intellectual property and its technology.

7.16 Developing an IP Technology Strategy: Disclosure as Strategic Choice

As discussed above, the knowledge components of a technology can best be protected through organizational modes which isolate the tacit knowledge from outside misappropriation. Intellectual property management can protect and exploit firm-specific technologies and knowledge through legal mechanisms.

Intellectual property is one kind of intellectual asset which technology-based firms transform into competitive advantage. There are four generally recognized forms of intellectual property in industrialized nations:

- patents, dealing with functional and design inventions;
- trademarks, dealing with commercial origin and identity;
- copyrights, dealing with literary and artistic expressions; and
- trade secrets, which protect the proprietary capabilities of the firm.

Under US law, a patent is granted only by the federal government and lets the patentee exclude others from making, using, selling or offering an invention for a fixed term, currently 20 years from the date the patent application is filed.[10] A trademark, as defined under the Trademark Act of 1946 (The Lanham Act) is . . . any word, name, symbol, or device, or any combination thereof (1) used by a person, or (2) which a person has a *bona fide* intention to use in commerce . . . to identify and distinguish his or her goods, including a unique product, from those manufactured or sold by others, and to indicate the source of the goods, even if that source is unknown.[11]

A copyright seeks to promote literary and artistic creativity by protecting, for a limited time, what the US Constitution broadly calls "writings" of "authors".[12] The general rule in the United States for a work created on or after 1 January, 1978, whether or not it is published, is that copyright lasts for the author's lifetime plus 50 years after the author's death. The copyright in a "work made for hire", or in an anonymous work, lasts for 75 years from publication or 100 years from creation, whichever is shorter.

A trade secret is information that an inventor chooses not to disclose and to which the inventor also controls access, thus providing enduring protection.[13] Trade secrets remain in force only if the holder takes reasonable precautions to prevent them from being revealed to people outside the firm except through a legal mechanism such as a licence.

The integration of knowledge management with the recent work in technology management identifies a new focus for corporate strategy: the creation of a technology IP strategy. This represents a profound shift from previous views of IP in corporations. Historically, intellectual property rights were viewed as a means of maintaining an archive of a firm's creative output, with no value beyond simple record-keeping. As a result, firms' patent portfolios grew through R&D, but the portfolios themselves were not viewed as productive assets.

There are several reasons why patenting was not considered an important activity. Most US corporations in the post-war period were not terribly concerned with the productivity of their R&D facilities. There was little analysis of the management of R&D, so most firms simply assumed that more research is better. This belief reflected a general lack of integration between a firm's technical activities and strategy; US firms display a weak link between top-level corporate strategy and technology (Roberts 1995, pp. 44–56).

More importantly, patents themselves did not have a substantial amount of value. First, since licensing was relatively rare (except in international expansion), there was not a developed market which assigned values to patents. Second, patent litigation was relatively rare, because patents were difficult to protect in court. However, in 1980, the United States established the Court of Appeals for the Federal Circuit (CAFC) in Washington, D.C. This became the ultimate forum for resolving all US patent disputes. The CAFC made the protection of patents easier, and its rulings also helped to establish clear definitions of patent infringement. This made patents by themselves more valuable to firms.

Until recently, firms viewed the management of their intellectual property as a cost centre. New inventions and other assets were only protected if they added a key product or service to the firm's lines of business. A number of pioneering new companies take a completely different view of IP. These companies view their IP as true assets, resources which should be exploited fully if the firm is to operate at peak efficiency. This new view shifts the patent and IP tracking function from a cost centre to a profit centre. It explicitly recognizes that all of a firm's intellectual property has some value (see Table 7.2), and that the job of the IP office is to maximize the leveraging of that value by the firm. Value generation is measured and promoted through the IP technology strategy.

Table 7.2 Methods for evaluating intellectual property assets

Intellectual property assets	Survey for market pull	Competitor analysis	Determine ROI	Audit agreements	ROI legal fees	Survey for know-how	Analyze payments
Patents	√	√	√	√	√	√	√
Copyright	√	√	√	√	√	√	√
Design rights	√	√	√	√	√	√	√
Semiconductor topography rights	√	√	√	√	√	√	√
Trade secrets	√	√	√	√	√	√	√
Trade marks	√	√	√	√	√	√	√
Service marks	√	√	√	√	√	√	√

7.17 Constructing an IP Portfolio

The first issue to be addressed in developing an IP technology strategy is the formation of a portfolio of intellectual property rights appropriate to the firm's intellectual assets and competitive capabilities. For the technology-based firm, patents and trade secrets are the primary forms of protecting the intellectual property embodied in their most strategic products and services. (For software firms, copyright also protects their products; however, court decisions during the 1980s weakened the protection of software by copyright and in turn made it possible to patent software

technologies). Therefore, it is natural that any IP management system focuses on these two types of intellectual property.

By law, both patents and trade secrets are explicit forms of knowledge in that they must exist in codified form. For patents, the knowledge is embodied in a product or process and is made publicly available in the patent, while trade secrets protect explicit knowledge from public dissemination. If, as Tsoukas proposes, all knowledge has a tacit and explicit component, patenting makes more sense for competitive reasons if the explicit knowledge described in the patent has significant accompanying tacit features which complicate its exploitation. The degree of tacitness provides a degree of practical protection against appropriation by competitors which reinforces the legal protection afforded by the patent. In contrast, trade secret protection should be used for knowledge which is predominantly explicit, since publication would reveal the essentials for using that knowledge.

The need for significant tacit knowledge to utilize a patent also provides a mechanism for maximizing non-royalty revenues from licensing. A significant part of value added to the IP licenser is derived from consulting, training and other fees by the licensee to the IP owner for utilizing effectively the IP in the context of the licensee's business activities. This creates new business areas for licensers to exploit. For example, a licenser may earn additional revenues by assigning personnel to work with the licensee in using the licensed technology, a practice sometimes called "wet licensing" (derived from the terminology that the licenser is renting out the internalized knowledge or "wetware" of its employees).

To determine when and how to use intellectual property laws to protect knowledge, the firm must consider the importance of the explicit component of that knowledge and the degree to which the invention is important to the firm's competitive advantage. The contrast between knowledge type and competitive status for an invention is illustrated in Fig. 7.7.

As illustrated, patents are most effective in protecting technologies which are exploited only with complementary tacit knowledge. Also, since patents provide

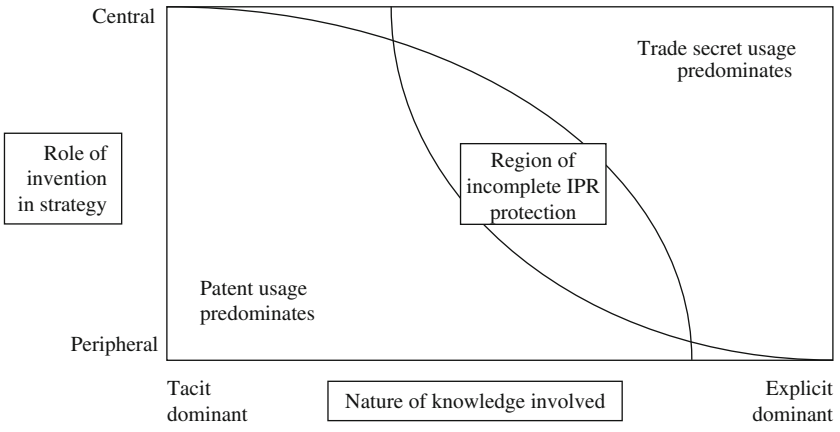

Fig. 7.7 Variables in the formulation of an IPR portfolio

imperfect protection, they should not be used to protect knowledge which is central to a firm's competitiveness. Technologies suitable for trade secret protection tend to be easily replicated once the core technology has been revealed. Therefore, patenting (which requires public disclosure) is not suitable for such technologies. The relatively greater protection afforded by trade secret laws means that this form of intellectual property can provide a level of security suitable for the core technologies of a firm. This accounts for the increased use of trade secrets rather than patents among US firms as a formal means of IP protection.

Trade secrets carry two potential problems, however. First, companies are not protected in cases where a competitor independently develops and uses the same technology (Day 1997, p. E1). In the case of patents, the first party to file the patent application (under the prevailing international patenting standards negotiated under the Uruguay Round of the GATT) would have exclusive use of the technology.

Second, since trade secrets are explicit and codified, they can easily be misappropriated by employees who switch firms. This has led to an increase in trade secret litigation in the United States and abroad (Davis and Lublin 1997). "Given the increasing value of intangible assets like know-how in the information age, there has been a significant amount of recent litigation where corporations – which are vitally interested in protecting their trade secrets – are willing to take their cases to court," according to a counsel to Dow Chemical in a recent trade secret dispute with General Electric. A particularly notable case was the dispute between General Motors and Volkswagen over the defection of a key GM Europe executive, with privileged knowledge about GM procurement practices.

7.18 Evaluating Appropriate IP Strategies

An IP technology strategy also encompasses the choice of mechanisms used to protect the company's existing intellectual property portfolio and to defend against competitive actions by other firms. The offensive component of the strategy involves the aggressive pursuit of IP litigation against patent infringers, copyright pirates, and others who seek to devalue the company's IP through imitation or misappropriation. It also addresses the use of increased licensing to generate royalties from previously unused technologies, thus creating new profits. Texas Instruments, for example, has used the offensive IP approach to make its patent litigation and licensing practice the most profitable function in the firm.

Companies must also pursue a defensive IP strategy to prevent disruptive action by competitors. For example, the firm must continually scout out blocking patents held by others in order to avoid potential infringement litigation. If blocking patents are identified, the firm should arrange cross-licensing or other agreements to resolve the conflict. Also, the firm itself can file blocking patents to foreclose the strategic technology options available to competitors.

The key organizational tool used by companies as the foundation of their IP technology strategy is the IP audit. Like the technology audit described by Ford,

an IP audit is both a one-time exercise and a periodic routine (Ford 1988, pp. 85–95). It seeks to identify all of the actual or potential intellectual property held by various parts of the firm, including patents, copyrights, trademarks and trade secrets, and compiles these in a central database. This is accomplished by interviewing company researchers, marketing personnel and other staff to find out what IP they have generated or used. This also provides an opportunity to examine the company's IP practices, and to encourage staff to protect all relevant IP through legal tools (patents, trademarks, etc.) and through policy and practices (e.g. ensuring adequate security measures to protect trade secrets). Perhaps the most important goal of the audit is to raise awareness throughout the company, especially among researchers, of the strategic value in identifying, protecting, and exploiting all available intellectual property. It also can be used to encourage the development of the "knowledge-sharing culture" dictated by knowledge management principles.

The IP audit is generally conducted by an IP law firm, which then recommends changes to both procedures and facilities at the company to encourage IP protection. However, law firms may be limited in that they focus primarily on the explicit intellectual property which is protectable by law, and often do not understand the variation in the significance of different pieces of intellectual property or the role of knowledge in competitive strategy. It may be more appropriate to form an internal team to conduct an IP audit, especially one which includes staff trained in the technology management field who can link technology, knowledge and business.

Companies which do not use IP audits often have peripheral inventions which are unprotected or, if protected through a patent filing, are left unexploited by the firm. One consequence of the IP audit is the identification of technologies which should be licensed out. The new awareness of the value of IP fostered by an IP technology strategy will have a reflexive effect on the field of knowledge management, and on corporate approaches to IC. In a static analysis, IP technology strategy dictates that a firm knows at any given time what key knowledge it possesses, and how well that knowledge is utilized. However, IP technology strategy also introduces a dynamic aspect to knowledge management, since future revenues can only be gained through the generation of new knowledge. This requires companies to establish more effective learning routines in addition to mechanisms for knowledge sharing and diffusion.

The concept of strategic technological learning demands that corporations develop their organizational intelligence, defined as the creation of knowledge in addition to the possession of knowledge. Rather than simply isolating and measuring discrete intellectual assets, true knowledge management must include practices for ensuring that the company continues to produce new knowledge and absorb additional knowledge through external linkages. The organizational intelligence/learning process is a continuous cycle if activities that include *environmental sensing/scanning, remembering, perceiving, interpreting and adapting* produce tacit and explicit knowledge and know-how (see Table 7.3) as a result of strategic, tactical and operational technological learning (Nahapiet and Ghoshal 1997, pp. 35–39).

Table 7.3 Typologies of technological learning content: strategic, tactical and operational

	Typology of operational technological learning	
	Individual	Group
Tacit	Know-how, expertise	Group texture, work practice
Explicit	Rules of thumb, procedures	Drills, stories
Typology of tactical technological learning		
Tacit	Common sense, good judgement	Work Practice, core competencies
Explicit	Design rules, procedures	Best practices, work processes
Typology of strategic technological learning		
Tacit	Wisdom, intuition	Organizational intelligence
Explicit	Design meta-rules	Business process re-engineering

Source: Carayannis (1994, 1996, 1997)

Referring back to Fig. 7.7, the boundaries of the areas where patents and trade secrets are most appropriate reveal that there is also a class of technologies for which strict protection is not clearly advantageous. Several environmental changes are leading firms both to license out certain technologies, and to license in as an important mode of technology acquisition.

Notes

1. The "MODE 3" Systems Approach for knowledge creation, diffusion and use: "Mode 3" is a multilateral, multinodal, multimodal and multilevel systems approach to the conceptualization, design and management of real and virtual "knowledge-stock" and "knowledge-flow", modalities that catalyze, accelerate and support the creation, diffusion, sharing, absorption and use of co-specialized knowledge assets. "Mode 3" is based on a system-theoretic perspective of socioeconomic, political, technological and cultural trends and conditions that shape the co-evolution of knowledge with the "knowledge-based and knowledge-driven, gloCal economy and society" (Carayannis and Campbell 2006).
2. *Innovation Networks* are real and virtual infrastructures and infratechnologies that serve to nurture creativity, trigger invention and catalyze innovation in a public and/or private domain context (for instance, Government-University-Industry Public-Private Research and Technology Development Co-opetitive Partnerships) (Carayannis and Campbell 2006).
3. *Knowledge Clusters* are agglomerations of co-specialized, mutually complementary and reinforcing knowledge assets in the form of "knowledge stocks" and "knowledge flows" that exhibit self-organizing, learning-driven, dynamically adaptive competencies and trends in the context of an open systems perspective (Carayannis and Campbell 2006).
4. "*Culture* is the invisible force behind the tangibles and observables in any organization, a social energy that moves people to act. Culture is to the organization what personality is to the individual – a hidden, yet unifying theme that provides meaning, direction, and mobilization" (Killman 1985).

5. *Technology* is defined as that "which allows one to engage in a certain activity . . .with consistent quality of output", the *art of science and the science of art* (Carayannis 2001) or *the science of crafts* (von Braun 1997).
6. We consider the following quote useful for elucidating the meaning and role of a *knowledge nugget* as a building block of the "Mode 3 INNOVECO": "People, culture, and technology serve as the institutional, market, and socio-economic 'glue' that binds, catalyzes, and accelerates interactions and manifestations between creativity and innovation as shown in Figure 3, along with public-private partnerships, international Research & Development (R&D) consortia, technical/business/legal standards such as intellectual property rights as well as human nature and the 'creative demon'. The relationship is highly non-linear, complex and dynamic, evolving over time and driven by both external and internal stimuli and factors such as firm strategy, structure, and performance as well as top-down policies and bottom-up initiatives that act as enablers, catalysts, and accelerators for creativity and innovation that leads to competitiveness" (Carayannis and Gonzalez 2003, pp. 587–606).
7. The original German version was published in 1911, while the English version was published for the first time in 1934.
8. Innovation system theory emerged out of micro level studies of technological systems as well as middle (meso) and macro level studies of *innovation systems* and innovation through interactive learning (Freeman 1987; Lundvall 1992; Nelson 1993; Edquist 1997), and through several EU and OECD publications (OECD, 1999), where the NIS perspective was promoted. A critical and comprehensive review of this literature is presented in a recent publication by Miettinen (Miettinen 2002). Despite the fact that "innovation system" has been on everyone's lips for the last 10 years, "system" is more often than not used as a heuristic device in the literature. To Lundvall, "system" simply explained interactivity, seen in contrast to linear knowledge transfer. Schienstock and Hämäläinen (2001) define "innovation system" with reference to the *function of knowledge conversion* (Schienstock and Hämäläinen 2001), understood as *new knowledge creation, diffusion and commercial utilization,* in short, *the knowledge process* (see also Carayannis and Campbell 2006).
9. Brandenburger and Nalebuff describe co-opetition as "a duality in every relationship - the simultaneous elements of cooperation and competition. War and peace. Co-opetition" (Brandenburger and Nalebuff 1996, p. 39).
10. There are different kinds of patents, e.g. design, utility and plant patents. Whether an invention is made by a flash of genius or painstaking research, to be patentable it must meet all of the following hard-to-satisfy criteria: (a) "novelty" in that it was not previously known to others or in public use in the United States, or patented or described in a printed publication anywhere, more than 1 year before the US application's filing date; (b) "nonobvious" to a person having ordinary skill in the relevant art; and (c) "utility" in that it has a useful purpose, actually works and is not frivolous. A patent in essence grants permission to hold an exclusive monopoly over the exploitation of a technology. Complementary to a patent is the Statutory Invention Registration (SIR), which gives the holder the right to use the invention but does preclude others from using or selling it; these are frequently used for registering government inventions. Contrary to a patent, this is a right to use a technology rather than to prevent others from using it. SIRs are cheaper to register than patents as they are not normally subject to examination.
11. Trademarks include brand names identifying goods ("Pepsi-cola" for a soft drink), service marks identifying services ("The Four Seasons" for a restaurant service), certification marks identifying goods or services meeting certain qualifications ("UL" for appliances meeting the safety standards of Underwriters Laboratories, Inc.) and collective marks identifying goods, services or members of a collective organization ("AFL-CIO" for union locals). In the USA, unlike many other countries, the first user of a mark is normally considered its owner even if someone else has been the first to apply to register the same mark. Federal and State trademark law protects a mark whether or not it is registered, and protection endures as long as the mark is in use and the user takes steps to prevent others from using the same mark.

12. Copyrightable works include literary, musical and dramatic works; pantomimes and choreographic works; pictorial, graphic and sculptural works (including non-utilitarian design features of useful articles); motion pictures and other audiovisual works; sound recordings; computer programs; and also compilations of works and derivative works. Copyright only protects particular expressions of ideas, not the ideas themselves. Also, a protectable work must be "original", i.e. not copied from another source (although two separately protectable works theoretically could be identical by coincidence), and the work must not be so elementary that it lacks sufficient creativity to be copyrightable (the standard for creativity is minimal).
13. One notable example of a trade secret is the formula for Coca-Cola. Trade secrets are defined and protected under individual state laws in the USA, and thus may be subject to different enforcement standards.

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Chapter 8
Insights from Theory and Practice

Elias G. Carayannis

You can not overtake the runner in front of you
by following in his footsteps.
Mao tse-Tung

Abstract Knowledge assets are exchanged in order to build intellectual capital: this provides the basis for the discussion of licensing and cross-licensing as part of the business and technology strategy of the enterprise. Managing knowledge as intellectual capital in the frame of strategic technology partnerships simplifies the search and attainment of the following strategic corporate targets of the partners: (1) Maximize the effectiveness and efficiency of higher-order technological learning processes with both internal and external foci (with respect to its partners), namely the organizational intelligence/learning processes and especially the rate of technological learning. (2) Encourage and support the development of a current and dynamic evolving portfolio of strategic technological capability options in a more effective and efficient manner from a technology and market risk perspective. The discussion developed in the chapter determines some fundamental consequences of the knowledge management paradigm for the management and development of research collaborations. A case study approach can offer a better understanding of the dynamics of technology transfer and the elements of successful transfer processes and this is proved by the use of a framework of input, intermediate, and short- and long-term outcome metrics.

8.1 Increased Licensing Activity in the USA: Motivations and Implications for Technology Management

Intellectual capital is created "through two generic processes: combination and exchange ... New intellectual capital can be created through incremental or radical change but both involve either combining elements which were previously unconnected or the development of novel ways of combining elements previously associated. When resources are held by different parties, exchange is a

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pre-requisite for resource combination" (Carayannis 1992, 1993, 1994, 1996, 1997). The exchange of knowledge assets to create intellectual capital sets the stage for the discussion of licensing and cross-licensing as components of the business and technology strategy of the firm.

Anecdotal and quantitative data show that over the past decade, US firms have increased their licensing activity. According to data from the US Department of Commerce, international technology licensing between firms has risen by 18% per year, and domestic licensing has increased at the rate of 10% per year. The decision to license technologies in or out should be guided by the technology strategy of the firm. Ford breaks down technology strategy into three components: technology acquisition, technology management and technology exploitation. The corporate strategy combined with strategic technology management factors drives the decisions of licensees and licensors to increase their use of licensing (see Table 8.1).

Table 8.1 Effect of corporate strategic posture and market conditions on modes of technology acquisition and technology exploitation

		Technology Acquisition Model			**Technology Exploitation Mode**		
		Internal R&D	License In	Acquisition	Product	License Out	Divestiture
Strrategy	Growth	↑	↑	↑	↑	↑	↓
	Defend	↓	↑	↑	↑	↓	↓
	Exit	↓	↑	↓	↓	↑	↑
Conditions	Intense rivalry	↓	↑	↑	↑	↑	↑
	Rapid change	↑	↑	↑	↓	↑	↓

Table 8.1 reflects how the firm's strategic position at the industry and market levels drives decisions on the purchase or sale of firm technologies via licensing, thus forming the basis of an IP technology strategy. The firm could use technology licensing in conjunction with strategic objectives, such as to

(a) grow more quickly or increase profitability;
(b) maintain or defend its current position;
(c) diversify out of its current position by acquiring a technological "foothold" into more promising markets;

For example, a firm in a defensive position is less motivated to license out its core technologies. As an example, Apple Computer licensed out the Mac OS in 1995, but in 1997 reversed that decision and acquired the Macintosh operations

of its major licensee (Power Computing) when it perceived that licensing had eroded its own share without significantly expanding the market for Mac-compatible machines. Table 8.1 also shows how prevailing environmental conditions (such as intensity of rivalry, etc.) affect strategic technology decisions. This analysis enables a firm to deal more explicitly and effectively with the following strategic technology management questions:

- Is the firm currently falling behind vis-a-vis current and emerging competitors?
- Could licensing allow the firm to play "catch-up" with its competition?
- What is the best licensing strategy given a certain rivalry intensity and market and industry turbulence?

In this context, the key conditions that need to be fulfilled for the productive combination and exchange of knowledge assets through, for instance, licensing agreements are (Nahapiet and Ghoshal 1997)

(a) accessibility of objectified and collective forms of social knowledge;
(b) anticipation of the creation of new valuable knowledge;
(c) motivation of the parties to combine and exchange knowledge seen as beneficial to them;
(d) capability to execute the knowledge exchange or combination in question; and
(e) development of a co-opetitive relationship between the source and acquirer of knowledge.

8.2 The Licensee Perspective: Licensing for Technology Acquisition

For licensees, the decision to enter a licensing agreement involves the technology acquisition phase of strategy. At this stage, companies face the classic transactions cost "make versus buy" decision. Under a transactions cost framework, the problem of whether or not to license in technology would be resolved by balancing the administrative costs of the licensing agreement against the costs of acquiring the same technology through R&D. This analysis is highly idealized; it assumes that the firm knows in advance how much it would cost to "invent" the technology by itself, and also knows the exact value of the technology being licensed.

In practice, no licensee has this level of omniscience. Instead, the increase in licensing can be explained through an analysis of changes in the nature of innovation and research in industry:

- *Increased costs of R&D*. As successive generations of technologies grow in complexity, the costs to develop new technologies exceed the resources of individual firms. Licensing provides a means to acquire needed component technologies without spending corporate funds on in-house research.

- *Ferocious competition from current and emerging competitors*. The globalization of research capabilities and the speeding flow of information mean that companies can sustain technology-based competitive advantages for shorter periods. This also drives firms to find the most efficient means of acquiring the technologies needed to generate new products.
- *Decreased product life-cycles and pressure to shrink time-to-market*. Related to the above point, technologies have much shorter life spans than in previous eras. Scientific and technological progress renders products obsolete in short order. Firms therefore need to source technologies in ways which are the least time-consuming.
- *Demise of the "not-invented-here" syndrome*. US firms have historically frowned on technologies developed externally. Increased competition and other factors have now convinced that these old prejudices serve only to reduce the flexibility and responsiveness of firms in the face of new market challenges.

These factors are driving companies to consider acquiring technology via licensing rather than internal R&D. In addition, the firm's own technology position can affect the licensing decision, with regard to its relative standing in the technology, the urgency of the acquisition, the level of commitment or investment acceptable to the firm, the position of the technology in its overall life cycle, and the technology's importance to firm survival (see Table 8.2).

Some examples of technology acquisition strategies including licensing can be found in the publishing, financial services and software industries. The Web-based book retailer Amazon.com entered the electronic information market using technology developed internally. In contrast, Barnes & Noble has caught up by acquiring existing Internet commerce technologies from various firms, and applying it to their

Table 8.2 Licensing in and other technology acquisition mechanisms

Acquisition Methods	Company's relative standing	Urgency of acquisition	Commitment/ investment to acquire	Technology life cycle position	Categories of technology
Internal R&D	High	Lowest	Highest	Earliest	Critical
Joint Venture		Lower		Early	Distinctive/ basic
Contracted R&D		Low		Early	Distinctive/ basic
License-in		High	Lowest	Later	Distinctive/ basic
Purchase of Product/Part	Low	High	No commitment or investment	All Stages	External

Source: Carayannis (1999)

business. Similarly, Microsoft has traditionally acquired companies to fill gaps in its technology portfolio (e.g. the purchase of WebTV to gain a foothold in the emerging digital TV/cable data market, and the purchase of VStream to enter the Internet video streaming area).

Another perspective uses options theory to explain licensing as a "platform investment" for companies, particularly in uncertain, high-technology industries. Licensing in a technology can serve two functions. It can provide strategic technological capability options: by licensing in given technologies, firms create opportunities or "options" for themselves which can be "exercised" to reduce the cost of adopting subsequent, more advanced technology vintages (Carayannis et al. 1996a). It can also provide a growth option, giving the firm "the right to expand in the future into new product or geographic markets" (Kogut and Kulatilaka 1994, pp. 52–71). Since a firm cannot predict all future technologies or pay to develop all such technologies internally, licensing is a viable means of protecting the company in times of high technological uncertainty, for example, in the early stages of a technology before a dominant design has emerged.

8.3 The Licenser Perspective: Licensing for Technology Exploitation

Companies (and especially large corporations) are more actively seeking to license technologies out to other firms. Licensing out has been traditionally viewed as a mechanism for market entry, particularly into overseas markets, but not as a mode of competition. Other reasons for more recent licensing activity include rapid market penetration, the creation of standards, and the amortization of R&D costs (Kotabe et al. 1996, pp. 73–88).

Another emerging trend is the rise of cross-licensing to avoid the threat of infringement, as seen in technologies such as Digital Video Disk (DVD) and High-Definition Television (HDTV). Cross-licensing or license pooling, particularly among competing firms, also reflects the rise of a new perspective on firm interaction, called "co-opetition". Co-opetition draws on game theory analysis to show how, under certain circumstances, a perceived competitor might be a candidate for cooperation to transform a zero-sum situation into a positive sum game. Cooperation means engagement in joint activity toward a shared goal (Kay 1996). In the case of the Digital Video Disk, cross-licensing represented a form of cooperation to create a common user platform (the shared goal), which could then be used by the members of the license pool to create competing products.

The most recent change in licensing practices is the increasingly aggressive licensing strategies adopted by such firms as Dow Chemical, Xerox and Texas Instruments. These firms have taken to licensing out a wide range of technologies held by the firms, even in areas unrelated to their major business. For example, Xerox has created a new chemical company based around chemical technologies it has developed as a byproduct of other research. Licensing out is now recognized

Table 8.3 Licensing out and other technology exploitation mechanisms

Exploitation Methods	Company's relative standing	Urgency of exploitation	Need for support technology	Commitment or investment	Technology life cycle position	Categories of technology	Potential application
Employ in own production or products	Lowest	Lowest	Lowest	Highest	Earliest	Most critical	Narrowest
Contracted-out manufacture or marketing	Lower	High	High		Early		Narrow
Joint venture	High	Low	High		Early		Wide
License out	High	Highest	Low	Lowest	Later	Least critical	Widest

Source: Ford (1988)

as an option for technology exploitation, referring back to Ford's framework (see Table 8.3).

8.4 Firm Size and Licensing Practices

While large firms have generally only licensed in technologies related to their core business, for the express purpose of expanding their existing business lines, licensing out has been one of the major activities of small firms in the United States. These firms often lack the "complementary assets" needed to take their technologies to the commercial market (Teece 1986, pp. 285–305). Examples of such assets are marketing skills, distribution systems and manufacturing. Therefore, it is common for small firms to license their technologies to large firms which do possess these assets. In biotechnology, this is particularly common, with biotech start-ups licensing their discoveries to the large pharmaceutical firms who can sell the resulting products worldwide.

Attempts to license out technologies by small firms are not always successful, however. Such firms face some disadvantages in licensing to large firms. The large companies may already have made investments in assets which are incompatible with the new technology. More often, the small firm simply does not have the business expertise to market its technologies effectively to large firms. Lack of capital and skills for marketing are the major reasons why small firms are unable to bring their technologies to the market, thus leaving their patents unutilized.

The prospects for licensing out of technologies by small firms have several advantages (Lang 1996, pp. 796–807):

- The small firm can access and leverage the large firm's knowledge and competencies in other segments of the value chain;

- The small firm can, through the large firm, exercise control or influence over a larger portion of the market;
- The small firm can gain new product knowledge;
- The small firm has control over the risk profile of the transaction;
- The license provides a more secure financial reward than independent marketing;
- The license is the first step in forming an alliance with the large firm, which could protect the small firm against environmental uncertainty;
- The small firm can ensure its survival by becoming an indispensable resource for training, installation and other services.

The primary decision drivers for increasing licensing activity are summarized in Fig. 8.1.

	License In	License Out
Large Firm	• Obtain external technology for fast product development • Exploit technology as a strategic option	• Generate revenues from non-strategic technologies • Apply strategic technologies in other areas
Small firm	• Avoid/settle patent infringement claims • Obtain technology needed for commercialization	• Obtain access to complementary assets • Generate revenues when unable to exploit own technology

Fig. 8.1 Small and large firm motives for licensing. *Source*: based on Carayannis (1999)

8.5 Knowledge Management and Intellectual Capital in Collaborative Settings: Trust and Co-opetition

The management of knowledge as intellectual capital in the context of strategic technology partnerships facilitates the pursuit and achievement of the following strategic corporate objectives of the partners:

(1) Maximize the effectiveness and efficiency of higher-order technological learning processes with both internal and external foci (with respect to its partners), namely the organizational intelligence/learning processes and especially the rate of technological learning.

(2) Facilitate and foster the development of a current and dynamic evolving portfolio of strategic technological capability options in a more effective and efficient manner from a technology and market risk perspective.

The above discussion yields some important implications of the knowledge management paradigm for the management and development of research collaborations. In any collaboration, and particularly in research involving joint government-university-industry research, negotiations over the appropriate division of intellectual property rights (generally focusing on patents) are often cited as the most problematic issue in securing a collaborative agreement. In such negotiations, the parties are generally taking a "zero-sum" approach, competing for exclusive control of the most promising inventions from the collaboration. The knowledge management paradigm suggests three important issues which challenge this perspective.

First, intellectual capital involves knowledge beyond that captured by patents. For many participants in collaboration, the knowledge which is patented may end up being the least valuable product of the partnership. The exchange of tacit knowledge needed to capitalize on the technological opportunities created by collaboration is much more significant. In this sense, disputes over the allocation of patents may be irrelevant and counterproductive to the goals driving the formation of collaborative research ventures (Liyanage and Mitchell 1995, pp. 343–364).

Second, the knowledge management approach argues strongly for a "co-opetitive" approach to the treatment of intellectual capital in research collaborations. To achieve a "win-win" outcome, a collaboration should produce knowledge of benefit to all participants. In this sense, the practice of knowledge management within a collaboration is the union of the knowledge management policies of all participants, rather than the intersection of those policies. Partners in research should direct their efforts towards ensuring that all other partners receive the knowledge most suitable to their strategies and needs, rather than simply focusing on their own requirements.

Third, economists are now exploring the idea of "social capital" as enabling people to cooperate towards a common goal beyond purely financial motives. "To form and lead the kinds of hybrid, cooperative organizational forms . . . companies must command substantial social capital". Clearly, just as knowledge is the lever of intellectual capital, trust is the lever of social capital. Fukuyama defines trust as "the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of that community" (Fukuyama 1995, p. 26). Building trust in such networks requires the sharing of intellectual capital to build social capital. In other words, knowledge exchange forms the foundation for trust in corporate alliances, linking intellectual capital with social capital.[1]

For research collaborations, encouraging knowledge sharing at the individual level benefits the cooperative venture in two ways. First, it can guarantee that knowledge will flow efficiently to those employees who are in the best position to utilize that knowledge at a given time. Second, however, it bonds individuals together in a

collaborative mode to ensure that they work towards common goals, which in turn will drive firm innovation.

8.6 Licensing and Research Collaboration

The development of a "co-opetitive" approach to strategy leads firms to rely less on exclusive licensing in collaborative settings, and towards more creative solutions which ensure that all partners extract useful knowledge from the collaboration. Collaborative ventures should develop a more global approach to knowledge management, encompassing explicit knowledge plus the three forms of organizational knowledge cited in Table 7.1:

- Tacit knowledge, which can be manipulated and managed through face-to-face meetings, collaborative work settings, personnel rotation and mentor-apprentice relationships;
- Rule-based knowledge, which can be transferred as firms directly observe each other's organizational policies and processes and adopt those which lead to improved efficiency and effectiveness;
- Background knowledge, which becomes shared as corporate cultures converge over a term of close interaction and collaboration between organizations, and as a collaborative venture develops its own unique history and identity.

Since partners generally enter collaborations with different goals and expectations, knowledge management is a tool which can be used to track the intellectual capital which is contributed to the collaboration, identify and classify the knowledge produced by the venture, and then develop a more equitable distribution of the knowledge based on the individual needs of the participants. Firms are now formalizing their internal knowledge management processes through the use of information systems; research collaborations should also involve the integration of those systems so that the collaborations are governed by common knowledge management policies transparent to each partner. These practices and policies are more constructive than formal licensing arrangements, since members can still track their return on knowledge investment without obsessing over the equal distribution of formal intellectual property assets.

The shift towards this kind of knowledge management paradigm will promote future research collaborations, since this approach helps to make the benefits of collaboration more explicit and more accessible to all partners (Inkpen 1996, pp. 123–140). In fact, the same economic and technological forces which drive increased licensing activity are leading firms to partner with other firms and organizations for technology development. The knowledge management paradigm helps to inform the analysis of collaborative activity and management of research cooperation. If intellectual capital (IC) is the primary source of future wealth, then firms will need to gain access to that capital by whatever means are necessary. At the same time, the simple acquisition of IC through the purchase of firms is not always

appropriate, because it may result in the flight of the human capital component of the firm's IC. This argues for the extension of a firm's IC through the use of strategic alliances and other interorganizational configurations to maximize the opportunities and abilities of the firm to generate new knowledge.

Existing metrics emphasize quantitative measures, which may miss important key factors in the success or failure of technology transfer processes, and also measure inputs and outputs as opposed to process improvements. A case study approach is necessary to capture both prescriptive and descriptive technology transfer effectiveness information which can be used to re-engineer technology transfer processes. Such an approach can also provide important qualifiers which put available quantitative factors into their appropriate context. The following case studies articulate this approach. Specifically, they focus on input, output and intermediate technology transfer performance metrics identified and traced through each of the case studies presented as much as the available information allows to conduct a comparative evaluation of the role and intensity of influence that each technology transfer performance metric appears to have had in each profiled case study.

The cases presented use a framework of *input, intermediate and short- and long-term outcome metrics* to illustrate how a case study approach can provide a richer understanding of the dynamics of technology transfer and the elements of successful transfer processes. Specifically, the metrics may be *facilitating* or *impeding* in nature, in terms of the long-term actual or expected market success of the particular technology transfer and commercialization project as measured by sales, market share, profitability, customer base, as well as the estimated rates of growth of said measures. At the end of the analysis, the case studies are clustered in four categories in terms of their current and anticipated market success potential by adapting the Boston Consulting Group (BCG) model to cluster the case studies as "cash-cows", "dogs", "question marks", and "stars" as a rough framework for evaluating future cases.

8.7 NASA Originating Case Studies

The experience of NASA and technology transfer has often been controversial, especially in the case of spin-offs: government agencies – particularly those such as the National Space and Aeronautics Administration that are continually pressured to justify their activities – tout the spin-off value of their investments in sometimes quite extravagant claims. However, there have always been sceptics of spin-off. In the late 1950s, annoyed by exaggerated claims of spin-off benefits from Atomic Energy Commission research, Dr. Ralph Lapp called it *drip-off* to convey his opinion that very little momentum accompanied the transfer of defence technology to commercial companies. Samuel Doctors concluded that NASA's Technology Utilization Program "was founded primarily in response to political pressures and has continued to be used as a device for partial justification of NASA R&D funding" (Alic et al. 1996). Three cases of successful technology transfer from NASA Langley to the private sector were identified for closer examination. The three case studies are

presented in a chronological order, with the oldest case first: MacNeal-Schwendler Corporation (1960s), Pressure Systems Incorporated (late 1970s and 1980s) and TΘcnico (1993–1996).

8.7.1 MacNeal-Schwendler Corporation

The first company is the MacNeal-Schwendler Corporation, hereafter referred to as AMS Corporation@ or MSC. MSC was incorporated in 1963. The company specialized in computer-related consulting. At about the same time, NASA decided to sponsor development of a finite-element software system as a means to upgrade the analytical capability of the entire aerospace industry. MSC was selected, along with a larger partner, to develop the software. In 1971, MSC decided to offer its version of the NASA software code to the public on a leased basis, incorporating original MSC code with the package developed for NASA. Over the next several years income from the leasing of this code grew at an annual rate of 50%. Major corporations, including Grumman and General Motors, were early users of this commercial package. However, in the 1980s, NASA sued MSC over the intellectual property rights to the code. The legal actions ended in victory for MSC, and it was able to continue marketing its version. MSC's success grew so much that on 5 May, 1983, the company went public with an initial offering of stock at $23.00 per share. The stock closed that same day at $36.75 per share. MSC has experienced strong growth in commercial sales (reaching US$79 million in 1994 and $100 million in 1995). It is the world leader in mechanical computer-aided engineering software, as measured by annual sales, capturing over 30% of the global market.

8.7.1.1 MSC Case Analysis

Various persons involved in this case identified several key factors in the success of MSC's commercialization of its code, especially in the light of opposition from NASA management:

- Fortuitousness that many of the key elements (funding, technology, science and timing) were in the right place at the right time.
- The capital investment of NASA into the development of the software code (MSC estimates the cost to develop NASTRAN at approximately US$3 million, of which US$1 million came from government contracts).
- A critical mass of key individuals who acted as internal and external champions for MSC and its product.
- The dedication and devotion of the key participants in the commercialization process.

The crucial element at the input level was research dollars, and the crucial element at the intermediate level was the internal champion, producing a measurable success at the output level in the form of commercial sales. Sample metrics represented in the MSC case are shown in Table 8.4.

Table 8.4 Key metrics reflecting facilitating & impeding factors in MSC

Input metrics	Intermediate metrics	Short-term metrics	Long-term metrics
Funding from NASA	Emergence of key champions inside NASA	Development of software	Growth of MSC sales
Level of technology readiness	Commitment of champions to commercialization	Success of MSC in follow-on NASA contracts	MSC customer base
State of theory and science of software	Persistence of MSC founders despite NASA's later absence of support	Development of new features for commercial market	Market share growth

8.7.2 Pressure Systems Incorporated

Pressure Systems Incorporated (PSI), founded in 1977, develops, manufactures, markets and services pressure measurement instrumentation for aerospace and industrial measurement applications. In the 1970s, NASA was designing a National Transonic Facility (NTF) wind tunnel. The Instrument Research Division (IRD) at NASA Langley was able to develop an electron pressure scanner that was between 100 and 1,000 times faster than conventional measuring techniques of that time. During sensor development, NASA Langley recognized that it would need a manufacturer for the pressure sensor. A member of the IRD left NASA and formed Pressure Systems Incorporated to produce the sensors. NASA agreed to license the sensor technology to Pressure Systems Incorporated on a nonexclusive basis.

Pressure Systems Incorporated has become a very successful commercial entity, supplying pressure sensors worldwide. Annual sales at PSI are approximately US$10 million. Pressure Systems Incorporated customers include some of the largest manufacturing companies in the world, in industries such as aerospace, automobiles and heavy machinery. Representative companies include Pratt & Whitney (United Technologies), Asea Brown Boveri, Honda Motor Corporation, Caterpillar and General Electric.

8.7.2.1 PSI Case Analysis

In an interview, the founder of PSI stated that he considers the PSI story to be a classic case of successful technology transfer. He believes that the key to that success was the "combination of a technology and a champion". In this case, the founder himself acted as both the internal and external champion, playing a key role in the development of the sensor technology at Langley Research Center and then

creating PSI to bring that technology to market. NASA Langley was instrumental in the process by recognizing a "real world" need, funding the necessary research and extending its research funding beyond proof-of-concept to the creation of a working prototype at PSI. In addition, NASA Langley took the added effort of using a start-up as the manufacturer of the sensor technology and worked closely with that manufacturer to see the product reach commercialization. Table 8.4 displays some of the factors impeding or facilitating the transfer in the PSI case, based on these case study-driven metrics (Table 8.5).

Table 8.5 Key metrics reflecting facilitating & impeding factors in PSI

Input metrics	Intermediate metrics	Short-term metrics	Long-term metrics
NASA development of technology and application	Work of champions inside and outside NASA	Creation of a working prototype	Growth of PSI sales
Research funding from NASA	Development funding from NASA	License of sensor technology from NASA to PSI	Growth of PSI customer base
	Collaboration on initial development between NASA and PSI		Success of export sales for PSI product

8.7.3 TΘcnico

TΘcnico is a privately owned ship repair company located in Chesapeake, Virginia, incorporated in 1991. Most of TΘcnico's business is in the area of structural welding, piping, electrical, painting, rigging, blasting and dry-dock work. In addition, TΘcnico also offers shipboard furniture fabrication, sheet metal fabrications and extensive welding capabilities. The primary customer of the firm is the US Department of Defense.

In 1993, due to the probability of Navy funding cutbacks, TΘcnico started to look for potential new target markets. TΘcnico was invited by Loral Vought, a company located in Texas, to investigate the possibility of producing the mid-body section for a missile system. This required TΘcnico to produce composite material parts and the start-up cost of getting into composite material production was prohibitively high. TΘcnico performed a market scan which included a visit to a technology exhibit at NASA Langley in 1993. A TΘcnico manager observed a technique to produce composite materials, called rubber expansion molding, which would reduce the required investment for such production from US$2 million to US$20,000.

On 8 August, 1994, TΘcnico signed a Memorandum of Agreement (MOA) with NASA Langley to jointly explore taking the technology from the laboratory

situation into a production facility. Based on the positive outcome of that cooperative venture, TΘcnico signed an exclusive licensing agreement. The new commercial activity created by the adoption of the rubber expansion molding technique lead TΘcnico to create a new group within the company called the Advanced Materials Group. As of May 1995, TΘcnico had hired eight skilled persons (engineers, technicians) into the Advanced Materials Group, which generated over $800,000 in revenues through 1996.

8.7.3.1 TΘcnico Case Analysis

One of the two NASA Langley technology transfer agents responsible for facilitating the transfer of the rubber expansion moulding technique from NASA Langley to TΘcnico attributes the success of the project to the "champions" and feels that commercial success never would have occurred without the effort of a single key TΘcnico manager. The lead NASA researcher for the development of the rubber expansion moulding technique feels that there were two crucial reasons for the success: (a) the technology was easily transferable into a commercial product, and (b) NASA Langley decided to hold the technology exhibit, which brought together the researcher and the TΘcnico manager.

The manager from TΘcnico attributes to three crucial reasons the commercial success of this technology transfer: (a) TΘcnico made a commitment to commercialize the technology, (b) the support of the NASA Langley researchers was critical, (c) the technical support by the NASA researchers was an emotional support in addition to NASA's belief in the possible success of this technology that made believers of TΘcnico and its customers. This manager credited the lead NASA researcher with being a catalyst with his excitement towards performing technology transfer. Table 8.6 summarizes some of the metrics which emerge from this case.

Table 8.6 Key metrics reflecting facilitating & impeding factors in TΘcnico

Input metrics	Intermediate metrics	Short-term metrics	Long-term metrics
NASA development of technology	Commitment of TΘcnico to technology	Patenet filed on technology by NASA Langley	New revenues generated by TΘcnico
NASA holds technology exhibit	Technical and "emotional" support from NASA	Exclusive license awarded to TΘcnico	Jobs added by new division
Work of two technology transfer agents	Legal preparations by NASA transfer agents	Savings in capital investment for TΘcnico	Growth in customer base for TΘcnico
Commitment of NASA lead researcher	MOA for joint R&D between TΘcnico and NASA	Contract won by TΘcnico using new technology	

8.8 New Mexico Federal Laboratories Originating Case Studies

8.8.1 Amtech Corporation

Amtech Corporation was founded by a doctor of veterinarian science who served at Los Alamos National Laboratory (LANL) as a liaison officer from the US Department of Agriculture. His assignment was to explore ways that technology developed by LANL in its Electronic ID Project could be applied to problems in agriculture and dairy industries. In 1983, the Department of Agriculture's liaison officer founded Amtech (an acronym for "Animal Management Technology") to commercialize this technology. In the spring of 1984, Los Alamos National Laboratory allowed the founder to borrow a reader, antenna and half a dozen tags to be used as demonstration equipment in order to solicit investments in Amtech. Amtech eventually became one of the first spin-off companies to actually purchase patents from the US government.

According to the founder of the company, Amtech initially had great difficulty in raising capital to commercialize its products. Venture capitalists were very risk-averse and generally did not make investments independent of one another. One key investor in Amtech told the company that it had a great product but the wrong market. On his recommendation, Amtech began to focus on the commercial transportation industry rather than the dairy industry, where it found much greater success. Amtech was able to solicit start-up capital through informal networks by demonstrating the technology in its new application.

8.8.1.1 Amtech Case Analysis

According to the founder of Amtech, one of the main reasons for the initial success of the company was the entrepreneurial spirit exhibited by the founding partners of Amtech. The original founders had worked together at Los Alamos on the electronic ID project for a period of 10 years. During this time the founders of Amtech developed close informal relationships with one another as well as a desire to see the electronic ID technology developed and commercialized. LANL provided a great deal of support and assistance throughout the formation and growth of Amtech. The founder of Amtech has observed that the bureaucracy of the technology transfer process has increased with the rising emphasis placed on technology transfer, and ironically, this build-up of technology transfer mechanisms may inhibit the transfer of technology today. Table 8.7 illustrates the key metrics developed from the case study on Amtech.

8.8.2 Permacharge Corporation

Permacharge Corporation (PC) was founded in 1987 by two women entrepreneurs. The company was built around the Electret technology, which embeds permanently electrical charges embedded in materials to create the electrical equivalent

Table 8.7 Key metrics reflecting facilitating & impeding factors in Amtech

Input metrics	Intermediate metrics	Short-term metrics	Long-term metrics
LANL development of technology	Continued support of LANL	Sale of patents to Amtech	Acquisition of start-up capital to launch Amtech
LANL transfer of prototypes to Amtech founder	Use of informal networks to raise investment capital	Investor interest prompted by demonstration	
Decision by Amtech team to leave LANL and found a new company	Lack of bureaucratic processes governing technology transfer		

of a magnet. In 1990, PC licensed a patent on microporous foam technology from Sandia National Laboratories (SNL), with the intent of combining it with Electret to develop a filtration system. PC made modest sales of its proprietary technology product to the clean room, construction and asbestos removal industries. However, faced with the increasing costs and difficulties of selling to the cyclical semiconductor industry, PC developed a new core product, an electrostically charged, microporous material (called WallWrite) which can be used repeatedly as a writing surface for presentation and educational purposes and which clings to any surface. The foam technology licensed from SNL was repurposed to develop this product.

Between 1990 and 1993, PC grew WallWrite annual sales to $200,000 mostly through the company's own marketing efforts at training conferences. At that point PC decided to seek a strategic partner to embark on the next higher growth stage. Negotiations with such a partner began in earnest and were consummated in 1994. The strategic partner provided PC with access to major distribution chains such as Wal-Mart, and in return gained access to a proprietary technology that filled a void in its product line. PC estimated its 1995 sales at $800,000 to $1 million based on the success of WallWrite.

8.8.2.1 PC Case Analysis

The case of PC shows how serendipity, entrepreneurial initiative and continuing support from the federal laboratory helped to turn an apparent technology transfer failure into a success story. Initially, SNL provided key support by providing the basic technology, and informally because the co-founder from SNL could use her laboratory contacts to meet with potential customers in the semiconductor industry. One founder of the company has noted the significance of emphasizing a "market-pull" orientation, rather than a "technology push" attitude. In the initial development and marketing process, however, it became apparent that this original application was not a viable product. By recognizing the limits of the market, PC took the risk of reformulating its business plan and focus on an entirely new application, again

supported by technologies supplied by SNL. While the laboratory support was a key part of this transformation, the entrepreneurial initiative shown by the PC founders was the crucial factor in the eventual success of PC. Table 8.8 presents these and other metrics of the process of technology transfer in the PC case.

Table 8.8 Key metrics reflecting facilitating & impeding factors in PC

Input metrics	Intermediate metrics	Short-term metrics	Long-term metrics
Existence of established technology (electret) with no existing applications	Contact with customers and prototype enabled by SNL connections	Initial technology license from SNL	Modest success of clean room technology and similar applications
Market scan to determine best target applications	Lack of interest from strategic partners to fund development for contaminant removal	Further technology development and initial sales to high-tech industry	Sales growth for WallWrite
	Decision by PC to refocus on consumer application (WallWrite)	Securing of strategic alliance for WallWrite and distribution agreement	

8.8.3 Radiant Technologies Incorporated

Radiant Technologies sells material testers for ferro-electric films to the integrated circuit industry. The company is unique as a spin-off in that the core technology of the company did not come from a federal lab. Rather, the founders of Radiant Technologies (both US Air Force officers at the time) were exposed to electronic modulator technology while working at the Phillips Air Force Laboratory (known then as the Air Force Weapons Lab) and understood the implications for making integrated circuits (IC) using that basic technology. In 1984, these two founders were part of a team which created a company, Chrysalis Corporation, which eventually declared bankruptcy in 1987. These two individuals then founded Radiant Technologies, and initiated two CRADAs with Sandia National Laboratories, and one CRADA with Los Alamos National Laboratory, in 1992. Since Radiant Technologies had previously established contacts with labs, only 6 weeks were needed to formulate the CRADA. The company tested its technology at Sandia's laboratory for IC manufacturing technology located just across the street from Radiant Technologies. Employees of Radiant Technologies exchanged technical information through both formal and informal communication channels with neighbouring Sandia R&D personnel.

The company now has 14 employees and reached sales of US$10 million by 1994. It was able to enter the Japanese market through the formation of a strategic alliance with BDM and Rio Grande Corporation. It sells about a third of its testers in Japan through an agreement with a Japanese company that handles their distribution.

8.8.3.1 Radiant Technologies Case Analysis

The experiences of Radiant Technologies illustrate the challenges facing spin-off companies and their special requirements of technology transfer and commercialization processes. The previous failure of Chrysalis has proven to be instructive for the founders of Radiant, who have managed to sustain their company through internal growth rather than exposing the firm to the unpredictability of the venture capital market. The case also illustrates that support from federal labs throughout the transfer and commercialization phases often occur through informal mechanisms (such as contacts within the labs and exchanges with lab researchers) as well as formal ones (access to user facilities and to lab technology). Finally, the commercial success of Radiant would not have been possible without the help of private sector partners (BDM and Rio Grande Corporation) as well as the federal facilities involved. Table 8.9 summarizes our analysis of the Radiant case using key metrics of the transfer process.

Table 8.9 Key metrics reflecting facilitating & impeding factors in Radiant

Input metrics	Intermediate metrics	Short-term metrics	Long-term metrics
Availability of technology from Phillips laboratory	Assistance of SNL contacts in establishing CRADA	Initial CRADAs with SNL and LANL	Growth in sales to domestic market
Decision by founders to create Radiant following failure of Chrysalis	Proximity to SNL researchers and facilities	Continuing contracts and CRADAs with DOE, labs, and DARPA	Expansion into international market
Work of former SNL employees on core technology for Radiant	Development of alliances with BDM and Rio Grande corporation	Initial product development for semiconductor industry	Development of new related product and technology capabilities
	Experience of founders from previous failure	Growth of company through internal efforts	

8.8.4 Yamada Science & Art Corporation

Yamada Science & Art Corporation (YSA) is located in Santa Fe, New Mexico. Prior to the establishment of YSA, the founder worked in the Environmental Sciences Division of Los Alamos National Laboratory, where he studied air pollution simulations, numerical weather predictions, atmospheric sciences and meteorology. Yamada Science & Art specializes in the computer modelling of atmospheric airflow and the dispersion of airborne materials over complex terrain. This spin-off was established in 1988, when the founder merged his scientific interests and computer modelling technologies with his wife's fine art business.

Yamada was one of the first spin-offs from Los Alamos National Laboratory to receive an exclusive technology license. This license was for a three-dimensional numerical model developed by the founder while he worked at Los Alamos National Laboratory. Given that the process of acquiring a technology license was unprecedented, there were difficulties between the three parties involved, the US Department of Energy (DOE), LANL and YSA. The process of acquiring the technology license required about 6 or 7 months. Yamada Science & Art now has such clients as weather bureaus, utility companies, the US Army and Air Force research laboratories, national research laboratories, Japanese universities and construction companies.

8.8.4.1 Yamada Art & Science Case Analysis

Like the case of MSC above, the case of Yamada Science and Art reflects in part the success of a technology transfer in spite of the efforts of federal labs, rather than because of those efforts. The Department of Energy has since streamlined the processes for spinning off technologies and signing CRADAs, which makes the environment for spin-offs more favourable than that encountered by YSA. Table 8.10 provides the key metrics used to analyze the Yamada case.

Table 8.10 Key metrics reflecting facilitating & impeding factors in Yamada

Input metrics	Intermediate metrics	Short-term metrics	Long-term metrics
Technical ability of founder	Difficulties in obtaining license to technology	Exclusive license to key YSA technology from LANL	Growth in applications for YSA technology
Modeling technology developed at LANL	Problems with CRADA negotiations	Lack of a continuing relationship between YSA and Federal labs	Growth of YSA customer base
	Absence of related resources in area near YSA	Successful launch of YSA	Continued relations between YSA and customers

Note

1. Given that firms are unable to protect their knowledge absolutely, they may be able to pre-empt the misappropriation of their knowledge by sharing it with their competitors. This, in turn, can create the expectation that the competitor will in turn share its knowledge with the donor firm. Thus, knowledge becomes an object of barter between firms towards the development of a new form of economic relationship. The equal exchange of knowledge constitutes a "quid pro quo" which, in turn, reinforces a growing trust between the parties to that transaction. As long as the knowledge exchanged between the firms is perceived by the recipients to be of equal value, trust can be built (see Carayannis and Alexander 1997).

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Chapter 9
Critical Success and Failure Factors and Lessons Learned

Elias G. Carayannis

Abstract Using the framework discussed in the previous chapter, we can reach some preliminary outcomes regarding which metrics are meaningful in quantisfying the success of technology transfer. Hence, a case study may be considered in general terms as a "performance metric", because it offers a common context or frame of reference, so as to make significant comparisons instead of attempting to adapt the dubiousness and indecision internal to the intangibles of technology transfer and commercialization in the restricted mould of econometric models. This chapter provides a systematic case study development and analysis approach which can define the basis for detecting and summarizing key facilitating and impeding factors which can finally cause market success or failure. These factors enable us to connect market success or failure to the key drivers of the technology transfer and commercialization process and therefore allow us to effectively readdress the above mentioned process.

9.1 Knowledge Sharing and International IPR for the Family Business

Due to its sophisticated system of Intellectual Property (IP) law and the size of its market, the United States is the primary target nation for patenting. The centralized filing procedures under the Patent Cooperation Treaty and the European Patent Convention have made multinational protection of IP more feasible. Yet, many foreign countries charge patent maintenance taxes that increase annually to high levels and/or require the local working of a patent or compulsory licensing, which makes overseas patenting less attractive.

The globalization of commerce and the global distribution of technological competence make international IP protection more imperative for US firms. International harmonization of IP laws, effected through the General Agreement on Tariffs and Trade (GATT) talks and the related negotiation on Trade-Related Intellectual Property (TRIPS), is designed to facilitate the global protection of IP. For example, signatory nations are standardizing their national patent protections as follows (Harvey and Lucas 1996, pp. 77–93):

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- Both product and process patents will be recognized and protected;
- Nations will limit the use of compulsory licensing;
- Patent terms are standardized to 20 years after the date of filing;
- Additional guarantees are made to protect pharmaceutical and agricultural patents.

The United States has already begun to modify its patent system to conform to these standards. Now that IP laws are being harmonized, international negotiations are focusing more on standardizing enforcement of those laws across countries. Lester Thurow identifies four factors which make protecting IP a key competitive issue for firms and national governments (Thurow 1997, pp. 94–103):

(a) the centrality of intellectual property rights;
(b) the decline of public knowledge;
(c) the emergence of new technologies;
(d) the globalization of the economy.

Some nations are noticeably laxer in attacking patent infringement or copyright piracy, particularly in rapidly industrializing countries such as Taiwan, China, India and Brazil. In part, this is due not to some concerted effort to "steal" technologies from companies of developed countries, but because different IP regimes are more appropriate to the level of development of those countries (Frischtak 1995, pp. 200–213). Also, national courts vary in their views on IP protection. Harmonizing IP protection enforcement is highly problematic, because enforcement practices are often not codified in law in the way that national IP legal systems are. Also, while governments tend to change IP laws under threat of exclusion from global trade and investment activity, enforcement agencies are less susceptible to such threats. Therefore, while IP law harmonization was achieved through multilateral action, enforcement harmonization is predominantly a bilateral process.

Rushing & Brown make the following conclusions and recommendations in shaping global IP regimes and growing and leveraging intellectual capital using such facilitating legal and trade contexts as the WTO charter (Rushing and Brown 1990):

1. Trade-oriented policies to enhance protection should target specific countries and industries;
2. Care should be taken that efforts to enhance the protection of technology worldwide do not diminish the flow of scientific knowledge across borders;
3. Trade strategies must recognize the linkages between IP protection and technology investment and trade flows;
4. Protection efforts must emphasize that the benefits to organizations from protection are more broad-based than economic returns from their research and development efforts;
5. The needs and advice of business and academic communities in all countries must play a strong role in developing an international regime for protection;

6. Strategies to advance protection should take a long-range approach, namely a 5–10 year time frame;
7. An international agreement should recognize that new technologies enable the development of new protections;
8. The entry of new nations into the global economy such as the former Soviet block countries and China requires an expansion of the negotiating framework to stress multilateralism.

Hence, emerging global technoeconomic trends that impact the international IPR regimes can be distilled in the following processes of convergence between technology and knowledge management, global trade and IPR issuance, protection and licensing and knowledge-enabled global competition:

- *Technology globalization and "niching"*. While IPR regimes across the world are becoming harmonized, specialized "niches" of expertise are developing in particular nations. These pockets of expertise will need to link to each other through licensing and other mechanisms to mobilize their collective intellectual capital for global competition. This will contribute to the organization and merging multinational networks of firms which will form the basic unit for global competition.
- *Diffusion of IPR standards*. Standards for intellectual property are being spread across the world through multinational harmonization. This means that the IPR policies and practices of the West will become more widely adopted, especially as non-Western firms develop sophisticated intellectual assets which require protection.
- *Divergence of IPR enforcement practices.* At the same time that IPR legal regimes are converging, there is the remaining threat that enforcement practices will diverge, with each nation choosing to enforce IPR protection in ways which favour their national champions. Thus, international trade negotiations must move from the establishment of a common legal regime to the more specific task of standardizing the way in which those regimes operate in practice.
- *Knowledge-based global rivalries.* The identification and management of IC will enable firms to understand their own intellectual capabilities and assets with more accuracy, which in turn will enable them to identify appropriate partners with whom they can combine their common capabilities with gainsharing outcomes. This will create new globe-spanning alliances which compete specifically through their knowledge capabilities, not simply through manufacturing or other competencies.

The implications of knowledge sharing for the new knowledge-based economy are substantial. Knowledge-based competition is generally assumed to require that firms have different knowledge which they then use to create sustained competitive advantage. But knowledge sharing allows firms to access the same basic knowledge to cooperate and compete simultaneously for greater productivity. This, in

turn, changes the way that firms must operate, and the mechanisms for governing transactions in the new economy.

Intellectual property is thus emerging as the essential "currency" for global trade in strategic capabilities for market-based competition, whose use continues to grow. As a result, firms increasingly view their intellectual property as their primary asset or form of capital which can be leveraged into future advantage in technology and products and in this context, the intellectual property audit is becoming an important tool to transforming firms from traditional storekeepers of intellectual capital to firms which strategically utilize and grow their intellectual capital and tap into the wealth of their proprietary and shared knowledge.

Moreover, *there is a double paradigm shift process afoot, in terms of redefining both the knowledge management as well as the technology management paradigms* as a result of the emerging role and significance of intellectual capital and the increasingly dynamic and virtual nature of the knowledge-based economy. These shifts are especially manifested in the transition of the ways in which intellectual property is commercialized from large firms and formal interactions to entrepreneurial start-ups linked by informal networks and other virtual business enterprises that thrive on knowledge and zero overhead (Balachandra 1996, pp. 625–638). The recurring pattern from these diverse case studies shows that the presence of internal and external champions, appropriate technology and patient risk capital make a difference in winning in a competitive environment. However, part of the same pattern perhaps is the lack of any identifiable "recipes for success – critical factors appear to be situation-specific".

9.2 General Findings from Case Studies

Using the framework discussed above, we can generate some preliminary findings about which metrics are significant in measuring the success of technology transfer. For the NASA cases, the common element contributing to the success in all three cases was the presence of (internal and external) champions. In two cases, government funding, equivalent technology and a license were also mentioned as keys. A closer analysis of these cases reveals that champions, early government funding, equivalent technology and licenses were also crucial elements to successful technology transfer. In the case of the New Mexico projects studied, it is apparent that the nature, process and content of spin-off creation are very complex and elusive to fit into cut-and-dried definitions. There are however three recurring critical success factors through the variety and uniqueness of each case. These are (i) the *technical entrepreneurs, (*ii) the *risk-capital* supporting technology-based ventures, and (iii) the *technology* on which these ventures are built. Although New Mexico has a treasure trove of technological know-how and assets with considerable commercial promise, the process of transferring and commercializing high tech know-how and/or assets is fraught with difficulties. A big part of the reason for this is the fact that two of the three critical success factors "are still well below the critical mass

required to stimulate and support a substantial flow of new ventures: (1) risk capital devoted to technology-based ventures, and (2) technical entrepreneurs" (Radosevich 1995).

Furthermore, the profiles of the four spin-offs and the personalities of their creators as they emerge from our field research confirm to a considerable degree the advantages and disadvantages of both, the inventor- and the surrogate-entrepreneur models for commercializing technology as predicted by Radosevich, namely, (1) to have a clear aspiration for doing so, (2) to go through a thorough preparation phase, and (3) to actually launch the new venture (Radosevich 1995). In cases such as MSC, PSI, AmTech and Yamada Science and Art, the actions of a single "champion" or group of champions who supported the technology transfer process, and more importantly who maintained their commitment through the process of commercialization. The over-emphasis on short-term metrics in the "out-the-door" concept often leads government laboratories to end their involvement with a technology after the transfer has taken place. But in many cases, continued laboratory involvement is needed to turn the technology into a product. Ham and Mowery found that the CRADA process used by laboratories often required that laboratory personnel end their involvement as soon as a prototype was demonstrated, even though their expertise was still needed to move the technology to production. This finding is consistent with those of other authors, such as Eldred and McGrath who state "The transition team is central to the technology transfer process. It has evolving membership ... The transition team may ultimately evolve into the product development core team after the initial phase of product development" (Eldred and McGrath 1997, pp. 29–33).

In light of the findings from the seven case studies we presented, we recommend using *a hybrid portfolio approach* in assessing the success of technology transfer and commercialization efforts. This approach incorporates both *quantitative and qualitative measures* and is flexible in its implementation and it should have underpinnings in basic raw data and facts, not in economic models that introduce levels of uncertainty and are more open to criticism. Such an approach should be undergirded by an attitude of humility and openness to learning by doing.

The hybrid portfolio approach consists of input, intermediate and short and long term output, qualitative and quantitative metrics. A systematic case study development and analysis approach as outlined in this chapter can provide the platform for identifying and synthesizing key facilitating and impeding factors that can eventually determine market success or failure. These factors allow us to link key drivers of the technology transfer and commercialization process to market success or failure and thus enable us to effectively reengineer the said process. For example, in the case studies outlined here we identified facilitating or impeding factors that fall in the following broad categories and focus on the collaborative government/industry market/technological interface that underscores the process of technology transfer and commercialization between government and industry:

- financial
- technology lifecycle / maturity

- market lifecycle / maturity
- cultural (trust issues, openness/sharing issues)
- systemic (bureaucratic issues, intellectual property rights issues)
- strategic orientation (competitive versus co-opetitive or collaborative/competitive issues)
- international versus domestic market and technological orientation
- timing and selection of all of the above factors (synchronization issues).

Table 9.1 provides *a technology transfer and commercialization outcome factors typology*, outlining and grouping the facilitating and impeding factors identified across the seven case studies discussed. These factors are then labelled as common or differentiating ones, based on whether they were common and to how many of the case studies or unique to only one of them. For example, a common facilitating factor was found to be the presence and role of internal and external champions, whereas a common impeding factor was found to be a systemic one in nature, namely conflict over the transfer of ownership of intellectual property rights in a collaborative rather than competitive context. A differentiating or unique facilitating factor was the laboratory connections held by the founders of Radiant Technologies, while a differentiating impeding factor was the usage of the lawsuit filed by NASA against MacNeal-Schwendler Corporation to stop the use of NASA intellectual property in MSC's software.

Table 9.1 Categorization of key metrics derived from cases

Key metric	Common, facilitating	Common, impeding	Differentiating, facilitating	Differentiating, impeding
Emergence of internal and external champions	Y			
Cultural barriers separating laboratory and industry		Y		
Financial support of laboratory	Y			
Continuing support from laboratory researchers	Y			
Experiences of entrepreneurs			Y	
Outside advice from investors/sponsors				Y
Difficulty of negotiating IPR ownership		Y		
Lack of available investment capital		Y		

Legend: *Common factors* are those that were found in three or more of the case studies
Differentiating factors are those that were found in only one of the case studies

In Table 9.2, we attempt to cluster the case studies in the four categories defined under the Boston Consulting Group (BCG) model: "cash-cows", "dogs", "question marks", and "stars" to indicate the relative current and expected technological and

Table 9.2 Analysis of case portfolio using BCG framework

Potential or actual market share, profitability, customer base, etc.	*Cash cows* MSC	*Stars* Yamada PSI
	Dogs Permacharge (Particle filtration)	*Question marks* Radiant Amtech Permacharge (WallWrite)
		Potential or actual rate of growth in market share, profits, etc.

Not applicable: TΘcnico

market prowess of each firm profiled as a case study. The cases are classified by guesstimating their individual levels and rates of growth for a composite of the market success measures identified earlier. Given the limited field data on these cases, this table provides only a framework to use with more robust empirical data samples.

The challenge in linking tangible inputs with tangible outputs, namely technology as input and money as output, remains considerable but it becomes truly intractable when one tries to link intangibles with tangibles, namely the transfer of processes and even more so knowledge and skills with tangibles such as money or other measurable ROI. Thus, the most effective "lens" for examining and understanding a process dealing with both tangible and intangible inputs and outputs and capturing the value added in the case of intangibles seems to be the case study approach.

Another limitation of the case study is that there may not be sufficient information accessible to researchers to create a "picture" comprehensive enough to evaluate technology transfer properly. As Penaranda notes, if credible, substantiated cause-effect statistics are to be gathered so appropriate benefits may be attributed to the technology transfer and commercialization processes, every technology transfer event or "hit" must be tracked and documented to its ultimate conclusion. But the sources of the most critical information are often uncooperative. These are the commercial partners themselves. Sometimes the information is impossible to extract from the overall corporate records. Very often, however, there is a general reluctance to share this information with the "feds" for fear of "revenuers" knocking at their doors, literally or figuratively.

The choice of who will conduct the case study research is as important as the research itself in determining whether a true evaluation is achieved.

In this context, one may need to consider a case study as a "performance metric" in a broad sense – as providing a common context or frame of reference, common enough to make meaningful comparisons as opposed to trying to fit the ambiguity and uncertainty inherent in the intangibles of technology transfer and commercialization in the narrow mould of econometric models.

Hence, a case study as a "performance metric" could be a source of insight and information both in depth, as a "*well" of knowledge*, and in breadth, as *part of a "fabric"* or number of case studies across which one could pursue emerging recurring patterns. The case study can serve as the *conceptual "bridge"* between *tangible outputs* and *intangible processes and critical success factors*: a combination of qualitative and quantitative measures provides a more comprehensive assessment of not only *degree of success* but also *reasons for success.*

Moreover, just raw data can be a source of insight in evaluating the value added of intangibles, such as technical assistance, in correlating hours of technical assistance to jobs created. Such data should include quantitative measures of value added such as survey data, numbers of cooperative agreements, number of patents and licenses, royalty streams, as well as qualitative measures of value added such as quality of life, etc. These quantitative data can be very informative in discerning trends and their evolution over time rather than absolute numbers, and can prove very useful as benchmarks.

Such a hybrid approach can finally help leverage technology and especially its knowledge content, to build and sustain competitive advantage for both the transferor and the transferee of technology, by means of allowing both financial and strategic imperatives, short- and long-term criteria to come into play in evaluating the outcomes and reengineering the process of technology transfer and commercialization.

Part II of the present handbook (Chapter 7, 8 and 9) has been about diversity and heterogeneity in *knowledge-based family businesses*, that is businesses that are *small and medium size, technology-based or technology-driven (but not technology-neutral), that we view as complex, adaptive, non-linear, learning knowledge systems*. In the introduction (Chapter 7), we acknowledge that a knowledge system involves the presence and interactions of *input, process and output factors* in the knowledge society and economy manifested via *co-existence, co-opetition, co-evolution and co-specialization* processes. We have further studied and discussed the ways and means that diversity and heterogeneity – two key properties of the knowledge system – influence how knowledge is created, diffused and used. Our discussion of knowledge systems has been open-ended. We have thus attempted to provide an emerging conceptual framework to serve as the *intellectual sandbox* and *creative whiteboard space* of the mind's eyes of the family business owners and operators who we view as *knowledge weavers* (*Wissensweber*)[1] as they strive to tackle the twenty-first century challenges and opportunities for socioeconomic prosperity and cultural renaissance based on knowledge and innovation.

As a result of the *glocalized* nature and dynamics of state-of-the-art, specialized knowledge one needs to cope with and leverage two mutually reinforcing and complementary trends:

(a) Micro-Macro – the symbiosis and co-evolution of top-down national and multinational science, technology and innovation public policies, technological paradigms and institutional complementarities as well as bottom-up technology development and knowledge acquisition private initiatives, and

(b) the levelling of the competitive field across regions of the world via technology diffusion and adoption accompanied and complemented by the formation and exacerbation of multidimensional, multilateral, multimodal and multinodal divides (cultural, technological, socioeconomic, etc.).

Key findings and contributions can be grouped in terms of theory, methodology and empirical results as follows:

a. In terms of enriching theory, this second part of the handbook postulates that heterogeneity and diversity constitute a major driver of sustainable and potentially more equitable economic development.
b. Moreover, in advancing theory, it attempts to promote the understanding of the role of heterogeneity and diversity in the inter-linkages of rationalities identities, preferences and intentions to macro level phenomena such as institutions, national systems, regional city economies, the evolution of technological paradigms and the ways in which multilevel innovation systems work.
c. In advancing theory, as well as methodology and empirical evidence, it provides some insights as to how heterogeneity, diversity, entrepreneurship and innovation can act, interact and impact each other and their environment as well as individual and institutional actors in social and/or economic settings.
d. In terms of theory, it strives to advance the understanding of patterns of co-evolution and co-specialization at the micro, meso and macro levels – and in particular how micro factors, events and processes impact those at the meso and macro levels and vice versa.
e. In terms of theory, policy and practice, it in essence provides a more coherent and congruent framework for understanding and potentially anticipating the phenomena of innovation and entrepreneurship through a more profound understanding of the nature, dynamics and impact of heterogeneity and diversity. In this manner, one could thus more effectively trigger and catalyze sustainable entrepreneurship and robust competitiveness.

Note

1. The term constitutes the brainchild or *conceptual branding* of the author as part of this journey of discovery and ideation.

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