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Five challenges to virtual team success: Lessons from Sabre, Inc.

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Executive Summary

Advances in communications and information technology create new opportunities for organizations to build and manage virtual teams. Such teams are composed of employees with unique skills, located at a distance from each other, who must collaborate to accomplish important organizational tasks. Based on a comprehensive set of interviews with a subset of team members, team leaders, general managers, and executives on 65 virtual teams at Sabre, Inc.—an innovative organization in the travel industry—we identify five challenges that organizations can expect to encounter in establishing, maintaining, and supporting virtual teams, e.g., building trust, cohesion, and team identity, and overcoming isolation among virtual team members. Both leaders and members of virtual teams face particular difficulties in selecting team members who have the balance of technical and interpersonal skills and abilities required to work virtually and in evaluating the performance of individuals and teams working in virtual space. Examination of Sabre's strategies for coping with each challenge should be instructive to other organizations using or considering virtual teams.

Off the coast of Mexico, a team of five people struggles to stay afloat on a raft they assembled on shore. Waves crash around them, their raft begins to tip over, and two members fall into the sea. A third member helps the submerged members back onto the raft. Finally, the raft is righted and the team paddles furiously onward.

While this might sound like a scene from a reality TV show, these events are actually part of teambuilding at Sabre, Inc. for its virtual teams. The crashing waves symbolize unanticipated and rapid change, the construction of the raft from everyday materials demonstrates creativity and resourcefulness, and the entire exercise shows that you either sink or swim as a team. Just one year earlier, virtual team members at Sabre had spent three days in face-to-face team-building activities designed to launch a division-wide virtual teams initiative. This raft exercise reinforced the knowledge and skills learned in earlier teambuilding. We examine the challenges of building and managing virtual teams and present five important lessons learned from Sabre's experience.

Virtual Teams: Origins and Trends

While work teams were used in the U.S. as early as the 1960s, the widespread use of teams and quality circles began in the Total Quality Management movement of the 1980s. In the late 1980s and early 1990s, many companies implemented self-managing or empowered work teams. To cut bureaucracy, reduce cycle time, and improve service, line-level employees took on decision-making and problem-solving responsibilities traditionally reserved for management. By the mid-1990s, increasing numbers of companies such as Goodyear, Motorola, Texas Instruments, and General Electric had begun exporting the team concept to their foreign affiliates in Asia, Europe, and Latin America to integrate global human resource practices.[1] Now, due to communication technology improvements and continued globalization, virtual teams have increased rapidly worldwide.

Virtual teams are groups of people who work interdependently with shared purpose across space, time, and organization boundaries using technology to communicate and collaborate.[2] Virtual team mem-

bers may be located across a country or across the world, rarely meet face-to-face, and include members from different cultures.[3] Many virtual teams are cross-functional and emphasize solving customer problems or generating new work processes.[4] Virtual work allows organizations to combine the best expertise regardless of geographic location.[5]

Due to employee travel restrictions resulting from the 2001–2002 recession and the events of September 11, 2001, virtual teaming will likely increase exponentially. This increase will parallel that of telecommuters, or employees who work from remote locations and communicate electronically.[6] Two out of three Fortune 500 companies currently employ telecommuters.[7] The United States Labor Department reported that 19 million people worked from home online or from another location in 2001,[8] and the GartnerGroup estimated that by 2002 over 100 million people worldwide will be working outside traditional offices.[9] While many organizations have embraced virtual teaming, little is known, beyond anecdotal evidence and conventional wisdom, about what makes virtual teams work or even how they differ from face-to-face teams.

Virtual teaming will likely increase exponentially.

Anthony Townsend and colleagues (August 1998) first discussed in detail the concept of virtual teams for *The Executive*.[10] The authors defined virtual teams, specified why they have become popular, discussed communication technologies, and provided preliminary guidelines for building virtual teams. More recently in *The Executive* (August 2000), Wayne Cascio examined virtual workplaces more generally, discussing the disadvantages of virtual teaming and methods for training team members and leaders.[11] Building on and extending this work, we examined specific challenges encountered by virtual team leaders and members. Much of the previous virtual-teams research emanated from anecdotal evidence or case studies.[12] We comprehensively studied a large number of cross-functional virtual teams in a high-technology company to challenge the prevailing conventional wisdom regarding virtual teams. To extract important lessons, we drew on our experiences with 65 cross-functional virtual teams at Sabre.

Sabre, Inc: Business at Internet Speed

In 1960, Sabre began as the computerized reservation system of American Airlines and is the inventor of electronic commerce for the travel industry. In March 2000, Sabre spun off from AMR (the parent company of American Airlines) and became 100 percent publicly traded. Headquartered in Dallas/Fort Worth, the company currently employs over 6,000 employees in 45 countries. Sabre processes over 400 million travel bookings annually (40 percent of the world's travel reservations) and is used by over 60,000 travel agents in 114 countries. Sabre also owns Travelocity.com, the world's leading online business-to-customer travel site; and it owns GetThere, the world's leading supplier of Web-based business-to-business travel reservation systems. Sabre's competitors include: Galileo (owned by Cendant Corporation), Worldspan (owned by Delta, Northwest, and TWA), and Amadeus (majority owned by Air France, Iberia, and Lufthansa). Major competitors of Sabre's Travelocity.com include Expedia.com and Orbitz.com.

Our research focused on executives, vice presidents, and virtual team leaders and members in Sabre's North American Sales and Service, Operations, and Financial Services Division. Sabre's 65 virtual teams are cross-functional, based in the U.S. and Canada, and often span several states or provinces. With over 500 members, they average about eight members per team. Virtual team members are located in both field and employee home offices and in the company's Texas headquarters. On each team, account executives sell reservation systems, field service technicians install systems, training representatives teach travel agents how to use the systems, installation operations coordinators schedule installation and training appointments, account management specialists handle customer billing and collection, and customer service representatives field inquiries throughout the process. Clearly, Sabre's virtual teams are highly interdependent. To coordinate activities, members communicate using e-mail, telephone, video conferencing, and Web-based conferencing.

Sabre switched from functionally based work teams to market-based, cross-functional virtual teams in 1999 to integrate different functions to improve customer responsiveness. Functional silos were limiting Sabre's ability to satisfy customers. For instance, from 1996 to 1998, Sabre's North American customer satisfaction ratings fell from a 79 percent satisfaction rate to 68 percent, while competitor ratings remained unchanged. The purpose of virtual teams was to strengthen customer focus to increase productivity, market share, and profitability.

Cross-functional virtual teams represent a specific, albeit common, type of virtual team. Indeed, there are many types of virtual teams, each presenting unique management challenges. For ex-

ample, global virtual teams must overcome cultural and communication barriers.[13] Virtual teams assigned to accomplish specific projects often have high start-up costs. Some research on cross-functional teams has shown that as teams become more cross-functional, both positive team processes (e.g., information sharing, team task and strategy agreement, and flexibility) and outcomes such as unit performance decrease.[14] The challenge for Sabre was to recognize obstacles confronting teams that are both cross-functional and virtual. Lessons learned from Sabre should apply to cross-functional virtual teams and other virtual teams that create synergies based on the special expertise of members in distant locations.

Functional silos were limiting Sabre's ability to satisfy customers.

The Dimensions of Virtuality

Sabre's virtual teams are only moderately, and not completely, virtual. A virtual relationship is one that is primarily conducted using technology, but virtual teams vary in the degree to which this is the case.[15] In fact, degree of virtuality is a complex multidimensional construct.[16] One dimension of virtuality is the proportion of time that team members work face-to-face compared to virtually. A second dimension is the proportion of team members at any one location. Along this dimension, the highest degree of virtuality would be when all members work at distant locations. A third dimension is the proportion of time members devote to a virtual team compared to time spent on other duties. In some instances, individuals may work only a few hours a month on a virtual team project, while devoting most of their time to activities unrelated to virtual work.

Sabre's virtual teams meet face-to-face only once a year. While about 15 percent of the members work at the same location, most teammates work at distant locations. Virtual team activity is the primary focus of each member. Accordingly, our findings could apply to other cross-functional virtual teams.

Five Challenges of Virtual Teams

From our interviews with over 75 executives, team leaders, and team members, we uncovered some surprising insights about meeting the challenges of managing and working in virtual teams (we summarize our interview methodology in the Appendix). For each of the five challenges, we first present the conventional wisdom (i.e., what consultants and researchers are saying), we then highlight Sabre's innovative responses, and finally we extract the lessons learned from Sabre that should help other organizations using virtual teams. Table 1 presents a summary of conventional wisdom, virtual team challenges, and lessons learned.

Challenge 1: Building Trust Within Virtual Teams

Conventional wisdom: Most consultants and researchers agree that building trust is the greatest challenge in creating successful virtual teams and organizations.[17] Trust has been called the glue of the global workplace.[18] As Charles Handy, author of "Trust and the Virtual Organization," stated,

> Most of our organizations tend to be arranged on the assumption that people cannot be trusted or relied upon, even in tiny matters. . . . It is unwise to trust people whom you do not know well, whom you have not observed in action over time, and who are not committed to the same goals. . . . Trust needs touch . . . high tech has to be balanced by high touch to build high-trust organizations. Paradoxically, the more virtual an organization becomes, the more its people need to meet in person.[19]

In Wayne Cascio's *Executive* article on working virtually, he stated, "Lack of trust can undermine every other precaution taken to ensure successful virtual work arrangements."[20] Furthermore, Sirkka Jarvenpaa and her colleagues have stated, "In virtual organizations, trust requires constant face-to-face interaction—the very activity the virtual form eliminates."[21] The conclusion from conventional wisdom is that trust is very difficult to build and requires frequent face-to-face interaction. Thus, a specific challenge for virtual teams, compared to face-to-face teams, is the difficulty of building trust between team members who rarely, or never, see each other.

Our findings at Sabre, however, question this conventional thinking. Consider the following interview quotes about trust:

> When you are working with people you never see, you can develop trust, but you must respond to that person. Follow through. If you tell them you are going to get back to a customer, get back to them.
>
> (Dallas/Fort Worth team member)

> I think trusting someone in a virtual team is linked directly to their work ethic. It is task first. The trust has been built through the task-based relationship that has evolved.
>
> (Account executive)

Table 1
Conventional Wisdom, Virtual Team Challenges, and Lessons Learned from Sabre

Conventional Wisdom	Virtual Team Challenge	Lessons Learned from Sabre
Building trust in virtual teams is extremely difficult, given the limited face-to-face interaction.	Establishing trust based on performance consistency rather than social bonds.	• Rapid responses to virtual teammates foster trust. • Establishing norms around communication patterns is key. • Team leaders play important roles in reinforcing timeliness and consistency of team interaction. • Levels of trust based on performance compensate for lack of social interaction.
Virtual teams will struggle with creating synergy.	Overcoming group-process losses associated with virtual teams.	• Extensive training in virtual teamwork helps overcome process loss. Training in virtual team leadership, conflict management, and meetings management is particularly valuable for overcoming process loss. • Adaptation of decision-making software facilitates problem solving and decision-making.
Virtual team members experience isolation and detachment.	Creating a virtual environment of inclusiveness and involvement.	• Consider individual differences in preferences for working virtually when selecting virtual team members. • Give virtual team members a realistic preview of the potential for feeling detached. • Team leaders play a critical role in maintaining continuous contact with remotely situated virtual team members. • Redesign job assignments to provide virtual team members with occasional face-to-face customer contact to reduce isolation. • Convene face-to-face meetings for virtual team members at company-sponsored conferences.
Because of the need to communicate via information technology, selection of virtual team members overemphasizes technical skills and underemphasizes interpersonal and teamwork skills.	Identifying virtual team members who have a healthy balance of technical and interpersonal skills.	• Use behavioral interviewing techniques and simulations as part of the selection process. • Use panels of current virtual team members to help recruit and select new team members and ensure the appropriate balance of technical and interpersonal skills. The panel approach has the additional benefit of building support and facilitating socialization of the newly selected virtual team member.
Assessment and development of virtual team members is very limited in the virtual team environment.	Establishing the appropriate quantitative and qualitative data for accurate assessment of virtual team members. Developing creative approaches for providing feedback, coaching, and support for virtual team members.	• Use of a comprehensive "balanced scorecard" approach provides valuable quantitative data on team performance. • Monitor group communication archives to assess subjective factors, including idea generation, leadership, and problem-solving skills. • Use team-member peer reviews to assess contributions to team effectiveness. • Use "richer" communication media, including video conferencing, for performance evaluation feedback. • Identify on-line training and development resources to address virtual team members' knowledge, skills, and abilities in need of further improvement.

> You gain the trust in people when they deliver what they promise, when all are contributing to the same idea and goal. I think that on a virtual team you start trusting each other when you start meeting those results and everybody has their role within the team and knows what their responsibility is and takes ownership to achieve results.
>
> (Canadian team member)

We concluded that trust can be built virtually and does not require face-to-face interaction. The key

issue is the type of trust developed. For example, in face-to-face teams, members trust their teammates after spending time with them, sharing meals, discussing personal matters, or socializing outside work. People trust others when important information they share stays confidential. Researchers call this type of trust benevolent or interpersonal trust.[22] In contrast, we found that trust in virtual teams grows through team member reliability, consistency, and responsiveness when dealing with teammates and customers, or what is known as ability-based or task-based trust.[23]

Lessons learned: One lesson learned is that building trust requires rapid responses to electronic communications from team members, reliable performance, and consistent follow-through. Unlike face-to-face teams, where trust develops based on social bonds formed by informal chats around the water cooler, impromptu meetings, or after-work gatherings, virtual team members establish trust based on predictable performance.[24] Accordingly, team leaders should coach virtual team members to avoid long lags in responding, unilateral priority shifts, and failure to follow up on commitments.[25] A team charter that explicitly identifies important types of team member behaviors (e.g., responding to all e-mails from team members within 24 hours) is a complementary strategy that leaders may use to develop trust among virtual team members. These actions will build strong team norms about types of behavior that foster trust.[26]

Unlike face-to-face teams, where trust develops based on social bonds formed by informal chats around the water cooler, impromptu meetings, or after-work gatherings, virtual team members establish trust based on predictable performance.

Upon first glance, the challenge of building trust may seem typical for any team or organization. However, building trust is a unique challenge for virtual teams because managers cannot rely on past methods of trust-building based on social interaction, face-to-face meetings, and direct observations of fellow team member commitment. Working virtually magnifies and exacerbates trust issues confronting almost all teams. The need for a proactive approach to identifying and facilitating trust based on speed, consistency, and responsiveness of virtual team members is the first important lesson learned from Sabre.

Challenge 2: Maximizing Process Gains and Minimizing Process Losses on Virtual Teams

Conventional wisdom: Many researchers and consultants believe that the group-process gains (positive synergy) produced in face-to-face teams are more difficult to obtain in virtual teams and that process losses (negative synergy) are more likely.[27] Cascio stated, "The major disadvantages of virtual teams are . . . [that] the synergies that often accompany face-to-face communication [are lost]."[28] In discussing telecommuting, Nancy Kurland and Dianne Bailey said, "Managers may find it difficult to create team synergy and to overcome the absence of informal, interactive learning."[29] Beverly Geber stated that in order to convince executives to incur the expense of getting virtual team members face-to-face, "It's best to use the synergy ploy. Remind executives that often a company's best ideas are born out of chance encounters in a hallway or around a water cooler. Letting virtual team members get together sometimes for extended water cooler discussions improves the chances for serendipity."[30] Steve Alexander quotes a manager as saying, "I think virtual teams are less productive in the sense that you're missing out on those corridor talks between the sales and the technical people that sometimes bring about very good results . . . it's not as perfect as having everyone sit in the same building."[31]

This conventional wisdom suggests that generating synergy (and avoiding process losses) is difficult in virtual teams because members rarely interact face-to-face. Thus, another challenge specific to virtual, but not face-to-face, teams is creating synergy without daily physical encounters. In response to this challenge, Sabre invested in teambuilding as part of its virtual team launch. Pre-launch classroom activities included developing team mission statements and core values to help members set objectives, clarify roles, build personal relationships, develop team norms, and establish group identity. Sabre also encourages virtual team members to assemble once or twice yearly. While pre-launch teambuilding and scheduled face-to-face meetings cannot fully compensate for the lack of daily informal interaction, these interventions do help team members establish a common set of goals, expectations, and operating principles.

To further instill shared purposes and goals, every team must complete a business plan outlining its annual goals and objectives. One team member commented, "Virtual teams need to understand much more so than co-located teams what goal they are working towards because you are working in such different areas and, in our case, in different countries. It plays a much stronger role if you know

what your ultimate target is going to be. Everyone is working toward the same thing." To help teams run effective virtual meetings, brainstorm solutions, resolve conflicts, and take action, Sabre relies on continuous virtual team training. Each team completes a series of CD-ROM training modules developed by the Hillsboro, Oregon consulting firm The Belgard Group. Nicknamed Tour de Teams by Sabre, the 15 training modules contain exercises and scenarios such as developing a team charter, managing a team meeting, resolving conflicts, and selecting new team members. One team member commented, "When we complete the team training modules, we have a conference call and go over all of the points. We take them very seriously. So when we have virtual meetings, we now have tools to help us stay on track and communicate effectively."

Sabre's experience also shows that working virtually can reduce team process losses associated with stereotyping, personality conflicts, power, politics, and cliques commonly experienced by face-to-face teams. Diversity research shows that visual cues such as race/ethnicity and gender can decrease team integration and performance in highly diverse teams.[32] Virtual team members may be unaffected by potentially divisive demographic differences when there is minimal face-to-face contact. And, while the research is still relatively new, some researchers have found that electronic collaboration generates more minority participation, which might increase overall integration and level of attachment of minority members.[33] Other studies show that electronic group decision support systems help virtual teams make higher quality decisions than face-to-face teams.[34]

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Lessons learned: A critical priority for virtual team leaders is helping their virtual teams maximize process gains and minimize process losses. Sabre's well-trained virtual teams overcome process losses. Sabre's training begins with team-building and continues with efforts to help virtual teams create charters and mission statements, clarify goals, and develop operating norms. Sabre sustains virtual team effectiveness with an ongoing virtual training program to build new skills in meetings management, problem solving, decision-making, and other team processes. Sabre's comprehensive training efforts allow virtual teams to create synergy by bridging barriers of time and space and collaborating effectively. Moreover, stereotyping, gossip, politics, and conflict are often minimized in virtual teams like Sabre's.

Challenge 3: Overcoming Feelings of Isolation and Detachment Associated With Virtual Teamwork

Conventional wisdom: Regarding isolation in virtual teams, Cascio stated, "The major disadvantages of virtual teams are the lack of physical interaction—with its associated verbal and nonverbal cues," and "Some level of social interaction with supervisors and coworkers is essential in almost all jobs. Without it, workers feel isolated and out of the loop."[35] Charles Handy has stated, "The loneliness of the long-distance executive is well documented. Few are going to be eager advocates of virtuality when it really means that work is what you do, not where you go."[36] Telecommuting researchers Kurland and Bailey stated, "Probably the most commonly expressed challenge of telecommuting is overcoming the isolation caused by the separation of the telecommuter from the social network of the traditional work space."[37] In a separate article, Kurland and Terry Egan said, "Employees' primary reluctance about telecommuting rests on concerns about isolation," and "Employees comment that they miss the informal interaction they garner by being in the presence of colleagues and friends."[38] Finally, Paula Caproni warned, "Many researchers and practitioners are concerned that high-quality relationships may be particularly difficult to achieve in teams in which team members are geographically dispersed."[39]

This conventional wisdom suggests that virtual team members will be less productive and satisfied than people working face-to-face due to feelings of isolation and detachment. Thus, a specific challenge for virtual team leaders that does not confront face-to-face team leaders is overcoming member feelings of isolation. Researchers have long held that people are motivated and satisfied at work, in part, as a result of interactions with coworkers.[40] Colleagues share stories and pictures, have lunch or take breaks together, and celebrate promotions or the birth of children. In face-to-face teams, these activities occur naturally and frequently and build esprit de corps. Team leaders use team-building activities like ropes courses, bowling nights, or barbeques to solidify team co-

hesion and spirit. In virtual teams, most of these possibilities are lost.

Indeed, some virtual team members have reported feelings of alienation.[41] Consider these comments from Sabre team members:

> We get left off a lot of things because there are meetings we can't go to for cost reasons. We miss out on those opportunities to get together and bond as a group, and that is tough sometimes. And you do feel like stepchildren sometimes.
>
> (Dallas/Fort Worth team member)

> I find that by working at home, my work is my home and I miss that interaction. I don't have as many people to network with on issues or successes. Sometimes I can't reach anyone by phone and it's frustrating. When you work in an office, you just look over their cube and there they are.
>
> (Account executive)

> As much as we want to go and run the world from our bedrooms, in our slippers, we are humans, we have to be touched, seen, and heard.
>
> (Account executive)

Sabre counteracts feelings of virtual team member isolation first by recognizing individual needs for social interaction or lack of it. While individuals with strong social needs may find virtual teamwork difficult, others desire independent, virtual work. Some Sabre employees welcome minimal social interaction and reductions in gossip, politics, and minor disruptions that often accompany face-to-face work. Others tout the advantages of working from home including reduced travel time, proximity to young children, and flexibility. In selection interviews, Sabre questions candidates on their suitability for virtual teamwork. Sabre uses realistic job previews[42] to counter team-member isolation, which allows candidates to select out of isolating positions. Some virtual team members interact with customers, partially satisfying social needs. Sabre also gives employees options for working from home or an office where they have opportunities to interact with other Sabre employees who may, or may not, be virtual teammates.

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Sabre's team-building and training sessions help overcome team-member isolation. Most consultants and researchers believe initial face-to-face meetings are critical for all team members to build personal relationships with teammates.[43] Annual company meetings and occasional special events provide additional opportunities for face-to-face meetings. General managers frequently communicate with individual team members to reduce feelings of isolation. Since regular face-to-face interaction is not feasible, managers communicate with routine phone calls or e-mails to keep isolated team members in the loop. One Canadian manager encourages the most isolated team members to build networks of contacts within the company and to stay in close communication with headquarters. Other general managers have established mentor-protégé relationships giving isolated team members a sense of inclusion. As one manager noted, "I work constantly to counteract the out-of-sight, out-of-mind problems with virtual team members. My goal is to keep everyone fully involved."

Lessons learned: General managers admitted that it took some time to recognize how to deal with virtual team member isolation. Initially, these managers interpreted minimal communication as a signal that all was well. Over time, however, managers recognized that some virtual team members needed more frequent and some almost daily communication. Sabre's experience with isolated virtual team members is that feelings of detachment and alienation, while possible, can be overcome with careful attention to social needs. Psychological testing identifies members with strong social needs, realistic job previews shape expectations of prospective employees, increased client contact and teambuilding meet social needs, and virtual team leaders proactively reach out to far-flung team members. While isolation can hamper team functioning, Sabre uses a variety of techniques to minimize potential problems.

Challenge 4: Balancing Technical and Interpersonal Skills Among Virtual Team Members

Conventional wisdom: Since face-to-face interaction is minimal, some managers assume that interpersonal skills for virtual team members are less important than for face-to-face teams. For example, Beverly Geber suggests that managers should "select people who are comfortable sharing information and working with computers."[44] Anthony Townsend and colleagues note, "What is different about the virtual team is the amount of technical training that is required to empower the

team member to function in the virtual environment. Training to maintain technical proficiency will be an important component of any virtual team member's continuing education program."[45] A manager in Martha Haywood's book *Managing Virtual Teams: Practical Techniques for High-Technology Managers* stated, "I don't care about this guy's feelings. I want to know when he's going to call me back."[46] Such sentiments illustrate the lack of emphasis on interpersonal relations.

"I don't care about this guy's feelings. I want to know when he's going to call me back."

Conventional wisdom assumes that virtual team members should be selected almost exclusively for their technical skills. After climbing a steep learning curve, Sabre's experience has been quite different. A divisional vice president captured the importance of striking a balance between technical and interpersonal skills by stating, "In our hiring in the past, we were guided by the level of technical skill, but now we are more sensitive to the level of interpersonal skills an individual brings to the equation, because this is a very key element in how these teams interact. We are more sensitive to a well-rounded person. If the work ethic is there and their ability to work with others is there, we can train them to be very effective at their jobs."

We asked team leaders and members to discuss ideal virtual team member skills. An overwhelming majority mentioned ability to communicate as most important. A close second was desire to support a team and teamwork in general. Team members also listed flexibility and adaptability in playing many different team roles. Other members discussed the importance of giving and receiving feedback. Others mentioned a sense of humor. One Canadian team member commented, "Technical job skills are important, but I tend to look at their ability to be part of a team, how they adjust to working with others, and their people skills." Managers often mentioned working independently, being a self-starter, thinking outside of the box, and taking initiative. Task-relevant skills were low on their lists. One manager commented, "It is not what the job is about. We can teach them the job. It is the right personality and the ability to get along with other team members. I don't care if they know twenty different kinds of software or not. I am more interested in how that person is going to fit into that team."

A significant challenge for virtual team leaders is recruiting, selecting, and retaining team members who have a good balance of technical and interpersonal skills. Clearly, virtual team members must have financial, marketing, or technology skills to carry out specific tasks. Moreover, all employees must be well versed in using the communications technology necessary to coordinate the efforts of a cross-functional virtual team. However, Sabre's experience suggests that virtual team members must also possess excellent interpersonal skills. In response to challenges of recruiting and selecting virtual team members with the right balance of technical and interpersonal skills, managers at Sabre have adjusted their selection procedures. Many use behavioral interviewing and scenario-based questions to assess communication and teamwork skills. For example, a Canadian manager presents this situation: "I will say, 'You haven't seen me for a month. You have been flying around the Northwest Territories. You are out of touch. How are you going to stay connected to us?'"

A second approach to selecting virtual team members is panel interviews. Using teleconferences, prospective future virtual teammates interview job candidates, and virtual team members assess interpersonal skills and team fit. A secondary benefit is the extra effort teammates make to welcome and socialize candidates they have selected. In future years, managers may develop a variety of simulations to aid virtual team candidate assessment.

Lessons learned: At Sabre, clearly the selection of virtual team members involves assessments of both task and interpersonal skills. Contrary to conventional wisdom, just because team members seldom interact face-to-face does not mean interpersonal skills will be less important than task-relevant skills. Indeed, interpersonal skills may be more important as team members attempt to communicate effectively without relying on traditional non-verbal cues.

Challenge 5: Assessment and Recognition of Virtual Team Performance

Conventional wisdom: Again, Charles Handy put it best when he asked, "How do you manage people whom you do not see?" and "We will . . . have to get accustomed to working with and managing those whom we do not see. . . . That is harder than it sounds."[47] Kurland and Bailey stated, "A major challenge for managers is their inability to physically observe their employees' performance. They question, 'How do you measure productivity, build trust, and manage people who are physically out of sight?' If a manager can't see her subordinates in action, then she can't note where the employee is struggling and where he is strong . . . monitoring and measuring

[employee] performance remain problematic and a source of concern."[48] Cascio said, "By far the biggest challenge is performance management."[49]

How do you measure productivity, build trust, and manage people who are physically out of sight?

Conventional wisdom suggests that it is extraordinarily difficult for virtual team leaders to assess member performance and ensure fairness for members they rarely see. At Sabre, however, virtual team evaluations and rewards are a priority. Accordingly, Sabre developed a comprehensive, multi-tiered assessment process. First, Sabre developed a balanced scorecard[50] for each team. At the organizational level, balanced scorecards typically elevate non-financial measures such as employee or customer satisfaction to the level of importance typically held by financial measures such as stock price or return on equity. At the team level, Sabre's balanced scorecard consists of:

- Growth (share of the market);
- Profitability (costs versus revenue generated for each travel booking);
- Process improvement (cycle time, or the time required to order and install customer hardware); and
- Customer satisfaction (assessed with survey data collected from actual customers).

Sabre makes extraordinary efforts to monitor each team's customer satisfaction including setting annual customer service goals. Managers collect survey data quarterly from each team's external customers. Sabre posts team customer service scores on its intranet. Members know exactly where their team stands relative to other teams. Closely monitoring client satisfaction helps Sabre create intense customer service focus. Moreover, virtual team leaders have an external, albeit subjective, basis for evaluating and rewarding virtual teams. One developmental need for virtual teaming at Sabre is allowing more team-member input in setting customer service goals. Presently, management still controls this decision-making aspect.

Another important element of the balanced scorecard is process improvement (i.e., cycle time) or the extent to which team members reduce the time from the placement of an order to the installation of, and training on, a reservation system. Process improvement is an objective measure of team learning at Sabre. Thus, Sabre's teams are responsible for both day-to-day work and continuous improvement of their processes and cycle time.

Managers also assess individual team member performance. Sabre tracks objective individual performance measures such as number of installations, development of new business, number of individuals trained to use a system, accuracy of financial contracts, and customer retention. Because these measures are objective and quantifiable, evaluations are much less susceptible to stereotyping, favoritism, or other contaminating perceptual biases. Ironically, virtual team member evaluations may be more accurate than evaluations of face-to-face team members.[51] Biases induced by demographic differences such as race, gender, and age can lower both individual performance ratings[52] and team ratings.[53] Contamination of evaluations by perceptual biases is less likely when team leaders have extensive objective data.

In addition to objective measures, general managers track subtle virtual team member behavior such as taking leadership roles during virtual team meetings, suggesting internal quality improvement strategies, coaching new team members off-line, and other intangible actions that enhance team effectiveness. General managers monitor electronic discussions, team e-mails, and other team activities. Managers often have more accurate records of individual contributions to virtual teams than they do from informal observations of face-to-face teams. They also supplement their own evaluations with peer evaluations. Using modified 360-degree performance evaluations, general managers collect peer and even customer input electronically.

General managers also provide timely feedback and resolve performance problems quickly. Some managers emphasize choosing appropriate communications media to deliver constructive feedback. They recommend using two-way communication channels such as teleconferences so feedback delivery can be followed immediately by interactive problem-solving or counseling sessions. Communicating constructive feedback from a distance forces managers to do more research, collect and analyze all of the relevant facts, and carefully craft messages. Knowing that their ability to resolve misunderstandings is constrained, managers emphasize careful preparation. Moreover, managers identify ahead of time resources that teams can tap in responding to problems. Other managers hold regularly scheduled monthly virtual meetings with each team member. One manager said, "It has to be a two-way street. They have to feel comfortable being honest and straightforward with me even with the bad stuff. I find that communicating electronically overcomes some of the interpersonal

issues that might have made me hold back in the past."

Communicating constructive feedback from a distance forces managers to do more research, collect and analyze all of the relevant facts, and carefully craft messages. Knowing that their ability to resolve misunderstandings is constrained, managers emphasize careful preparation.

Lessons learned: Sabre has built a comprehensive performance review system. The balanced scorecard provides an excellent approach for measuring team effectiveness. Sabre assesses individual contributions to team effectiveness by monitoring electronic communications and systematically collecting data from peers and direct reports using 360-degree assessments. Performance data provide a solid foundation for recognizing and rewarding team and individual performance, developing new training programs to assist virtual teams, and identifying individual team members who can benefit from off-line mentoring and coaching. Managers have developed effective techniques to deliver feedback. As one manager stated, "Most everyone's work is measured in the results they produce and through statistics, and it can all be pulled out systematically for each individual." In the virtual workplace, team members can be judged more on what they actually do rather than on what they appear to be doing.

Continuous Improvement at Sabre

While we have focused on positive aspects of Sabre's virtual teams, some lessons were learned only after trial and error. For example, managers said that recognizing the sense of isolation among virtual team members took time. Similarly, some general managers reported initial reluctance to provide strong negative feedback virtually, preferring face-to-face meetings.

Our research identified a variety of other problems associated with managing and supporting virtual teams at Sabre. General managers still struggle with finding effective strategies for empowering virtual teams. Human Resources continues to fine-tune the content and delivery of virtual team training. Lastly, Sabre still struggles with the appropriate mix of rewards for individual contributions and team performance. While we have emphasized Sabre's positive lessons learned, these lessons were learned after false starts, stumbles, and reassessments. Moreover, new problems require continuous fine-tuning. Working with similar organizations, we found that this ongoing process of adaptation and adjustment is crucial to maximize virtual team effectiveness. Permanent, inflexible programs or policies such as a rigid structure or one-shot training do not provide adequate support for collaboration such as virtual teaming, in which members themselves are expected to grapple with uncertainty, innovate, and remain flexible.

One key to promoting ongoing adaptation at Sabre is communities of practice[54] (or what Sabre calls Centers for Excellence) where virtual team members in the North American division and beyond (including Sabre employees in Latin America, Europe, and Asia) share best practices. The Centers for Excellence, started in 2001 in the areas of sales, technology, training, and operations, are designed to provide innovative process solutions from Sabre's global operations. An excellent example is Sabre's 24/7 Learning Café. Developed by the technology Center for Excellence, the Café is an on-line training scheduler that allows Sabre employees worldwide to schedule and access virtual training modules such as "Coaching and Developing Others" and "New Product Training." More recently, the operations Center for Excellence developed a standardized product-demonstration tool that allows account executives, regardless of their experience level or location, to provide consistent demonstrations to customers of state-of-the-art reservation systems. The Centers for Excellence allow learning to occur within and across Sabre's virtual teams despite the conventional wisdom that process improvements occur in serendipitous face-to-face encounters in traditional work settings. The ability to establish and re-establish equilibrium between changing needs and requirements is a critical competency for organizations utilizing virtual teams.

Have Virtual Teams Improved Sabre's Bottom-Line Results?

Most of the interviewees at Sabre agreed that the transition from traditional, functional, face-to-face teams to cross-functional, virtual teams improved customer service. Regarding objective measures, after Sabre introduced cross-functional virtual teams, customer satisfaction ratings improved each year from a low of 68 percent in 1997 to 85 percent in 2000. In addition, North American market share increased from 43 percent in 1997 to 50 percent in 2000. Also during this period, Sabre's number of travel bookings increased significantly each year. While we cannot attribute all of these improvements solely to Sabre's

implementation of virtual teams, clearly customers have responded positively to the changes at Sabre, which include using virtual teams.

However, benefits such as improved customer service are only half of the equation needed to assess virtual teaming effectiveness. In determining any return on investment, managers must also assess costs of implementing organizational designs. A central issue for virtual teams is the difficulty of assigning monetary values to costs that are not easily quantified.[55] These may include opportunity costs associated with internal resources devoted to the team. Several researchers have suggested calculating costs of team-member time and support-person time based on average salary and time spent with virtual teams.[56] Data regarding costs and benefits of virtual teaming can then be used to compare different virtual efforts using the same metric. The goal of such an analysis is determining if a virtual team's charter is consistent with a company's bottom-line objectives. Given the substantial resources necessary to support virtual teams, these are important questions to address in designing virtual teams and setting them up for success.

A central issue for virtual teams is the difficulty of assigning monetary values to costs that are not easily quantified.

Virtual Teams: The Way Business Is Evolving

Using Sabre's experiences, we have highlighted five critical challenges that organizations face when implementing and using virtual teams. As organizations expand globally, the need to tap the talents, experience, and special skills of employees working in distant locations will increase. Most corporate executives predict that technology-mediated communication and virtual teaming will increasingly replace physical travel. However, creating and supporting virtual teams is a very difficult assignment. Identifying challenges ahead and learning from the Sabre experience represent a good place to start. In the words of one Sabre executive, "I think that virtual teams is inevitably the way business is evolving. We are working hard to get ahead of the curve."

Appendix

Summary of Methodology Used to Study Virtual Teams at Sabre

We selected Sabre's North American Sales and Service, Operations, and Financial Services Division based on its extensive use of virtual teams. Our work with other organizations using virtual teams suggests that Sabre's use is representative and comparable to that of the typical organization. From Sabre's 65 cross-functional virtual teams, members of a representative subset of 18 teams (i.e., varying by division, region, size of customer, and country) were selected to participate in face-to-face interviews. From those 18 teams, a representative subset of 58 team members (34 percent of the total of 169 members) was interviewed based on variance in job function, demographics, and organizational tenure. We also interviewed the 11 team leaders of these 18 teams (some team leaders led more than one team), six divisional vice presidents who supervised the team leaders, and the executive vice president of the North American Division (for a total of 76 interviews). No team members or leaders declined to be interviewed.

Separate interview protocols were developed for each of the three organizational levels, and all interviewees within each level were asked identical questions. Each of the researchers (i.e., the first four coauthors of this paper) interviewed a roughly equal number of team members and leaders. The researchers had no prior relationship with Sabre or any virtual team members before the two entities entered into a research partnership. The researchers traveled from New York to California and from Quebec to British Columbia to meet virtual team members and leaders. Each interview lasted for one hour. The interviews were tape recorded and in some cases videotape recorded. Full transcriptions of each interview were prepared. All of the researchers participated in the divisional and executive vice president interviews via conference call. The interviewees were told that Sabre and the researchers had formed a partnership to examine the key drivers of, and significant obstacles to, virtual team effectiveness. All respondents were assured that their interview and survey responses were the property of the researchers and that only summary data would be returned to Sabre. Thus, their responses were confidential. Total time to conduct and analyze the interviews was six months. Sample virtual team member interview questions included:

- Describe the main differences between the teams you have worked on before in this company and your current virtual team.
- Describe the special challenges you have encountered working virtually.
- If you were involved in the hiring of a new member of your virtual team, what characteristics would you look for?
- What specific behaviors has your team leader (general manager) demonstrated that particularly help the functioning of your virtual team?

Regarding data analysis, all researchers read each interview transcript and created their own categories and themes. Each researcher then collected representative comments under each category. The researchers then met face-to-face to compare the categories. Discrepancies were resolved, and the researchers agreed upon a consensus set of categories. Representative comments were then collated by category. This process allowed us to retain only those themes that were represented by a large number of respondent comments.

Endnotes

[1] For more information about global work team implementation, see Kirkman, B. L., Gibson, C. B., & Shapiro, D. L. 2001. "Exporting" teams: Enhancing the implementation and effectiveness of work teams in global affiliates. *Organizational Dynamics*, 30(1): 12–29.

[2] Lipnack, J., & Stamps, J. 2000. *Virtual teams: People working*

across boundaries with technology. 2nd ed. New York: Wiley. See also, Duarte, D. L., & Snyder, N. T. 2001. *Mastering virtual teams*. 2nd ed. San Francisco: Jossey-Bass.

[3] Maznevski, M. L., & Chudoba, K. M. 2000. Bridging space over time: Global virtual-team dynamics and effectiveness. *Organization Science*, 11(5): 473–492; and Montoya-Weiss, M. M., Massey, A. P., & Song, M. 2001. Getting it together: Temporal coordination and conflict management in global virtual teams. *Academy of Management Journal*, 44(6): 1251–1262, for issues involving virtual teams composed of members from different countries.

[4] Chase, N. 1999. Learning to lead a virtual team. *Quality*, 38(9): 76.; and Geber, B. 1995. Virtual teams. *Training*, 32(4): 36–40; and Bell, B. S., & Kozlowski, S. W. J. 2002. A typology of virtual teams: Implications for effective leadership. *Group & Organization Management*, 27(1): 14-49.

[5] Gibson, C. B., & Cohen, S. G., forthcoming. *Virtual teams that work: Creating the conditions for virtual team effectiveness*. San Francisco: Jossey-Bass.

[6] See Cooper, R. C. 1997. Telecommuting: The good, the bad, and the particulars. *Supervision*, 57(2): 10–12; McCune, J. C. 1998. Telecommuting revisited. *Management Review*, 87(2): 10–16; and Pearlson, K. E., & Saunders, C. S. 2001. There's no place like home: Managing telecommuting paradoxes. *The Academy of Management Executive*, 15(2): 117–128, for more information on telecommuting.

[7] Cascio, W. F. 2000. Managing a virtual workplace. *The Academy of Management Executive*, 14(3): 81–90; Kurland, N. B., & Bailey, D. E. 1999. Telework: The advantages and challenges of working here, there, anywhere, and anytime. *Organizational Dynamics*, 28(2): 53–67; and Kurland, N. B., & Egan, T. D. 1999. Telecommuting: Justice and control in the virtual organization. *Organization Science*, 10(4): 500–513.

[8] Pearlson & Saunders, op. cit.

[9] Elkins, T. 2000. Virtual teams: Connect and collaborate. *IIE Solutions*, 32(4): 26–32.

[10] Townsend, A. M., DeMarie, S. M., & Hendrickson, A. R. 1998. Virtual teams: Technology and the workplace of the future. *The Academy of Management Executive*, 12(3): 17–29.

[11] Cascio, op. cit.

[12] Maznevski & Chudoba, op. cit.

[13] Boudreau, M. C., Loch, K. D., Robey, D., & Straud, D. 1998. Going global: Using information technology to advance the competitiveness of the virtual transnational organization. *The Academy of Management Executive*, 12(4): 120–128; and Maznevski & Chudoba, op. cit.

[14] Bunderson, J. S., & Sutcliffe, K. M., in press. Comparing alternative conceptualizations of functional diversity in management teams: Process and performance effects. *Academy of Management Journal*; Dougherty, D. 1992. Interpretive barriers to successful product innovation in large firms. *Organization Science*, 3(2): 179–202; Lovelace, K., Shapiro, D. L., & Weingart, L. R. 2001. Maximizing cross-functional new product teams' innovativeness and constraint adherence: A conflict communication perspective. *Academy of Management Journal*, 44(4): 779–793; Ancona, D. G., & Caldwell, D. F. 1992. Demography and design: Predictors of new product team performance. *Organization Science*, 3(3): 321–341; and Parker, G. M. 1994. *Cross-functional teams: Working with allies, enemies, and other strangers*. San Francisco: Jossey-Bass.

[15] Maznevski & Chudoba, op. cit.

[16] Gibson & Cohen, op. cit.

[17] See, for example, Coutu, D. 1998. Trust in virtual teams. *Harvard Business Review*, 76(3): 20–21; Jarvenpaa, S., & Leidner, D. 1999. Communication and trust in global virtual teams. *Organization Science*, 10(6): 791–815; Jarvenpaa, S. L., Knoll, K., & Leidner, D. E. 1998. Is anybody out there? Antecedents of trust in global virtual teams. *Journal of Management Information Systems*, 14(4): 29–64; Platt, L. 1999. Virtual teaming: Where is everyone? *Journal of Quality & Participation*, September/October: 41–43.; Cascio, op. cit.; and Townsend, op. cit.

[18] O'Hara-Devereaux, M., & Johansen, B. 1994. *Global work: Bridging distance, culture, and time*. San Francisco: Jossey-Bass; Hart, P., & Saunders, C. 1997. Power and trust: Critical factors in the adoption and use of electronic data interface. *Organization Science*, 8(1): 23–42; and Sheppard, B. H., & Sherman, D. M. 1998. The grammars of trust: A model and general implications. *Academy of Management Review*, 23(3): 422–437.

[19] Handy, C. 1995. Trust and the virtual organization. *Harvard Business Review*, 73(9): 40–48.

[20] Cascio, op. cit., 83.

[21] Jarvenpaa, et al., op. cit., 30.

[22] For a more complete discussion of trust, see Mayer, R. C., Davis, J. H., & Schoorman, F. D. 1995. An integrative model of organizational trust. *Academy of Management Review*, 20(3): 709–734. For a discussion about the impact of trust on cooperation and teamwork, see Jones, G. R., & George, J. M. 1998. The experience and evolution of trust: Implications for cooperation and teamwork. *Academy of Management Review*, 23(3): 531–546.

[23] Mayer, et al., op. cit.

[24] Geber, op. cit., 39.

[25] Gibson, C. B., & Manuel, J., forthcoming. Building trust: Effective multicultural communication processes in virtual teams. In C. B. Gibson & S. G. Cohen (Eds.), *Virtual teams that work: Creating the conditions for virtual team effectiveness*. San Francisco: Jossey-Bass.

[26] For more on creating team charters and other team-development tools and interventions, see Fisher, K., Rayner, S., & Belgard, W. 1995. *Tips for teams*. New York: McGraw-Hill.

[27] The notion of process gains and losses is explained in more detail in J. R. Hackman's work. See Hackman, J. R. 1987. The design of effective work teams. In J. W. Lorsch (Ed.), *Handbook of organizational behavior*. Englewood Cliffs, NJ: Prentice-Hall: 315–345; and Hackman, J. R. (Ed.). 1990. *Groups that work (and those that don't)*. San Francisco: Jossey-Bass.

[28] Cascio, op. cit., 84.

[29] Kurland & Bailey, op. cit., 59.

[30] Geber, op. cit., 39.

[31] Alexander, S. 2000. Virtual teams going global. *Infoworld*, 22(46): 55–56.

[32] Ancona & Caldwell, op. cit. See also, Lichtenstein, R., Alexander, J. A., Jinnett, K., & Ullman, E. 1997. Embedded intergroup relations in interdisciplinary teams: Effects on perceptions of level of team integration. *Journal of Applied Behavioral Science*, 33(4): 413–434; and Timmerman, T. A. 2000. Racial diversity, age diversity, interdependence, and team performance. *Small Group Research*, 31(5): 592–606.

[33] McLeod, P., Baron, R., Marti, M., & Yoon, K. 1997. The eyes have it: Minority influence in face-to-face and computer-mediated group discussion. *Journal of Applied Psychology*, 82(5): 706–718.

[34] Gallupe, R. B., Bastianutti, L., & Cooper, W. H. 1991. Unblocking brainstorms. *Journal of Applied Psychology*, 76(1): 137–142. See also, Lam, S. S. K., & Shaubroeck, J. 2000. Improving group decisions by better pooling information: A comparative advantage of group decision support systems. *Journal of Applied Psychology*, 85(4): 565–573.

[35] Cascio, op. cit., 82, 84.

[36] Handy, op. cit., 4.

[37] Kurland & Bailey, op. cit., 61.

[38] Kurland & Egan, op. cit., 502.

[39] See Caproni, P. J. 2001. *The practical coach: Management skills for everyday life*. Upper Saddle River, NJ: Prentice-Hall (see specifically Chapter 8, entitled "Diverse teams and virtual teams: Managing differences and distances": 247–287).

[40] Emery, F. E. 1959. *Characteristics of sociotechnical systems*. London: Tavistock.

[41] Geber, op. cit., 36; and Cascio, op. cit., 82.

[42] Philips, J. M. 1998. Effects of realistic job previews on multiple organizational outcomes: A meta-analysis. *Academy of Management Journal*, 41(6): 673–690.

[43] Joinson, C. 2002. Managing virtual teams. *HRMagazine*, 47(6): 69–73.

[44] Geber, op. cit., 40.

[45] Townsend, et al., op. cit., 26.

[46] Haywood, M. 1998. *Managing virtual teams: Practical techniques for high-technology managers.* Boston: Artech House.

[47] Handy, op. cit., 3, 4.

[48] Kurland & Bailey, op. cit., 59.

[49] Cascio, op. cit., 87.

[50] For more information on the balanced scorecard, see: Kaplan, R. S., & Norton, D. P. 1996. Using the balanced scorecard as a strategic management system. *Harvard Business Review*, 74(1): 75–85.

[51] Alexander, op. cit.

[52] See, for example, Kraiger, K., & Ford, J. K. 1985. A meta-analysis of rater race effects in performance ratings. *Journal of Applied Psychology*, 70(1): 56–65. See also, Pulakos, E. D., Oppler, S. H., White, L. A., & Borman, W. C. 1989. Examination of race and sex effects on performance ratings. *Journal of Applied Psychology*, 74(5): 770–780.

[53] Baugh, S. G., Graen, G. B. 1997. Effects of team gender and racial composition on perceptions of team performance in cross-functional teams. *Group & Organization Management*, 22(3): 366–383. See also, Kirkman, B. L., Tesluk, P. E., & Rosen, B., in press. The impact of demographic heterogeneity and team leader–team member demographic fit on team empowerment and effectiveness. *Group & Organization Management.*

[54] Brown, J. S., & Duguid, P. 1991. Organizational learning and communities of practice: Toward a unified view of working, learning, and innovation. *Organization Science*, 2(1): 40–57.

[55] See Levenson, A., & Cohen, S. G., forthcoming. Meeting the performance challenge: Calculating ROI for virtual teams. In C. B. Gibson & S. G. Cohen (Eds.), *Virtual teams that work: Creating the conditions for virtual team effectiveness.* San Francisco: Jossey-Bass; and Levenson, A., forthcoming. ROI and strategy for teams and collaborative work systems. In M. Beyerlein, C. McGee, G. Klein, L. Broedling, & J. Nemiro (Eds.), *The collaborative work systems field book.* San Francisco: Jossey-Bass/Pfeiffer, for more information about assessing the costs and benefits of virtual teaming.

[56] Levenson and Cohen, op. cit.

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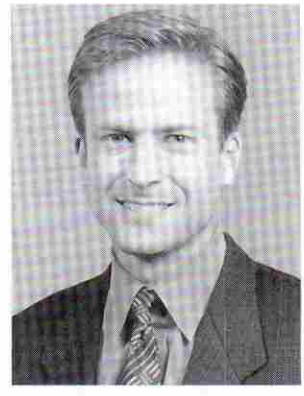

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