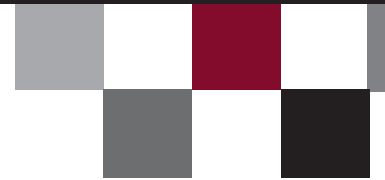


Technology Management

HOWE SCHOOL ALLIANCE FOR TECHNOLOGY MANAGEMENT

Do Debates Get More Heated In Cyberspace? Team Conflict In The Virtual Environment



*Pat Holahan,
Ann Mooney,
Roger C. Mayer,
and Laura Finnerty Paul*

Advances in information and communication technologies have provided teams the opportunity to communicate virtually, without dependence on face-to-face communication. This has made it possible for organizations to assemble teams from around the globe that wouldn't otherwise be formed. As a result, organizations are in a better position to compose teams that leverage and combine diverse knowledge, skills, and resources to innovate and improve performance. Technology has also provided more flexibility for co-located teams to communicate virtually. Because of these attributes, most organizational teams now have some

element of virtual communication in their team collaboration processes.

While virtual communication has its benefits for teams, it also presents formidable challenges to the team's functioning. One of these challenges, researchers have found, is that team conflict often is exacerbated when working in a virtual environment. Understanding conflict in virtual teams is important because conflict has been shown to have direct effects on team performance and satisfaction. If managed right, conflict can be kept constructive and may improve team outcomes. If left unchecked, conflict

can spiral into more destructive personal conflict that distracts team members from the tasks at hand and jeopardizes team performance.

Although researchers have studied conflict for a long time now, research on conflict in virtual teams is scant. Our research examines conflict in virtual teams and focuses on two questions that have important practice implications: How does virtuality influence

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DIRECTOR'S NOTE

Part of the fees that HSATM receives from Alliance Partners goes to provide seed research grants to Howe School faculty. Over \$250,000 has been awarded to faculty since 1998, which has been multiplied many-fold by follow-up grants awarded by other organizations to support expansion and testing of the initial research. This issue reports on two research projects that received HSATM funding.

The research by Holahan, Mooney, Mayer and Paul focuses on how teams can deal with the special challenges of conflict that can arise when working in a virtual environment. The research by Mooney, Mahoney and Wixom is concerned with the important factors in obtaining, granting, and effectively managing top management support of technology initiatives. Both articles provide practical suggestions for dealing with these important issues.

We're also pleased to include in this issue an article by Peter Schutz, former CEO of Porsche A.G., the automobile company. His presentation at the HSATM 2007 Conference on achieving extraordinary results with ordinary people was so well received that we asked him to distill his message for our readers.

Larry Gastwirt

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the development of team conflict? What strategies can help teams better manage conflict in the virtual environment? Our research is in an early stage and will be extended over the next year. This article reports our initial insights regarding our research questions as well as offers preliminary advice for ways in which managers can help virtual teams manage conflict effectively.

Constructive and Destructive Conflict in Teams

Conflict can have paradoxical effects on team decision-making and outcomes. Conflict can improve decision quality of teams, as well as their understanding of and commitment to the team's decisions. Unfortunately, conflict can degrade team decision-making and performance when it distracts team members from the essential issues of the team project. This paradox exists because of the nature of the conflict the team experiences. Specifically, conflict is multi-dimensional, and exists in both constructive and destructive forms.

Constructive conflict occurs when team members debate differing perspectives about the tasks at hand. Such exchanges improve decision-making because they help team members better understand issues surrounding the decision context and synthesize multiple perspectives into decisions that are superior to any individual team member's perspectives. Destructive conflict occurs when team members engage in

destructive conflict often occur together. Researchers have consistently reported that teams who experience high levels of constructive conflict also tend to report high levels of destructive conflict. Specifically, researchers have found that constructive conflict tends to trigger relationship conflict. What starts off as rational, productive exchanges of diverse ideas has a tendency to spark more relationship-oriented differences.

The tendency for constructive conflict to trigger destructive conflict appears to have to do with team members' attempts to interpret other team members' intentions and motivations during decision-making. When the perspectives offered by other team members are different from their own, team members are likely to rationalize those diverse perspectives by making attributions about the individuals who offered the perspectives. Researchers have found that when team members' diverse viewpoints are more subjective or difficult to justify, team members may have greater reason to misinterpret those viewpoints and attribute them to being motivated by more sinister intentions, such as political game-playing.

How to Keep Conflict Constructive

To avoid the misattributions that underpin the tendency for constructive conflict to trigger destructive conflict, researchers have explained that team members must develop strong trust in one another (Simons and Peterson, 2000). When one person trusts

resources, work collaboratively on projects and tasks, and make decisions together. On the other hand, teams with little behavioral integration work more independently. They exchange little information and resources, and do not consult each other on tasks and decisions. In short, a team that exhibits behavioral integration has a high degree of teamness.

Researchers have suggested that behavioral integration helps teams keep conflict task-oriented because the mutual interaction associated with behavioral integration provides opportunity for team members to share and explain the rationale for their perspectives. As a result, other team members are more likely to understand each other's perspectives and less likely to make faulty attributions and social judgments. Research by Mooney, Holahan and Amason (2007) found that when teams display norms of behavioral integration, they are more likely to experience constructive conflict and avoid triggering destructive relationship conflict.

Media Richness and Virtuality Defined

Two issues are important to understanding how a virtual environment affects how a team experiences conflict: media richness and virtuality. Below we define what these terms mean and discuss how they affect team conflict.

According to media richness theory (Daft & Lengel, 1986; 1984), "richness" is the key characteristic of a communication medium that is important for effectiveness. Richness is defined as the ability of information to change understanding in a timely manner, or the clarity with which information can be communicated through a specific channel in a way that reduces information ambiguity in a timely manner. Lower levels of richness require more time for comprehension of the information. Several researchers have linked various attributes of virtual communication technologies to differing degrees of richness. Virtual communication technologies such as video conferencing are relatively high in media richness because they allow information to be communicated in real-time, using both verbal and non-verbal means. Virtual communication technologies such as e-mail are seen as relatively low in

Constructive conflict occurs when team members debate differing perspectives about the tasks at hand...

Destructive conflict occurs when team members engage in debates that are emotional and personal in nature...

debates that are emotional and personal in nature, such as power struggles and personal incompatibilities. These debates create tension and animosity among team members, distracting teams from the tasks to be accomplished and inhibiting team decision-making and performance.

The prescription for resolving this paradox seems simple – teams should stimulate constructive conflict but avoid destructive conflict. The challenge is that constructive and destruc-

another, they may be less prone to attribute self-serving motives or hidden agendas to another's conflict behavior. Perceiving that they are trusted, a person is also more likely to reciprocate trust.

The second factor found to mitigate the relationship between constructive and destructive conflict is behavioral integration (Hambrick, 1994). A team with strong behavioral integration has strong unity of effort. The members share information and

media richness, as they rely only on written communication and are less synchronous (i.e., real-time). In other words, not all virtual communication technologies are created equal – some are “richer” than others.

Virtuality has been defined in several different ways. Our work uses Kirkman and Mathieu’s (2005) definition of virtuality, which includes:

- the extent to which team members use virtual communication technologies to coordinate and execute team processes
- the amount of informational value or “richness” provided by such technologies
- the synchronicity of team member interactions

Thus, team virtuality is a continuum that increases as teams increase the frequency with which they use asynchronous communication technologies which provide only limited informational value, i.e. are low in media richness.

Like Kirkman and Mathieu, we assume that when team members are co-located, they are less likely to communicate via virtual communication technologies, and that geographic dispersion is more likely to be correlated with the adoption of virtual means

.... the social ties in virtual teams are different from those observed in teams that interact face to face..... technology-mediated communication carries less social information than face-to-face communication, which inhibits the development of social ties and shared meaning.

of communication. But geographic dispersion is not a prerequisite for virtuality. In other words, being co-located does not preclude team members from interacting via virtual communication technologies or from being highly virtual.

The Influence of Virtuality on Team Conflict

Researchers have noted that the social ties in virtual teams are different from those observed in teams that interact face to face. In virtual teams it has been observed that conformity is lower, interpersonal bonds and cohesiveness are lower, members are less satisfied with their interaction and like each other less compared to members of face-to-face teams. Researchers attribute these outcomes to the diminished effects of social influence and social identity processes in virtual teams. These researchers argue that technology-mediated communication carries less social information than

face-to-face communication, which inhibits the development of social ties and shared meaning.

If virtuality (the use of asynchronous virtual communication technologies that provide only limited informational value) constrains the social context of communication, then it follows that interpersonal processes such as trust and the establishment of team norms – like behavioral integration – will be harder to establish in the virtual context. If trust and behavioral integration are lacking, then it follows that it will be more difficult for teams to keep conflict focused on task-related issues, and in essence, effectively manage team conflict. Thus, the question becomes, how might team members overcome or circumvent these negative effects of virtuality?

Managing Conflict in the Virtual Environment: Experience Helps

In the paragraphs above, we discussed how virtuality indirectly affects the team’s ability to manage conflict via its effects on team trust and behavioral integration. In essence, the higher the virtuality, the more difficult it will be for teams to establish trust and norms of behavioral integration due to the more limited social cues and context inherent in highly virtual communications. Thus, virtuality is negatively related to the team’s ability to establish trust and norms that support behavioral integration.

The news isn’t all bad, though. With the right experience, teams are better positioned to avoid the negative effects of virtuality. Two aspects of experience in particular seem important in managing the effects of virtuality – experience with the communication media and team members’ experiences with one another.

As team members become more experienced with a given virtual communication technology (e.g., email, discussion boards, video conferencing), they are likely to

Table 1- Strategies for Managing Conflict in Virtual Teams

Develop Virtual Team Members’ Experiences with Virtual Communication Technologies:

- Do not rely solely on on-the-job training for virtual communication technologies.
- Consider virtual technology training that begins when employees join the organization and is followed up periodically to refresh knowledge and train employees on new virtual technologies.
- These learning opportunities should focus not only on depth – understanding a particular technology well – but breadth: becoming proficient in a wide variety of virtual technologies.
- With exposure to a spectrum of virtual technologies, employees would also benefit from stronger instruction on the advantages and disadvantages of different virtual technologies and how to choose technologies that are well-suited for their communication processes.

Develop Virtual Team Members’ Experiences with One Another:

- When composing virtual teams, consider including team members that have prior experience working together.
- Offer virtual teams team-building opportunities to help team members without prior experience together gel.
- Time team-building opportunities at the beginning of the project, as this is the time that team members begin to make assessments of trustworthiness and develop norms of working together that tend to get reinforced in future interaction.
- Team-building efforts can be done virtually but may be even more effective if virtual teams are given some face-to-face team building opportunities.

become more comfortable with its shortcomings and adapt it accordingly, in essence "enriching" it. For example, adding emoticons in email is an attempt to increase the media richness of email. Workman (2007) found that teams learn over time

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how to impose rules and procedures to compensate for media shortcomings. For example, team members may try to avoid confusion by being more comprehensive in the information they provide. See Table 1 for strategies for developing experience with technology.

Another factor that may diminish the negative effects of virtuality on team trustworthiness and behavioral integration is experience with one another. Teammate experience with one another may reduce the constraints that the virtual environment imposes on team members' ability to build trust. When members have a wealth of experience working with each other, they gain knowledge of each other's attributes,

such as work habits and personality factors. That knowledge can come in handy because it improves the team member's ability to interpret the subtle messages and social cues of other team members' communications that may be difficult to pick up in

highly virtual communications. Team member experience with one another should

help improve the accuracy of the attributions about the underlying meaning in virtual messages. As a result, experience with one another should in part substitute for the lack of richness in highly virtual communications and aid in assessments of trustworthiness and the establishment of team trust.

Experience with one another should also lessen the tendency for virtuality to inhibit behavioral integration. It takes time for newly formed teams to establish strong behavioral norms and cooperation. When new teams work virtually, it should be even more difficult for such norms to take root because, depending on the virtual communication technology employed, team

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members may be limited in the manner in which they are able to communicate both verbally and nonverbally. If, however, team members have prior experience working together, team members begin with some basic level of shared understanding and expectations regarding roles and norms from their past experiences with each other. In other words, team members with experience working together have a reservoir of shared understanding from which to draw. This shared understanding around norms, roles, goals, etc., lessens the effects of virtuality on behavioral integration.

Conclusion

Cyberspace is here to stay. Among the many benefits it offers is the ability for high

performing, diverse teams from around the globe to be formed that would not otherwise be possible. Virtuality, however, presents new and different challenges for teams. Due to the limitations of various types of communication technologies, virtual communication can give rise to misunderstandings, miscommunication, and misinterpretations of messages. Such virtual difficulties increase the likelihood that constructive conflict related to a team's tasks will lead to destructive conflict within the team, hampering the team's ability to function and perform effectively.

The challenge for teams is to learn how to manage conflict by keeping it task-oriented and to avoid destructive relationship conflict because it will have important conse-

quences for the quality of their decision-making and performance. The initial message of our early stage research is that the challenge of managing conflict is even more difficult for virtual teams, who are less able than non-virtual teams to develop trust and behavioral integration norms. We suggest, however, that virtual team members may be able to overcome these difficulties by gaining experience with the virtual communication technologies and with one another. ■

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The Competitive Edge: Extraordinary Results with Ordinary People in a "Flat World"

Peter W. Schutz

The world of business and business management has become more competitive. There is little question that competitive intensity will continue to increase. This will impact the priorities of business leadership.

When my three children were infants, my wife and I decided to teach them to "think for themselves." It was successful, and when they grew up, they did. On occasion this was a problem. Where did they get some of these "crazy ideas?" Well, we taught them to think for themselves, and then we had to deal with the consequences.

After World War II, the United States embarked on a sort of "crusade" to teach the world how to do business U.S.A. style, as opposed to communism, socialism etc. Much as my children did, the world learned, and the result is a "Global Economy." In a number of instances, the world is beginning to take many facets of U.S. style business to a whole new level.

Years ago, leadership was a friendly occupation. A handshake was a "contract." Leadership was based on relationships, and a rural type work ethic was common.

Then somebody "invented" business administration. In its day, business administration was such an incredible leap forward in efficiency, that unless a manager became a competent administrator, success became elusive. Around this development a whole new establishment called a "Business

School" was created. Administration was taught; the MBA degree was created.

The invention of the computer was a turning point in business administration. The early computers were large, expensive industrial installations, and highly trained, highly-paid people were needed to program business administration into these machines.

This development turned out to be particularly effective in what can be termed a "commodity business" – here defined as a business that supplies a product or service that can be sourced from a number of alternate sources. In such a business, the customer will set the price. *A commodity business cannot set a price for what it offers.*

Unable to control price, this kind of business results in a "cost war." The success of a commodity business depends on controlling and minimizing costs. A consequence of this was

that these ventures were particularly effective if they were large, so that the high cost of computerized administrative systems could be spread over large operating volume.

This business development took a large toll on small businesses that lacked the administrative capability of the large competitors. Competition in a commodity business became hopeless for many small, traditional organizations. The subsequent development and availability of small, affordable and very capable computer hardware, along with extensive availability of adaptable software, enabled smaller businesses to once again operate administrative systems that allowed them to compete.

As a result, the playing field for a commodity business is now basically level. The era

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of administrative capability as a competitive edge in a commodity business is over. Profit margins in this situation are characteristically small. Unless a manager loves cost control and bulletproof administration, this may not be an exciting business opportunity.

If administrative excellence will no longer be a competitive edge in a commodity business, is it an essential instrument for success in a differentiated, non-commodity business?

I have spent my career avoiding a commodity business. In my years with Caterpillar and Cummins, technical product differentiation and marketing ingenuity were effective in differentiating the business from competition. Even then, such differentiation was usually fleeting and fickle. In today's global economy, the time span for a typical differentiation of this nature is shrinking steadily. If it is an effective differentiation, the competition will "climb on your bandwagon," and nullify the competitive edge.

The only competitive edge of a lasting nature that I have ever enjoyed in these circumstances is to *achieve extraordinary results with ordinary people.*

Why ordinary people and not superstars? It is because most people, including most managers and leaders, are ordinary people.

Why not recruit only Superstars? First of all, they are rare.

In my years as CEO of Porsche, I was

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My role as a leader was to back [the rare "superstars"] with a supporting organization of ordinary people whose enthusiasm and passion inspired them to outperform their counterparts with the competition.

blessed with a number of superstars. My Chief Engineer, Helmut Bott, was a technical giant in the automotive industry during the last quarter of the 20th Century. I had racing drivers like Alan Prost, Jacky Ickx and Derek Bell who were outstanding in their field. I learned that these superstars did not need me and my abilities as a manager. They knew what they were capable of, and understood their destiny.

My role as a leader was to back them with a supporting organization of ordinary people whose enthusiasm and passion inspired them to outperform their counterparts with the competition.

Beyond that, I was responsible for supplying them with an administrative system that allowed all of us to measure performance. Failing to excel in these basic elements makes innovative leadership and outstanding performance risky.

If superstars ever become convinced, or even suspect, that this support is not forthcoming, they jump ship. They are not willing to waste their careers without the support they know is indispensable. I learned that the most effective way to attract truly outstanding people is to put this support in place.

How did I learn to build a supporting cast of ordinary people that performed at the level necessary?

In his book, *Good to Great*, Jim Collins mentions that: "A leader must get the right people on the bus"! I have not heard it put better. The challenge is: How can we know if someone is "right" when we are recruiting people?

I have learned that if we do not define

what is "right" we will not recognize "right" when we encounter it. I believe that "right" is primarily a question of culture or character.

Always hire character and teach skills, never the other way around! Skills can be learned, but character can rarely be successfully modified by a business manager!

What constitutes the culture of an organization?

The value system or culture of an organization is most frequently that of the founder. People like Sam Walton of Wal-mart and Steven Jobs of Apple Computer are examples. In my career, it was Professor Ferdinand Porsche of Porsche AG. I have found that the Founder is an invaluable source to define an organization's values and culture.

I have not invented anything new. My favorite philosopher is Yogi Berra, the Hall of Fame New York Yankee catcher. Yogi once said: "You can observe a lot if you just watch."

In my career I have tried to observe what was going on around me - watching for things that achieved results, and noting those that did not. The key to achieving outstanding performance from a group of people is good leadership and management. I have come to believe that *managers have pretty much the organizations they deserve!*

Management hires people, trains them, and creates the operating environment in which these people have become whatever they are. If a higher level of performance is desired, it is up to management. Leaders must become more proficient and professional at how they perform their function.

Management is a very complicated activity. Yet, many managers receive about as much training to prepare for management as I did for becoming a parent - *None!* My management training consisted of a promotion! I was promoted to a management position, and told to "go at it."

Being a good manager turned out to be a very complicated, multifaceted activity. On any given day, a typical manager is expected to be an accountant to deal with budgets, a lawyer to deal with complex regulations, a nurturing parent to develop people, and all of this with the general attitude of a cheerleader. As a rather ordinary engineer, I found this task to be overwhelming.

I found that in order to understand this very complicated job, it is useful to concentrate on two fundamental activities:

1. *Formulate plans that are timely, and have quality*
2. *Having developed a plan, implement it well*

The difficult part of this is implementation. Planning turned out to be the fun part of this job. And yet, only what is well-implemented can be "taken to the bank."

Does making a good plan guarantee good implementation?

Exactly the opposite turns out to be true. The best plans we make, or are a part of, turn out to be the most difficult to imple-

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ment. *Plans that have that incredible ingredient of innovation or invention; plans that are so brilliant that they carry with them a real probability of re-defining an entire industry, or our part of it, are the most difficult plans to implement.*

As a young manager I was taught: Do not get in a hurry when planning. Do your homework, avail yourself of every possible source of information, and don't rush to judgment. After the plan is complete, take all the time necessary to explain the plan to those who are expected to implement it.

I have found this to be a waste of time. No amount of explanation of a truly great, innovative plan can communicate the anticipated result – no matter how experienced and competent are those that are expected to implement it.

My friend Roger Frock, the first Chief Operating Officer of Federal Express, has written a book entitled *Changing How the World Does Business*, the story of how he and Fred Smith invented the concept that has become FedEx.

The plan envisioned airplanes to pick up packages and letters, fly them to Memphis, Tennessee, unload them, re-load them into the airplane that had just arrived from the location to which packages were destined, and deliver them. The plan was great! Both Roger and Fred were pilots and all this flying was exciting. And then it became clear that a huge warehouse would have to be built at the Memphis airport, and an administrative tracking system developed to

handle all the unloading and re-loading. This was not exciting.

On Page 57 of his book, Roger describes a meeting with top management of United Parcel Service (UPS). The question was put to UPS management: Would they be interested in building and operating the required warehouse at the Memphis Airport?

UPS management turned the opportunity down. *The entire concept was ridiculous!* No amount of explaining could get UPS to see the brilliance of the Fed EX plan! No matter how bright, experienced and intelligent people are, it is frequently impossible to explain a truly innovative plan so that it will be implemented well.

Few plans, particularly those that "break new ground," will ever be implemented flawlessly. When things do not go exactly as envisioned by "the plan," people charged with implementation are likely to improvise. Failing to fully understand the plan can lead to implementation problems at best, and disaster at worst.

I have learned that implementation is a time to *do*, not to *talk*! This became clear to me when I served as CEO of Porsche AG in Germany during the 1980's. The fun part of the job was when we went racing automobiles. During such a race, the cars will periodically pull into the "racing pit" to be refueled, have the tires changed, and such. At these races I would spend the entire race in the pit area. I did not have a job to do, I was only there as a "cheerleader."

Every member of such a pit crew seemed to know exactly what to do. In a matter of seconds, jobs were completed, correctly, and the car would return to competition.

If something went wrong during such a pit stop, there was one person in charge, and that was *not* me. I was only the CEO of the company. It would not be Helmut Bott, our Chief Engineer. In charge, at a time like

that, was a Crew Chief, who was just one of the mechanics that the other mechanics had accepted as their leader for this activity. When a crisis occurred, the crew chief might scream at me: "Hey you". (Imagine – I, the CEO, was "hey you"). He might point at some heavy-looking device in the back of the pit and command: "get that thing over here!" I would run over, pick that "thing" up, and bring it exactly to where he wanted it.

The mode of operation during implementation was a brutal Dictatorship!

Implementation in a competitive environment requires dictatorial implementation.

And yet, if people are expected to really understand the activity, and perform at their best, they must be given an opportunity to participate intellectually in the management process. *If this cannot be accomplished during implementation, the only other opportunity to participate is during the planning process!*

I have learned that a manager must formulate plans like a Democracy, and implement them like a Dictatorship.

Early in my career I got this process backwards. I made plans like a Dictator. I had the authority, and it was fun. However, I found that much of the time I ended up with Democratic implementation. People would improvise during implementation, because they did not adequately understand the plan and the desired result.

What sorts of business plans have produced the best results for me in my career?

I have learned that the most valuable asset in any business is the customer.

Satisfied customers bring wealth into a business. Let me cite one such example in my career that illustrates this concept in the re-building of Porsche into a remarkably successful organization with some basic premises with which we re-defined the Porsche culture:

1. Never engage in any activity that does not earn money! If it cannot earn money, it is not business!

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2. Build the business activity(s) around what the organization does best!

One of the things that Porsche had done best in its history was to win automobile races. In my book, *The Driving Force*, I describe how in the rebuilding of Porsche in the early 1980's, (among other things) effort was focused on winning the 1981 Le Mans 24 hour race. How was the winning of this race going to earn money? Not being a Car Guy, (I was a diesel engineer) I did not buy into the old slogan: "win on Sunday, sell on Monday."

How did Porsche earn money by winning automobile races? By selling competitive racing cars to customers who wanted to be competitive racers!

Porsche sells turn-key competitive racing cars. This became a very profitable business. Customers can buy racing cars that are competitive without modifications for an "affordable price" (Racing is not inexpensive).

I would like to describe an incident that illustrates the effectiveness of this activity:

During the 1980's, a 1000 Kilometer sports car race was held at the Fuji racetrack in Japan every year. In 1984, a privateer by the name of John Fitzpatrick took his Porsche 962 racing car and entire crew to this event. The weather was very hot during the week of qualifications preceding the race, giving rise to numerous tire failures. One such failure resulted in John's team totally destroying their Porsche 962.

John called my office in Stuttgart and explained his problem. He was in Japan

To build the competitive edge:

1. Build a bulletproof administrative system to keep score
2. Get the "right people" on the bus. It is about enthusiasm and passion. Hire character and teach skills, never the reverse!!
3. Formulate plans like a Democracy
4. Implement plans like a Dictatorship
5. Never do anything that cannot earn money
6. Do things that others cannot or will not do

with his entire team, and had no car for the upcoming race. Could I help him?

This was Tuesday afternoon, and the race was scheduled for that Saturday. There was no way that I could ship a replacement car to Japan. I told John to give me a few hours to see what I might arrange to solve his dilemma.

In Japan, at the time, lived a man by the name of Matsuda. Mr. Matsuda was wealthy; he had earned his fortune in Tokyo real estate after World War II. Among other things, he had built a Porsche Museum in Tokyo. In the prior year, Mr. Matsuda had contacted me and purchased a Porsche 962 for exhibit in his Museum.

I contacted Mr. Matsuda, explained John Fitzpatrick's problem, and asked if he would consider "renting" the 962 in his Museum to John for the race. His reply was, "Have John

call me". John called Mr. Matsuda, and arranged to "rent" the 962 for the race.

It was shipped to Fuji from Tokyo on Wednesday, qualified on Thursday, and finished third behind the two factory 962s on Saturday. Mr. Matsuda attended the race, and immediately impounded his car after that great finish. "No one touches this car!" Just as it finished the race, every bit of rubber that covered such a car after a race, every bit of dirt and grease was to be left fully intact. Untouched, the car was returned to its place in the Museum, and a racing pit scene was built around it.

Never in the history of the automotive industry has a customer been able to buy a ready-to-race racing car that is fully competitive "as delivered." Porsche sold these cars for about a million dollars a copy for over a ten-year period. In total, over 30 such cars were sold. Today, many of them are still on display, active, and used in vintage races. They are viewed as "art," restored and more beautiful than they ever were as active racing cars.

Selling competitive racing cars was, and still is, a profitable business for Porsche.

Customers for such objects may stop going on vacations, or "eating out," but they will not give up their vintage Porsches! ***In my experience there is no substitute for designing a business around the passion(s) of a customer. ■***

This article is based on a presentation made at the Howe School Alliance for Technology Management Conference, Hoboken, New Jersey, June 12, 2007.

About the Author:



Peter W. Schutz (drivingschutz@comcast.net) served as CEO of Porsche A.G., the automobile company, from 1981 through 1987. During his tenure Porsche worldwide sales grew from 28,000 units to over 53,000 units, revenues grew from DM 850 million to DM 3.7 billion, and profits after tax grew from DM 12 million to over DM 125 million. Prior to his tenure at Porsche, Mr. Schutz served 11 years at Cummins Engine Company, the last eight as Vice President responsible for sales and service of truck engines in the U.S. and Canada, with revenues of over \$850 million.

Mr. Schutz holds a BS degree in Mechanical Engineering from the Illinois Institute of Technology. In 1987, IIT honored him with the Outstanding Achievement Award and the Henry Townley Heald Award, awarded for business ethics that have impacted an industry. He is the author of *The Driving Force, Extraordinary Results with Ordinary People*, 2003.

Achieving Top Management Support in Strategic Technology Initiatives

Ann Mooney,
Michael Mahoney,
and Barbara Wixom

The strategic exploitation of technology offers unmatched opportunity for growth and competitive advantage. Thus, researchers have studied the factors that promote technology success. Among the factors found to be most critical to technology success is the support of the firm's top management, which includes the commitment of necessary resources and political support to the project.

Although we know that getting support from top management is important, there is little guidance about the factors that influence whether support is granted. Such guidance matters from both the perspective of the project team seeking such support, and from the perspective of the top managers who want to provide support most effectively. The reality is that not all projects that warrant support get it. Sometimes organizational resources are allocated poorly (e.g., to failing projects) or opportunities are missed by not funding the right projects.

In the discussion that follows, we examine the determinants of top management support and offer guidance to both project leaders and top managers for obtaining/granting and effectively managing such support.

Factors that Determine Top Management Support

Using a multi-disciplinary approach, our research builds on insights from upper echelon theory, expectancy theory, and escalation of commitment theory to explain the factors that influence top management support. Based on this research, we argue that top management's support of a particular technology project depends on a number of factors. Some key examples are as follows:

Project Characteristics: The nature of the project should affect whether top management supports a particular project. Those projects with the strongest potential – e.g., solid ROI estimates, high strategic importance – should get the most support. Projects that require more attention of top management – e.g., because of project complexity or timeline – are also likely to necessitate and therefore receive more

support. Finally, top management is more likely to support projects that have salvage value – i.e., that are expected to yield positive outcomes even if they do not ultimately achieve the project objectives.

Stage of the Project: Top management support of a particular project has been shown to vary depending on the stage of the project. Projects that are initially supported do not always continue to get that support. Other more strategic projects may emerge that take away the attention of top management. The project itself might hit roadblocks that change top management's expectations for project success and outcomes.

The Nature of Project Team

Members: Whether top management supports a specific project is also influenced by the characteristics of the project team members. Some of the project team attributes that influence top management support are past team performance, the team members' tenures on the team and in the organization, the team's relationship with top management, the team's experience with similar initiatives, and the team's level (rank) in the organization. In short, project team attributes indicate whether the team has the background and capabilities to successfully carry out the project. Project team attributes also indicate whether the team has the personal ties and political clout to garner top management support.

Organizational Factors: Top management support is influenced by organizational factors such as firm strategy, culture, innovativeness, and organizational slack resources. The firm's strategy will inform top management about which projects are most aligned with strategic objectives. A firm's

level of organizational slack – those resources that are above-and-beyond what is required for normal business operations – also matters because it affects whether management has the necessary resources to provide adequate support.

Industry Factors: Top management support of technology projects is likely influenced by the nature of an organization's industry. Most important should be the extent to which competitors are implementing similar strategic technology. Research has shown that organizations have a tendency to adopt 'copycat' strategies for purposes of legitimacy. Furthermore, the degree of managerial discretion (latitude of decision-making power) also varies by industry and affects top management's ability to support strategic technology. Not all top management will have the discretion to provide necessary support to a project, especially when there are project overruns that require support beyond initial expectations.

Top Management Team Attributes:

Because top management deals with so many issues, they are limited by how much they can engage in fully rational processes. As a result, they rely in part on their backgrounds and experiences when making decisions. For example, top management's personal relationships with project team members, their ability to understand the technology, and their experience and tenure with the firm should influence whether they support a project. The job demands of top managers are also likely to affect support. Top managers that are stretched too thin across numerous projects will likely not have the time to dedicate to any one specific project.

Continued on next page

Suggestions for Project Leaders

Our research suggests the following steps that project leaders can take to obtain critical top management support for their projects:

Emphasize expected payoff: As the strategic leaders of the organization, top management should provide the most support for projects that are closely aligned with larger organizational objectives. While the strategic importance of many projects is not always obvious, a strong project leader should make every effort to frame the expected project payoff in the context of the organization's strategy and goals, either directly or indirectly. The value of a project is not always obvious, and failure to articulate the expected payoff will severely reduce top management's interest in a project.

Keep top management informed of project status: Top management support of a project is largely influenced by a project team's ability to communicate project status. Given the intense demands placed on top management in terms of time and resources, it is not uncommon for a high potential project to "fly under the radar" and fail to receive the appropriate top management support. A strong project leader must effectively publicize project successes to both top management and to the larger organization.

Break the project into smaller phases: Long, multi-year projects that continue for an extended period without any tangible signs of success are unlikely to receive sustained top management support. Since top management can focus only on a finite number of projects at a given time, they are likely to support those projects that have the best chance of succeeding. Projects that demonstrate frequent and consistent

break a project into several smaller phases and claim early victories in hopes of generating momentum and increasing top management's confidence in the overall project.

Seek cross-functional support: Technology projects initiated solely by the technology department are unlikely to sustain the support of top management over the life of the project. The uncertainty associated with high-tech projects makes obstacles and setbacks inevitable and without buy-in across the firm, top management is more likely to abandon the project as soon as it runs into trouble. Project leaders should develop cross-functional relationships with all potential beneficiaries of the project and work to obtain broad support across the organization.

Identify competitor projects and communicate threats: When top management is faced with high levels of uncertainty or ambiguity, they are oftentimes inclined to copy the actions of other organizations in an effort to achieve legitimacy. The uncertain nature of high-tech projects makes such projects especially susceptible to these mimetic pressures. A skilled project team leader should capitalize on these pressures by explaining the importance of their project as a response to similar actions made by competitors. Top management is likely to support projects that prevent the organization from trailing the competition.

Recruit senior members to the team: Project teams vary to the extent that individual team members have a relationship with top management. Teams composed of experienced, senior members are more likely to receive the attention and support of top management than are teams composed of inexperienced, lower-ranking members.

Throughout the life of a project, the team leader should continually attempt to recruit members to the project that will increase the experience and profile of the team as a whole.

The value of a project is not always obvious, and failure to articulate the expected payoff will severely reduce top management's interest in a project.

progress are more likely to receive top management support than are projects that continue for years without visible success. Thus, it is in the project leader's interest to

Suggestions for Top Managers

Firm resources generally are not unlimited, and top managers must support only those projects that offer the most potential. The following are suggested steps that top managers can take to avoid allocating resources to failing projects:

Avoid bias of past investment/commitment: Technology projects must be periodically reevaluated throughout the life of the project to determine whether continued top management support is warranted. This process of reevaluation should focus solely on the future expected payoff and should not be influenced by previous commitments and sunk costs. Techniques such as zero-based budgeting should be used to avoid such biases.

Separate responsibilities: The objective evaluation of project progress is critical to avoiding misallocation of resources. To this end, top managers responsible for making funding decisions must be detached from the project participants. A separation of these responsibilities ensures that personal commitment to a faltering project does not bias the allocation of valuable resources.

Minimize penalties of failure: An organization that punishes for past mistakes encourages project leaders to mask project failures and continue their commitments to projects that should otherwise be abandoned. To avoid such tendencies, top management should adapt reward/incentive structures that promote an environment that does not penalize for past errors, but rewards future success.

Not only should top management avoid investing in the wrong projects, they should focus on investing in the right projects. The following are suggestions for ways that top management can better identify and adequately support high potential projects:

Establish a process for evaluating expected payoff: As the key funding decision-makers of the organization, top management team members are tasked with assessing the expected payoff of various competing projects. To this end, top management must establish a formal process of evaluation that does not rely solely on financial models for evaluation, but also evaluates the strategic importance of a potential project.

Establish a process for tracking

project status: Project teams vary to the extent that they can effectively communicate project status to upper management. Some project leaders are ardent promoters of their projects while others are more reticent. Given these differences, top management should not rely solely on a project team's ability to communicate when measuring and tracking project status. Instead, management should establish a consistent and formal process of evaluation that

...top management must establish a formal process of evaluation that does not rely solely on financial models for evaluation, but also evaluates the strategic importance of a potential project.

ensures all projects are assessed fairly and that high potential "under the radar" projects are not missed.

Participate in steering committees:

Top management involvement in the review and evaluation of technology projects is critical to the identification of high potential opportunities. Top management should be active participants in steering committees and intimately involved in all key funding decisions.

Summary

For a strategic technology project to be successful, it must have the support of top management. Indeed, hundreds of studies have shown such a connection. What is surprising then is that we know so little about top management support and the reasons for why it is or is not given. The research presented in this article sheds light on this issue by identifying a number of factors related to the project, top management, organization, and industry that we expect

to influence top management support.

Based on our analysis of these top management support determinants, we offered a number of suggestions for project leaders who seek to get support from top management. We also offered suggestions for top managers in how they can provide support effectively by investing in the projects with the most potential while avoiding investing in failing projects. ■

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HSATM

HOWE SCHOOL ALLIANCE FOR TECHNOLOGY MANAGEMENT

UPCOMING EVENTS

Combined Roundtable and HSATM Advisory Board Meeting

Nov 19, 11:30 AM - 4:30 PM • Babbio Center, Fourth floor, Room 430

The 2008 HSATM Advisory Board meeting will take place on Wednesday, November 19, followed immediately by the November Roundtable meeting. As is our custom at the November Roundtable meeting, Howe School faculty will present selected research findings and discuss their business implications. This year we will hear from Pat Holahan and Ann Mooney, Richard Reilly, Carol Brown, and Heidi Bertels. All attendees are encouraged to attend both the Advisory Board and the Roundtable and to partake in a buffet luncheon from 11:30-12:30.

Holahan and Mooney focus on the challenge virtual teams face in managing conflict to keep it task-oriented and to avoid destructive relationship conflict that will impact adversely on the quality of their decision-making and performance. Their early-stage research indicates that the challenge of managing task and destructive conflict is even more difficult for virtual teams, who are less able than non-virtual teams to develop trust and behavioral integration norms. They offer suggestions for dealing with the challenges.

Richard Reilly's research is concerned with what makes leaders effective in a world where many aspects about the way we work and live have been transformed by technology. Do traditional leadership styles and models still work given the complexity and dynamics of this transformational age? What works and what doesn't? How do the best leaders motivate and inspire people across distances, cultures and communities? Some preliminary results will be presented from a series of interviews with senior leaders representing a broad mix of global organizations. The findings will be discussed using the framework of virtual distance, with implications for how leaders should lead in the global, virtual age.

Carol Brown will report on her research on the role of information technology in the success of mergers and acquisitions. Growth-by-acquisition and organizational consolidations have become common strategic initiatives over the past decade. Although information technology leaders may not be involved until after such initiatives are publicly announced, an effective IT role is critical for success. Examples from her case study research on mergers-of-equals and smaller acquisitions will be used to identify IT strategies and success factors.

Heidi Bertels will discuss her doctoral research on how established organizations can better succeed with exploratory projects, especially opportunities that don't fit the way they are networked within the industry or that initially don't look financially attractive. The first category, new value network projects, involve new supplier and/or new customer channels – e.g., Adshel driving established manufacturers of bus shelters out of business by providing bus shelters free, charging advertisers for wall space. The second, financial hurdle projects, can look unattractive from a financial perspective, but may over time bring substantial profits – e.g., Sears missing the discount retail opportunity to Wal-Mart.

INFORMATION

For further information on HSATM activities or to submit an article, contact Dr. Lawrence Gastwirt at **212-794-3637 • Lawrence.Gastwirt@stevens.edu**

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