



## MOUNTAIN QUEST INSTITUTE\* MONOGRAM

### Developing a Model for Team Learning and Success

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Main Topics: A TEAM MODEL (Environmental Forces; Introducing the Elements of the Model); KEY SUCCESS FACTORS OF TEAMS (Team Leadership; Shared Vision/Approach; Team Collaboration; Empowerment; Technology Support; Team Learning; Enterprise Partnering; Feedback; Team Collocation; and Team Size); DIALOGUE IN SUPPORT OF THE KEY SUCCESS FACTORS (The Concept; How It Applies to Teams; Value Added to Team Performance); INTERRELATIONSHIPS; REFERENCES.

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When does a team achieve maximum learning and performance? What conditions affect that outcome? What roles do leadership, collaboration and partnering play? How do team tools such as technology and dialogue contribute to team learning and success? Written from the practitioner's point of view, these are some of the areas this paper will explore.

#### A TEAM MODEL

Figure 1 is a conceptual model of a team that identifies the elements that determine team learning and performance. *Learning* refers to an increase in the capability to take effective action. *Performance* means to take effective action to meet an objective. This model is a window to view the elements that drive team success.

There are ten elements that determine the capability of a team to do its job, what can be called *key success factors*. Each has an influence on how well the team can perform any of four major processes. These *four processes* change team capability into results. As an example, a high level of *team collaboration* (a key success factor) helps a team *solve problems* (a major process), which in turn leads to a better product. Learning occurs throughout the entire cycle.

Every team has some level of competency or ability in each of these elements. How they work together for a given task and in a given environment will determine the team's ability to meet its task objectives, that is, its performance goals. General considerations of the environment and the major interactions between the environment and the team provide boundary conditions within which the team must work to be effective.

#### Environmental Forces

Below are some general characteristics of the current business environment within which a team must live and produce a product. *Environment* refers to the aggregate of surrounding organizations, conditions or influences that affect the existence or effectiveness of the team and its product. Forces from the environment place demands on, and provide support to, the team and can have a strong influence on its ability to deliver products and achieve high performance.

A rapidly changing environment necessitates team flexibility and learning. Quick reaction, good feedback and dealing with uncertainty and complexity are additional traits of

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Mountain Quest Institute is a research, retreat and learning center dedicated to helping individuals achieve personal and professional growth and organizations create and sustain high performance in a rapidly changing, uncertain and increasingly complex world.

successful teams. Handling complexity means understanding and solving difficult problems and being able to make high quality decisions. Heavy workloads mean that teams must find ways of reducing work by enterprise partnering; changing their roles, responsibilities, and relationships with stakeholders; and finding innovative and efficient ways to get work done. Cost reduction objectives press teams to find innovative ways to reduce costs, eliminate waste, empower team members, apply technology, and continuously learn from other teams and world-class companies.

From this short discussion it is clear that the strong environmental forces influencing teams must be accounted for in the model. A measure of the model's usefulness is its ability to identify and explain the elements of the team that respond to those forces.

### Introducing the Elements of the Model

The strong environmental effects impacting teams place severe pressures on their ability to learn and successfully meet customer requirements. An important question is: What are the fundamental elements that create the team's ability to deal effectively with these forces? In other words, what are the major causes of the team's ability to learn and perform in this environment? These elements, or *key success factors*, are introduced below, and then discussed later in this paper in more detail.

1. **Team leadership:** The ability of the team leader to lead and develop the team.
2. **Shared vision/approach:** A vision and mission that all team members accept and share. It also includes full agreement by team participants on the team's approach to carrying out its responsibilities.
3. **Team collaboration:** Team members working closely together with no hidden agendas and mutually supporting each other and team goals.
4. **Empowerment:** Team and team member capability, and authorization to represent their organization, make decisions, and/or take action.
5. **Technology support:** How much and how well technology supports team needs.
6. **Team learning:** The ability of a team to continuously learn, question old assumptions, and improve its ability to take effective action.
7. **Enterprise partnering:** A program or continuous activity to establish partnering relationships with stakeholders in the enterprise.
8. **Feedback:** A program or continuous activity to get feedback from customers and other key stakeholders on how well the team and its program are doing to facilitate continuous learning and improvement.
9. **Team collocation:** The percentage of team members located in the same local space.
10. **Team size:** The number of full-time members on the team.

A number of assumptions are made in this model. First, that high performance can only be achieved through team learning. Second, there is no doubt that team member competency plays a very important role in team performance. This model assumes that *all team members have the required experience and competency to perform effectively in their disciplines*. Another assumption is that team members have been selected with the appropriate functional disciplines. The last assumption is that team members have *professional attitudes toward their job and their responsibilities*. As a consequence, the proposed team model does not account for individual attitudes, behaviors, or performance problems.

While key success factors build a team's capability, the translation of that capability into product results is through the execution of the four processes identified below. These processes are defined such that each represents a link in the chain from the creation of an idea to the actions that produce the desired results.

1. ***The innovation process***: The ability of a team to generate new ideas, processes methods, tools, techniques, etc.
2. ***The problem solving process***: The ability of a team to identify the problem, and to generate alternatives for its solution.
3. ***The decision-making process***: The ability of a team to make quality decisions by selecting the best alternative.
4. ***The implementation process***: The ability of a team to plan and take effective action to get the intended results.

These major processes are indicators of the team's generic ability to generate ideas, solve problems, make decisions, and take action. For example, a team can generate ideas through brainstorming, lateral thinking, or the nominal group technique.

Team members working as individuals accomplish most of a team's work. The above processes are team processes and, while the team may not devote a large amount of its time to them, they play a very important role in determining team performance. Pareto's law would say that about twenty percent of a team's time may be spent on these processes, but they would produce eighty percent of the team results.

A team's overall competency in the above processes is essential for high quality results. Much of *team learning* may be directed to improving its ability to use the right process at the right time. Since each of these can be accomplished in many ways, a good team has a portfolio of approaches to tackle any issue or situation.

This model serves as a framework for developing, leading, and implementing a team. It acts as a reminder of the major contributors to team performance and encourages asking the right questions and making real-time decisions to maximize team learning and performance.

Many of the success factors and the major processes are a natural part of current team operations. This model is intended to bring them into the light so teams can give them serious consideration and act accordingly. All teams have a continuous choice in balancing their time between learning and improving team competency, and meeting workload demands. If this choice is made consciously and deliberately, the team will have more control over its own actions and the result of those actions.

## KEY SUCCESS FACTORS OF TEAMS

Each of the *key success factors*, team leadership, shared vision/approach, team collaboration, empowerment, technology support, team learning, enterprise partnering, feedback, team collocation, and team size, is discussed below. Taken together, they cover the major areas that teams should develop to achieve a high level of team capability. Each has an impact on the *four major processes* of a team: *innovation*, *problem solving*, *decision-making*, and *implementation*. The processes are the way the team applies its learning to get product results.

## Key Success Factor 1: Team Leadership

Team leadership, one of the most important success factors, has a strong impact on all aspects of team learning and performance. Team leaders set the tone of the team and create the environment within which team members interact and learn. The key success factors influence the team's internal environment and structure, and by doing so, determine its capability. Some key success factors may be beyond the control of the team or the team leader. Higher authority may select the team leader. Senior management may determine team size, collocation, and perhaps technology support. But most of the success factors fall under the team's control and can be developed by the team. Each of these factors plays a different role in building team learning and capability and impacting the major team processes, creating high team performance and product results.

Team leaders play a major role in setting learning objectives and monitoring real-time team performance. Discussed below are the following aspects of team leadership that directly impact team learning and performance: leadership roles, leadership responsibilities, dynamic balancing.

### *Leadership Roles*

The team leader performs many roles that influence team performance. These include team counselor, leader, manager, and supporter. Another role is representing the outside world to the team. To minimize the impact on team member workload, the team leader often handles many requests and demands from higher management and other parts of the enterprise. This liaison and communication between team leader and higher management may become very important in understanding senior management desires and organization needs.

Still another role of the team leader is that of coach and orchestra conductor. As the coach, the team leader supports, advises, and coordinates team actions and gets team members to collaborate for success. Being a coach does not mean the team leader abdicates his or her responsibility for team results. If strong disagreements arise that make it impossible for a team to reach agreement, the team leader has to take charge and either make the decision or take it to higher authority for resolution.

As coach, the team leader takes the lead in setting team performance standards. As a general guiding principle, *team performance tends to rise to its expected level of performance*. Characteristics such as integrity, honesty, fairness, open communications, strong values, and high performance standards are the foundation for high team learning and performance and must be demonstrated in team leader behavior. An ideal objective of every team leader is to create and maintain a team environment in which the team members are encouraged to give their best contribution to the team; and are also recognized for their individual efforts. To accomplish this, the team leader must be more of a supporter than a commander.

### *Leadership Responsibilities*

The team leader may be held fully accountable for team performance. Every team leader faces the issue of what division of responsibilities between the team leader and the team make sense. Typically the link between the team and higher authority falls on the shoulders of the team leader, as does overseeing and developing team performance. Settling disputes among team members and ensuring adequate resources and facilities for effective team operation are other team leader responsibilities.

Occasionally the team leader may feel the pressure of responsibility for results without adequate authority; or be concerned that exercising too much authority will damage morale. Sometimes team leaders take control of the team and revert back to the autocratic leadership style. When this occurs, team members may feel they are no longer on a team but rather in a group of individuals with little, if any, influence. They might well see the situation as a sham and a waste of time, and react accordingly. In this environment little learning can occur.

This apparent imbalance between authority and responsibility is a necessary part of team leadership and becomes acceptable only if the team leader uses participation and collaboration to achieve team goals. There are many ways to exercise influence over team members and to make sure they are capable of handling the authority they need. Coaching, mentoring, advising, teaching, and developing a participative and open environment are just a few. Note that team leaders are naturally involved in most team decisions, so it is easy for them to monitor team capability. While no manager or team leader feels immediately comfortable giving up or sharing authority while retaining responsibility, this is exactly what the best team leaders do.

The uncomfortable reaction on the part of the team leader described above dissolves when a team performs well. Within the team each member, including the leader, can and will feel personal ownership of authority, responsibility, and accountability. Authority comes from increased empowerment to implement team decisions and influence enterprise stakeholders. Accountability is felt through the team's sharing of all aspects of task accomplishment as well as its mistakes. Each team member feels responsibility for the overall team results and for their personal contribution. The team leader has used the task to build teamwork and taken advantage of an opportunity for team learning.

Another example is when the team is faced with a problem and only one team member has the knowledge, experience, and confidence to handle it. That individual would be given the task for action, do the work, provide the results, and brief the team on the outcome. If time permitted, the team member should use the team as a sounding board before the results were sent out. This encourages team participation and learning, and improves task quality.

The above examples demonstrate three ways team leaders *manage* teams. The first approach takes advantage of team strengths because the product is the collective efforts of the team. This approach also takes the most time and effort on the part of the team. A more efficient process, exemplified by the second example, is the working group led by an individual leader who has strong leadership skills and knowledge related to the task. Such *working groups* are frequently used at the highest executive levels to solve organizational problems, plan long-term strategies, or develop recommendations for action.

The third alternative of assigning tasks to individuals is similar to a manager with several employees in a branch or section. It may be the most efficient way to get the task done, even with a team. Identification of the approach to use for a given task depends on the team, its members, the task, and the immediate situation. The important thing is that although a team can be created to handle complex problems and make balanced decisions, there are a wide variety of tasks that they will face and each should be accomplished in the most efficient manner.

### *Dynamic Balancing*

The best measures of team learning and performance are product quality and customer satisfaction. The team leader's management approach to each task is an excellent example of dynamic balance. Team leaders must balance the day-to-day team tasks that may be done most efficiently by individual team members with those challenging situations when strong team

collaboration and innovation are needed. As noted above, there are many variations between these two extremes. Since each approach requires a different leadership style, from authoritarian to coach to participative manager to equal participant on the team, team leaders must be flexible and adaptive. This is similar to Hersey, Blanchard and Johnson (1996)'s Situational Management concept, except for the additional complications of working with and through teams.

There is danger if the team leader uses the working group and individual tasking techniques so often that the team never gets an opportunity to work closely together. Without periodic collaboration, learning is limited, and team members may become psychologically isolated and lose the close feeling of interaction, trust, and sharing critical to team performance. Team leaders should make sure team members take advantage of every opportunity to work together and that they are challenged to depend on each other to achieve results. These opportunities build team performance and maintain team spirit. This also acclimates new members joining the team by exposing them to collaboration.

Team performance decreases in many areas as team size rises above fifteen to twenty members. The reduction is due to the difficulty of achieving effective interaction with large numbers of people. Getting people to participate equally, communicate openly, and trust each other becomes more difficult as a team grows larger. For large teams, the team leader is faced with the limitation of meetings used mainly as forums for high level discussions and/or information dissemination. One option is to break the team into small subgroups that work more effectively together and have them report back to the larger team. This technique yields useful results, but will not achieve the equivalent of a high performance team.

Very tight time constraints may reduce large team performance. Unless a team is rather small and experienced in working together, it is difficult to get agreement and buy-in on critical issues in a short time period. Sharing understanding among twenty or more team members and evaluating the context and ramifications of decision options can be very time-consuming. This is discussed further in Key Success Factor 10: Team Size.

## Key Success Factor 2: Shared Vision/Approach

The importance of each team having a clear and shared vision of what it wants to accomplish may not be fully appreciated. It would seem obvious that every team would know what it is tasked to do. For simple, short-term tasks this may be true, but for larger programs, long-term development cycles, and complex requirements, it becomes more difficult to get all team members, and others in the enterprise, to have a common understanding and picture of the end product. As people move in and out of jobs in the enterprise, and requirements get modified or team members become involved in their individual responsibilities, they drift apart and lose sight of the larger vision.

For these reasons, it is essential that when a team is formed one of the early actions of the team is to understand why the team was created and carefully craft a picture of the end product or process that would accurately represent success. This vision needs to be understood and shared by every member of the team. Some authors of strategic planning books feel that the sharing of the vision is as important as the vision itself.

As the team goes through the process of developing and analyzing its vision, team members become aware of their different views and priorities, and begin to respect and listen to each other. The visioning process builds teamwork along with the vision. Once all team members see the same vision, they have a cornerstone for efficient communication and an agreed-to beacon to guide their discussion and actions.

This vision will surely change with time; it can be reviewed and updated periodically as learning occurs and to keep it in line with customer needs. It helps if the vision is in writing, although it may be only a few pages. If it is too conceptual, no one will use it because it doesn't help them to make decisions or take action. If it is too detailed, no one will use it because it may restrict their actions, or become overtaken by events. The important thing is for the team to clearly understand and take ownership for its task, product, goals and objectives. A team can become a source of inefficiency if team members are working to different ends. The focusing effect of a good vision keeps everyone moving in the same direction with minimum friction and waste.

Once the vision, or some equivalent, is established, the team needs to decide what approach it will take to achieving that vision. How closely will it work together? What relations will it establish with other teams? How should it deal with outsiders, key stakeholders, or team mistakes? Will it use open book management, partnering, Total Quality Management (TQM), and Business Process Reengineering (BPR)? How will the team manage its knowledge? Bringing up the question of approach allows the team to identify and deal with a large number of potential problems before they come up. It also highlights major values, expectations, roles, and relationships before the team becomes immersed in the day-to-day work.

What approach the team decides to take can be discussed and debated more easily in the early period of team start-up when pressures are less. The outcome of an agreed-to approach may take the form of oral agreement or written agreement. In either case, it provides a way for the team to meet its vision and an agreement by team members to use a particular approach. Katzenbach and Smith (1993) felt so strongly about the importance of shared vision (purpose) and approach that they are included in their definition of a team:

*A team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable.*

Senge (1990) calls out a shared vision as being one of the five disciplines for a learning organization.

Two fundamental questions are addressed by this success factor. Where are we going and how will we get there? If team members can reach agreement on the answer to these questions they are well on their way to success. Seeking answers to these questions has a side benefit. One of the biggest barriers to communication is that each team member sees the world from their own unique perspective. In developing a shared vision and approach, team members are bringing their individual assumptions, beliefs, mental models, and language into congruence.

A shared vision is the foundation for building trust, dependency, and collaboration—the beginnings of true teamwork, learning and high performance. Other success factors such as team leadership, feedback, enterprise partnering, and collaboration interact with and can reinforce the payoff from a shared vision/approach.

### Key Success Factor 3: Team Collaboration

Many observers of teams in action equate the capability and performance of teams with their degree of collaboration. Collaboration has many interpretations. One rather popular one is that given by Kayser (1994), which states that *collaboration is close communication and sharing of understanding with no hidden agendas*. Schrage (1990) says that *collaboration is a purposive*

*relationship and an act of shared creation and/or shared discovery.* Collaboration is a desire or a need to either solve a problem, create something, or to discover something within a set of constraints such as limited expertise, time, or money.

When teams are performing routine and predictable tasks, there is usually little need for collaboration. When they are creating something that has never existed before, they need the full power of all team members working together. This is where collaboration facilitates success.

One interesting aspect of collaboration is that it often requires play. Though the word may sound odd here, play is exactly what it is. As team members attack a given problem or issue, they need to play with it in their minds, then share concepts and ideas and perspectives. This interaction is very much like play in the sense that different things are considered and tried before specific conclusions are drawn. Successful teams take this play very seriously, and focus in at the right time on the solution they need.

Team members collaborate because, as individuals, they cannot deal effectively with the problems, challenges and decisions that face them. The complexity, dynamics, and uncertainty of the problems faced by acquisition teams in acquiring modern weapon systems is simply too much of a challenge for any one person. The benefit of collaboration is an increase in team power to solve problems, make decisions, and manage complexity. Collaboration becomes a necessary technique to master this unknown and complex environment, and to achieve the required gain in team performance.

## Benefits of Collaboration

The major benefit of collaboration is the increased ability of a team to be innovative, identify and solve problems, make decisions, and implement its actions to get results. In other words, increasing the effectiveness of the *four major processes*. This large gain in team power comes from the collaborative interactions among team members by taking advantage of their diversity, competence and the mutual reinforcement of ideas and knowledge. Much of the learning of teams derives from team collaboration. When people work closely together with a common purpose they learn from each other, generate new ideas, minimize bias and maximize objectivity, and create a collective judgment and perspective that is significantly better than each acting separately.

A side benefit of collaboration is the strong personal feelings and rewards that individuals feel after working with their colleagues in successful programs, programs where everyone contributes to the product and recognizes the significant gain from collaboration. There is almost a feeling of euphoria among team members after a highly successful effort.

The power of collaboration arises through the relationships among team members and the processes they use to produce results. Each team is unique in terms of its individuals and the existing and needed relationships to produce maximum results. Team leaders and team members, through experience, self-evaluation and sensitivity to their teammates, can develop a sense of what is right and what will work for their team.

Many things can be understood from an objective, distant view. The ability to *take yourself out of yourself, and look at yourself* can be extremely helpful in understanding how your team members see you and why they may interpret and react to certain acts or communication patterns. While the ability to work effectively in teams can be learned, it cannot really be taught. Each individual must take it upon themselves to learn and adapt their behavior to meet their own and other team member's needs. This is the foundation for strong collaboration.

To observe a team's level of collaboration, listen carefully to the various discussions that go on among team members. One of the simplest indicators is the number of times that team members use the word "I" versus the number of times they use the word "we" during team discussions. Some conversations tend to indicate non-collaboration while others reinforce the collaborative abilities of the team. For example, non-collaboration is indicated when team members avoid discussion of sensitive areas, or give in by accommodation instead of having a serious discussion on important topics. If strong-willed team members force a decision without much team discussion, they are subverting the collaborative capability of the team. Even compromise can represent a form of non-collaboration since it is frequently the easy way out.

Tone can be very significant in terms of its impact on collaboration. For example, a non-threatening tone is encouraging, a threatening tone generates anxiety, and a boring tone creates a feeling of separateness and non-interest, thereby reducing the desire to work with that person. Other indications of collaboration include participants expressing specific problems and needs, then making sure that all team members understood the meaning and context of the problems. Team members that work to combine mutual interests of other team members, or even other teams, are sincerely trying to create a collaborative environment. When team members know their own, and their colleague's strengths and weaknesses and actively orchestrate the team interactions and assignments to get the best team results—that is collaboration!

Disagreements, heavy discussions, and group-gropes are all part of good collaboration, as is inquiry, dialogue, and active listening, all important learning tools. The only constraint is that these activities are focused on a common task and team members show a respect for each other. Team members who analyze consequences with an objective view of looking at the pluses, the minuses and the interesting (PMI) aspects (de Bono 1982, 11) make a contribution to collaboration.

### Conditions for Collaboration

First, there must be a desire and willingness on the part of team members to work together to achieve a common purpose. Second, the environment should be conducive to effective interaction and collaboration. One often thinks that good communication is sufficient for collaboration. Unfortunately, while the transfer of information and the art of good conversation are both necessary, they are usually insufficient.

The third condition is one called shared space. It could be a model of the problem at hand, or a whiteboard. Shared spaces are used by teams to throw out ideas, sketches, numbers, words, processes and symbols so that everyone in the room can see the same thing. They represent a framework upon which team members can build a common progression toward solutions.

Recognizing that every team is unique in terms of its individual members, task, and environment, there are nevertheless certain basic characteristics that will help facilitate collaboration among team members. Borrowing from Schrage's *Shared Minds* (1990), the following topics are discussed in terms of their effect on collaboration and learning: communication, shared space, team member competence, common vision/clear task, environment, and decision criteria.

*Communication.* There is a significant difference between communication and collaboration. Communication is usually thought of as *transmitting information*. The problem is that this usually does not include the context and meaning of the information. Meaning is essential for the receiver to fully understand what is being communicated to learn and to be able

to generate the insights needed for effective action. The objective in collaboration is to use symbols, words, models, and non-verbal expressions to construct relevant meanings out of the combination of information, experience, intuition, and professional expertise.

Thus, as Schrage points out, the act of collaboration is an act of *shared creation and/or shared discovery*. If the answer to a problem is already known, or the decision and actions clear, the team leader may well operate from a platform of individual charm, autocratic authority, or expertise, and the team members follow accordingly. In fact, most large organizations handle routine patterns and daily events in a very effective manner. On the other hand, in an organization such as the Department of Defense that acquires new weapon systems with rapidly changing and complex technology, the effort becomes one of exploration of possibilities and managing risk rather than easy, rule-based decision making. Collaboration is a technique for reducing complexity and generating creativity.

*Shared Space.* Shared space is more important than is usually recognized because people tend to think normal conversation and communication are adequate. Unfortunately, a word or a phrase, an idea or a concept stated at one time is easily forgotten or distorted within several minutes as the conversation rolls on. And, if it is remembered, it is remembered in the way it was heard, not necessarily the way the sender intended. One solution to this problem is *shared space*.

Shared space is anything that keeps information in front of the team while they are interacting, and records their results. With shared space, everyone can observe, manipulate, suggest and address the same, common concept. This overcomes the problems of jargon and functional disciplines seeing the world differently, that is, having a different *mental model* or view of the world. Effective shared spaces are dynamic, capable of being changed and updated, and capable of being frozen in time to create a chronological history of team progress.

Shared space should be interactive, adaptable and continuously accept new information. Shared space can be as simple as flipcharts with butcher paper, electronic whiteboards, to sophisticated computer three-dimensional projections or groupware systems. In any case, teams need a common place to put their ideas, concerns, and issues for all others to see, and to serve as a focal point for team attention (Schrage 1989, 95).

Shared spaces close the gap between language and symbols. Some people learn and think better using words, others think more in terms of concepts and visual imagery. Unfortunately, our culture tends to keep words and images separate. The combination of thinking in words, concepts, and images is valuable for developing insights and new ways to solve problems. Maps, pictures, ideas, and three-dimensional dynamic models are also helpful. They serve as common reference objects for team members to discuss, analyze and contemplate. Team members should recognize that just as language shapes the process of our thought, shared spaces influence the process of collaboration.

*Team Member Competence.* Although it may be obvious, team member competence is sometimes overlooked. Team members must possess good experience and deep knowledge of their individual disciplines for collaboration to be effective. Lack of such experience and disciplined knowledge makes it difficult to collaborate effectively.

To get the best results from collaboration, all knowledge areas of a problem or decision must be represented on the team. Where this does not exist, inviting subject matter experts (SMEs) to the meetings can cover the missing areas. However, SMEs' relationships with team members will not be the same as relationships among team members. This may or may not hinder collaboration, depending upon the team, the individual, and the task at hand. In general, if the task is relatively free of emotional content there will be less difficulty.

*Common Vision/Clear Task.* A shared vision and a clear task serve as a focal point to guide the team through collaborative discussions. All groups of people have a tendency to wander off track. Teams are no exception. Having a clear objective keeps the process from being an open-ended jam session. This constraint allows the team to wander between exploration and inquiry and convergence to the end goal. All of these processes are needed, and each can be overdone. The facilitator or team leader should keep the proper balance among them. Effective collaboration requires a clear objective as well as the participant relationships and the need to explore.

During collaboration, differences are expected and should be encouraged. Even conflict is useful if it is constructive and for the purpose of bringing out different opinions. However, if conflict becomes destructive with the parties unable to understand or accept each other, long-term animosities may be created which damage team performance. Such conflict may be the result of differences that are not clear, even to the individuals. For instance, there are five levels at which conflict can show itself: Conflict over facts, methods, goals, values and belief systems. What happens is that people argue over facts when the real differences are over methods. Or they argue over methods when the real problem is different goals, and so on down the chain. When this occurs, the team leader can intervene and either move the conflict out of the meeting or take it down to the real level of disagreement to promote resolution.

Collaboration is a process to achieve a result, not an end in itself, even if that result is itself learning. Even when a team is brainstorming for ideas, they need to have a problem or an objective in mind. A clear vision, purpose, objective, strategy, and approach all ensure a team's collaborative process converges.

*Physical Environment.* The physical environment has a significant impact on the degree of collaboration that occurs among team members. Proximity and number of meeting rooms, the equipment in the meeting room, the shape of the table, the number of whiteboards, and other means of sharing ideas all play a low visibility, but important, role in supporting team collaboration. The culture of the organization determines the acceptability of informal discussions around the coffeepot and other ad-hoc meetings. What may appear to be idle conversation may turn out to be the most important learning of the day for team members. Thus the team leader and higher authority must give the team *the freedom to learn* as well as the freedom to act.

Other ways that the enterprise environment impacts team collaboration include the acceptable level of risk that the support functions are willing to take and the reward and recognition system for team performance. The level of team member empowerment may depend on individuals outside of the team. Training and development, the rotation of team members, turnover of team leaders, career moves, and the receptivity of higher authority to innovative approaches create an infrastructure within which the team must find the freedom and motivation to achieve a high level of collaboration. A team's enterprise structure can support and amplify its performance or dampen and stifle it. Competent, dedicated people are necessary for high performance—they are not sufficient.

*Decision Criteria.* It is a common myth that high performing teams make decisions by unanimous agreement on decisions. While this may be highly desirable and certainly occurs from time to time, it is far more probable that there will be significant differences and views on the downstream results of major decisions. What high performing teams do is to ensure close and thorough collaboration of all team members. This results in all views being aired and openly discussed, keeping in mind that the team objective is the sole criterion for evaluation.

A highly collaborative team may go to extreme efforts to make sure those who disagree can at least accept the decision as being palatable and agree to support team efforts in its implementation. This is the meaning of a consensus. If such support is not forthcoming and the decision is a major one for the program, the team leader may have to remove individuals from the team. While this is always undesirable, and done only as a last resort, the alternative may create a team with divisive splits in attitudes, belief systems, and approaches to meeting its responsibilities. This is not a team. This cost may be considerably higher than the cost of changing people. Often this possibility may be identified and prevented during the early period of team start-up when the shared vision/approach is developed.

#### Key Success Factor 4: Empowerment

The implementation of directions from higher authority is dependent upon the interpretations and actions of people throughout many layers of their organization. This is one reason it is difficult for senior leaders to *change* their organizations simply by changing rules, policies, and making decisions. For change to be effective, it must be understood, accepted, and effectively supported by those at the lower levels, particularly those at the interface where the action occurs. Empowerment can be seen as a catalyst and lever for accelerating change throughout an organization.

Robinson (1997) considers empowerment to be: *A strategic process of building a partnership between people and the organization, fostering trust, responsibility, authority, and accountability to best serve the customer.* This gives empowerment a much broader scope than just telling individuals that they can make certain decisions and represent their organizations at team meetings. It also reinforces the view that while every individual has some degree of influence and authority, the structure of the team and the enterprise can make those same individuals much more effective by setting and nurturing an empowering environment.

This suggests that empowerment should be interpreted as a *characteristic of the enterprise* rather than as a relationship between an employee and manager. From a systems view, there are several levels of empowerment: the individual employee or team member, the team leader, the team, its program or project office or department, and the enterprise. Each of these levels may have their own degree and boundaries of empowerment and can influence the empowerment at other levels.

Given the goal of a *fully empowered enterprise*, each level can take certain empowerment actions that maximize the overall enterprise effectiveness. Empowerment can create an environment and a structure within which teams and team members can learn and work more effectively, each contributing their maximum where they have the most knowledge, experience, and competence.

From the team member's view, there are two ways that the individual can be empowered. If the individual reports to a functional manager, then that manager can empower the team member to speak for the functional organization. Each team member can also get empowerment from the team leader *and the team* to represent the team and take action on team matters. Empowerment is discussed further below in terms of empowerment issue, team leadership and empowerment, and empowered teams.

#### Empowerment Issues

Some managers have concerns because they interpret empowerment as telling their employee to make more decisions and to take on more authority for doing their job. From the

manager's view, empowerment may feel like giving away authority to the employee and keeping the responsibility. To have responsibility without authority creates a feeling of serious concern and frustration. Another common interpretation is that empowerment is giving people power. This is misleading in the sense that acquisition professionals already have a great deal of power from their knowledge, experience, and awareness of their job and its performance requirements.

Other factors that play a role in employee empowerment are enterprise policies and culture, task needs, and an employee's capability and desire for more freedom. The manager may be able to create an empowering environment where employees recognize and feel they have the backing, the resources, the information, and the experience to take on more responsibility for decision-making and actions.

Just as some managers are concerned about empowerment, some employees may feel uncomfortable as well. Empowerment is complex, risky, and requires clear and continuous communication among all parties involved. The simple act of a manager sitting down with their employee and talking about those areas in which the employee is competent to make decisions, and those areas where the manager should make decisions, will begin a dialogue that can clarify many misconceptions.

Specific problems may arise when team members report to a functional manager in addition to the team leader. Questions then come up concerning their employee's role relative to the team and their parent organization, their experience, and level of competency to represent their organization, as well as their degree of empowerment needed. Team leaders should sit down with the functional manager and the team member and discuss what empowerment is needed from the functional manager to perform the team member's duties on the team.

## Team Leadership and Empowerment

Team leaders play a strong role in determining the empowerment of both the team and its members. Empowerment, like trust, must be built up over time and is not something that can be legislated. Both the team leader and the team member have certain responsibilities for creating an empowering atmosphere.

A team leader, as an empowering manager, has a responsibility for obtaining resources, leading strategic planning, working with outside higher authority and stakeholders, coordinating efforts, and coaching team members. So, in a sense, the team leader's responsibilities include supporting and working for the team and its individual members. This represents a change from the past hierarchical, authoritarian approach, but is essential if team members are to have the freedom to contribute all of their experience and energy to finding innovative and effective solutions to achieve team objectives.

The team leader encourages the team, as a whole, to take on more responsibility and authority as it matures in capability and performance. In addition, the team leader should give increasing authority to each team member as they demonstrate their ability to make decisions and take action.

Team leaders need to make sure that during team discussions, team members do not accidentally inhibit other members from taking action. Team members are sensitive about how they are treated and perceived by other participants. This sensitivity can result in a feeling of helplessness or psychological withdrawal from the team. When either of these occurs, the affected individual will no longer feel, nor act, empowered.

When team members are uncomfortable with the freedom to make decisions and take actions on their own, the team leader can lower this stress. The leader can spend time at team

meetings, and with individuals, discussing the purpose and value of empowerment. The team members need to realize that when empowered, they are full members of the team, and are concerned with the morale, motivation, attitude, decisions, basic values, vision, mission, and strategy of the team—always seeking a mutual understanding of how the team as a whole operates.

Team members that want to make decisions and take action must recognize the responsibility that goes with this freedom. They need to understand their team's values, vision, mission, and objectives. Team members also have a responsibility to the rest of the team to keep them informed on key actions, and to seek their advice and consent on matters that could lead to problems.

Two questions that a team leader can ask regarding the level of empowerment of their team are: (1) Is it clear what the team's authority is to make and implement key decisions? and (2) Is the team truly empowered to act to the extent necessary to effectively carry out its responsibilities? If both of these questions are answered in the affirmative, then the team can proceed under the assumption it is empowered as necessary to accomplish its task. It may be that teams do not have enough authority or control over their resources. The challenge is then to clarify the reasons for the lack of the team's authority and develop a plan to bring the team to a capability level where it can take on more authority.

## Empowered Teams

An empowered team is one that has both the responsibility and the authority to carry out its mission and exercise ownership and control over its vision/approach. In practice this means the team can make decisions about their own work without checking with anyone. Unfortunately, this is not always the case.

Without the authority to act in a responsible manner, it is difficult for a team to meet its objectives. For example, it may be difficult to respond to stakeholder requests, react quickly to problems, make commitment at decision meetings, determine its own travel needs, and in general, to have the flexibility to work within the system as needed.

Truly empowered teams take responsibility and assume they have the authority to act, so long as it is within their charter. They do not wait for, nor ask for management approval unless very unusual circumstances prevail. The focus of the team is on taking action rather than waiting for approval. The old adage of *it is better to seek forgiveness than to ask permission* applies to these teams. When this approach is taken, the team becomes highly motivated by its freedom and authority and yet conscious of its responsibilities.

When teams are truly empowered, they take effective action to engage stakeholders to assist them in achieving their vision. Team freedom cannot be limited to within the team itself but must truly spread throughout the organization. Empowerment reinforces and develops team commitments by transferring ownership of the vision from higher authority and the team leader to the team itself, and through the team, to each team member.

Such acceptance of personal responsibility and interdependency among team members increases the desire to understand and learn, and generates a sense of dedication, loyalty, commitment, and pride in the team itself. Parker (1994) identifies a number of factors in the empowerment continuum of cross-functional teams. These include dedicated members, control of resources, vision/approach developed by the team, collocation, decision level, supporting enterprise policies, and performance appraisal authority.

Additional significance of empowerment can be understood from the realization that in modern, complex organizations, no one individual is in total control. Every individual is subjected to a large number of constraints, restrictions, and guidance that prevent them from making many autonomous decisions. Empowerment, by freeing up the workforce, unleashes the full energy and competency of the team and the enterprise. It also places many more decisions in the right place, with the person that knows the most about the situation—the person doing the job.

### Key Success Factor 5: Technology Support

Groupware is the name applied to a wide range of technologies that support group processes. Information technology also plays a role in supporting teams in both their internal and external communication needs. While technology improves team efficiency by increasing the scope and speed of communication and by providing real time information, the application and interpretation of that information is a challenge to the team.

Technology that supports collaborative processes makes the team more effective in creating new ideas, problem solving, and decision making. None of these benefits, however, occur automatically. Team members must spend time and effort to learn how to use the technology to meet their specific needs. They may also have to adapt their work routines to get the most benefit from the technology.

Additional aspects of technology and teams are discussed below in terms of: supporting technology, application programs, concerns with technology support, future technology support, and technology support and people.

### Supporting Technology

Video teleconferencing (VTC) is gaining acceptance and, where available, provides an efficient way to resolve some types of problems and communicate information. The recent entrance of individual PC video communication links and voice-actuated computer control and dictation indicate the increasing role that technology will play in team communication and teamwork.

### Application Programs

There is a large number of application programs designed to assist teams. Some representative programs that are currently available are discussed within this lecture. No attempt is made to provide a complete set of tools available to support TEAM processes.

Quality Function Deployment (QFD) is a process through which a team can transform customer-stated requirements into specifications to be used for product design. Software programs supporting QFD implementation provide computerized forms, procedures, and perform calculations to assist a team in going through this *house of quality* process. Clausing (1994) provides additional information about this technique.

A program called *AliahTHINK!* supports strategic planning and uses the analytic hierarchy process of pair-wise comparison of decision alternatives to facilitate group decision making.

*Group Systems 5* supports teams by giving them the ability to provide inputs via individual team member's personal computers (PCs) that are displayed on a board in front of the team. This allows anonymous inputs and comments to be shown to all team members. *Lotus® Notes* is widely used to share data and information and facilitate communication among a large

number (perhaps thousands) of individuals. Various databases and specialized image processing systems are also available. While each application has its advantages and disadvantages, the context of the application as well as the nature of the team can be important in its selection.

There are several programs that can be used to create a team practice field. A *practice field* is a place where managers and teams can practice making decisions and policies, frequently through the use of a simulation to represent their problem. Although the simulation is an approximation of the real problem (or system), it is accurate enough for team learning and can be adjusted for different situations. The team may create the model of its specific problem, and test both the model and their own assumptions by making decisions and observing the results. This is both faster and safer than the actual *performance field* where teams must live with their mistakes. *Group Model Building* (Vennix 1996) and *Modeling for Learning Organizations* (Morecroft and Sterman 1994) are valuable resources for understanding the use of modeling to support team processes.

### Concerns with Technology Support

While technology can be very helpful to teams, it also has drawbacks. In particular, keep in mind that technology should be used to support the team, the team members, and the objectives of the team. If a technology cannot add value to team performance, its usefulness should be questioned.

Technology is sometimes purchased because it is state-of-the-art, with the detailed application and value-added questions not being answered. A second common error is to forget that technology impacts the culture of the team and the way the team goes about doing its work. This phenomenon needs to be carefully considered and its implications reviewed before buying the latest and greatest technology available.

When team members understand, want, and are willing to take time to learn to use technology effectively, it can be highly productive. The trick is to match the technology available, the needs of the team, the team culture, and the introduction process. When this is not done, technology may do more damage than good, or it may be ignored. Coleman (1997) discusses what he calls *the challenges of groupware* and proposes a way to objectively calculate an organization's potential for success with groupware. The four factors he considers are technology, culture, economics and politics.

### Future Technology Support

As the number of fiber optic lines installed for commercial and Internet use continues to grow, the large bandwidth available will greatly improve the quality and effectiveness of video for communication, graphics, and simulation applications. Another trend that will accelerate the availability and power of technology to support teams is that of increased processing speed and memory. Kaku (1997) has investigated what he considers the three dominant technologies/sciences that will impact the future of the country. These are (1) the computer revolution; (2) the bio-molecular revolution; and (3) the quantum revolution.

Kaku interviewed approximately one hundred and fifty leading technologists and scientists who were currently working in, or directing, major laboratories throughout the country to determine where they thought technology would go in the next twenty, fifty, and one hundred years. The conclusion in the computer revolution is fairly straightforward. Recalling Moore's Law that predicts the doubling of computer power every eighteen months, Kaku estimates that this law will be valid until about the year 2020—at which time the number of transistors that

could be put on a microprocessor board via the etching process is limited by the wavelength of the available light. His conclusion is that until the year 2020, PC power will double approximately every eighteen months. (Kaku, 1997)

To see the impact of this, consider the current state-of-the-art PC with 300MHz-clock speed, 128MB of RAM, 10GB hard disc and a 24-speed CD-ROM. Jumping ahead to the year 2004, (about one half of the typical acquisition time for major weapon systems) 4.8GHz *speed* PCs will be available on the market at a price comparable to the current PCs. If comparable increases in available RAM, hard disc memory, and CD-ROM speeds are assumed, it becomes almost astonishing to picture the impact of such power on the manipulation and presentation of data and information.

If history is any guide, applications programs will be come available to take full advantage of the increased power. Teams may have to put a lot more time in the future into learning how to use this potential. Teams may have a real challenge in handling the huge amount of information made available. Although intelligent algorithms such as expert systems, fuzzy logic systems, genetic algorithms and neural networks may help, their development progress has been slow compared to computer processing advances.

## Technology Support and People

*Groupware: Collaborative Strategies for Corporate LANs and Intranets*, edited by Coleman (1997), contains a chapter entitled, "Groupware and Reengineering: The Human Side of Change." In that chapter, the authors looked carefully into the impact of technology on the human aspect of groups and teams. In their discussion of how groupware changes the way people communicate and share information, they note the following:

*...Groupware's powerful applications can magnify exponentially fear-based behaviors and their affects. For instance, people's tendency to assume, without publicly testing their assumptions, is generally worse in electronic communication. The speed at which information moves is a mixed blessing in that it spurs on the task oriented, 'get the job done', mindset, with all its barriers to learning. In addition, speed, coupled with another of groupware's main features—the ability to extend the range of information across the globe—often only spreads misinformation faster and further. (p. 582)*

Below we consider electronic mail and video-audio conferencing in terms of the typical benefits and potential problems for each product.

### Electronic Mail.

#### *Benefits:*

- a. Speed of communication.
- b. Ease of use compared to paper-based communication.
- c. Ability to transmit files.
- d. Access to people across hierarchies, distances, and time zones.
- e. Ability to broadcast messages one-to-many.
- f. Greater willingness to discuss subjects that people are reluctant to discuss face-to-face.

#### *Problems:*

- a. Can be just a faster and more efficient way to miscommunicate.

- b. There can be serious misunderstandings due to an increased tendency to make assumptions, to jump to conclusions, and not check them out.
- c. Messages are *low context*, making them much easier to misunderstand and distort than the telephone, video teleconferencing, or face-to-face communication.
- d. Less human connection and therefore easier for some people to say no to requests, and to neglect other people's feelings or potential interpretations of the E-mail.
- e. High volume of messages and a high percentage of non-useful messages that can waste time and discourage users. Several interviews in the acquisition system have indicated that some managers receive thirty to fifty E-mails per day and must therefore spend time going through them to determine which ones are important.

### Video/Audio Conferencing

#### *Benefits:*

- a. Higher context communication in that voice qualities and non-verbal cues are present.
- b. People feel a greater sense of connection.

#### *Problems:*

- a. Video may be delayed in relation to what you hear, so you see other's reactions to what has already been said not to what you are actually hearing.
- b. Requires an adjustment of communication style to be used effectively. Most people do not make this adjustment, and so their video appearance differs from a face to face interaction.
- c. There is a greater difficulty in *reading people*, and their tendency to act differently makes it difficult to know if they agree or are committed, to calibrate them, etc.

### Key Success Factor 6: Team Learning

While every key success factor directly affects learning, this one specifically focuses on "team learning." Recently there has been an emphasis on organizational learning and its potential for providing companies with a competitive advantage and the government with improved efficiency and effectiveness. Vice President Al Gore's *message to federal managers* contained within the Human Resource Development Council's *Getting Results Through Learning* (1997, 2) states:

*...I need your help to introduce a climate for learning in every government organization. This little book, Getting Results Through Learning, can help you do it.*

The book refers to learning as

*...all our efforts to absorb, understand, and respond to the world around us. Learning is social. Learning happens on the job everyday. Learning is adapting, and it is vital for the survival and well-being of individuals as well as organizations.*

In his popular book on systems thinking and organizational learning, *The Fifth Discipline* (1990), Peter Senge states that

*...team learning is vital because teams, not individuals, are the fundamental learning unit in modern organizations. This is where the "rubber meets the road;" unless teams can learn, the organization cannot learn.*

Because of the complex, uncertain and rapidly changing environment within which teams must do their job, it is critical that they *learn how to learn*. Learning, an increase in capability for effective action, ties directly to results. Be aware, however, that effective action is usually preceded by a great deal of experience, knowledge and intuition, coupled with a good picture of reality. Study, reflection, observation, experience, dialogue, trial and error, behavior, and feedback are all part of learning. Effective action is essential for learning, because knowledge without action is useless, and action without knowledge is blind.

A common question related to team learning is how can teams learn, when only individuals can *really* learn? The answer lies in the recognition that each individual develops, through experience and individual learning, a perception of how the world operates together with basic beliefs, assumptions, and estimates of what will happen in the future under given conditions. Senge (1990) refers to these as *mental models*, i.e. each individual develops their own mental model of the world they live in.

Through open communication, interpersonal interactions, and effective collaboration, team members can build a *shared mental model* such that the team as a whole develops a common perception and interpretation of its world. The development of these shared models and how they may change as the external world changes constitutes *team learning*. Team learning consists then of: (a) the knowledge and shared mental model that the team has developed and (b) the ability of the team to effectively implement actions derived from its knowledge and its shared mental model.

For convenience two types of learning are considered: *skill improvement* and *team development*. This somewhat arbitrary distinction highlights their differences and points out that team learning needs to change with time. Skill improvement would be dominant during team start-up and include training in areas such as team building, interpersonal skills, and conflict management. Team development is closely akin to TQM's continuous performance improvement and would include development focused on specific team needs that increased their performance. Skill improvement and team development and a third type of learning known as double-loop learning are briefly addressed below:

### Skill Improvement

During interviews with program offices, many of them said they wished they had spent more time on team training during their start-up period. The typical approach is a two or three-day team building offsite designed to build good interpersonal relationships, open communications, and trust. The training also brings the team up to speed on its task and develops team objectives and goals. A third outcome would be to identify individual team member roles and responsibilities.

Developing a team charter, team mechanics, ground rules, and the approach the team will take in performing its work are additional tasks that can be completed during the start-up phase. The team may be broken into small working groups to develop program plans or create ideas for the entire team to discuss and analyze. This facilitates team members getting to know each other and provides valuable outputs for later use by the team.

Early training develops a level of interpersonal comfort and helps team members find their place on the team. All of this may occur while the team is working toward a common perspective and vision. In addition to the team building value of training, the team needs to generate some task-oriented results that demonstrate its ability to work effectively together. Other specific training may include conflict management, utilizing the Myers-Briggs Type

Indicator (MBTI), etc. Kroeger and Thuesen (1988) are excellent sources of information on the usefulness of the MBTI.

One thing that is heavily emphasized by practicing teams is the value of having the *entire team* attend all early training sessions. By having all members share the same experiences as well as the training, the team can jump-start its collaborative capability and detect any early problems with personalities or organizational agendas. This approach becomes critical when there are multi-organizations represented on the team.

In *Learning, Remembering, Believing: Enhancing Human Performance*, Druckman and Bjork (1994) note that for team training to promote higher achievement than individual training, team members must promote each other's success. Individuals need to encourage and facilitate each other's efforts to achieve, complete tasks, and produce in order to reach the team's goals. They specifically identify eight ways in which team members can promote effective interactions.

1. Providing each other with efficient and effective help and assistance.
2. Exchanging needed resources such as information and materials, so that information can be processed efficiently and effectively.
3. Providing each other with feedback in order to improve their subsequent performance on assigned tasks and responsibilities.
4. Challenging each other's conclusions and reasoning, which promotes higher quality decision making and greater insight into the problems being considered.
5. Advocating the exertion of effort to achieve mutual goals.
6. Influencing each other's efforts to achieve the team's goals.
7. Acting and trusting in trustworthy ways.
8. Being motivated to strive for mutual benefit.

As the team learns to work together and proves its effectiveness, it may typically reach a steady-state level where the start-up phase is over. It should then consider continuous performance improvement.

## Team Development

As the team gains experience, perhaps six months to a year after start-up, it must be very careful not to fall into the comfort zone trap. This can occur when performance is good, workload is high, and things seem to be going reasonably well. Crises and heavy workloads are good reasons for the team to set aside thoughts of team development. This is a mistake that will likely result in good, but not high, performance. While individual team members may take training courses on specific subjects and some program offices have a one or two-day offsite annually, a deliberate plan for team development is rare.

This does not mean that the team necessarily quits learning. A great deal of useful learning occurs during team projects, around the coffeepot or during the numerous meetings and interactions that each team member has. What it does mean is that the team does not learn to improve its performance as a *team*. This refers to developing its capabilities in areas such as the key success factors addressed in this series of lectures, or improving team processes such as problem solving and decision making.

A team can help itself by deliberately seeking out and using just-in-time team development sessions as the need arises. This combines team learning and the accomplishment of real teamwork. For example, if a team has not developed specific problem solving disciplines

and a difficult problem comes up, they could combine a one-half or one-day workshop on problem solving applied directly to their immediate problem.

Because the learning has immediate and practical application, team members have a strong incentive to both understand and apply what they have learned. Living with the results then reinforces the learning, knowledge and competency of the team. The team has also learned together and knows how to apply what it has learned.

Teams may call in SMEs (Subject Matter Experts) on various topics for short briefings or question and answer sessions to gain additional insight and understanding in areas of need. To emphasize once again the importance of team development in context of work, Druckman and Bjork (1994) note that,

*...according to the evidence reviewed by Katz and Kahn (1978), a traditional error in training programs is to train individuals, while ignoring the systemic properties of the organization in which they work. Taking members out of the organization, giving them special training, and then returning them to the organization is a poor strategy for changing their performance because it ignores the power of role expectations, organizational norms, and other organizational variables in determining organizational behavior. When isolated individuals are trained and then returned to the job setting, the organizational pressures on them tend to be towards going "back to practice as usual", which causes an abandonment and decay of what is learned. Training intact teams seems to mitigate such pressures by providing a mutual redefinition of roles, responsibilities, and job procedures and social support for implementing and maintaining the procedures learned in the training program.*

Recall that learning is considered to be an increase in the team's capability for effective action. Team training and just-in-time development can relate the knowledge acquired directly to team action; and, therefore, carries more motivation, meaning and insight for the adult learner. Just-in-time development could be used to improve team effectiveness along the lines of the ten critical success factors (of which Team Learning is counted as one, i.e., learning how to learn) and the four major processes.

Going to a one or two-day offsite on an annual basis whenever practicable can be highly beneficial. This provides a quiet time for team members to step out of their day-to-day roles, take a broader and longer term look at what the team is trying to do, and explore how well its team members are working together. In addition to revitalizing individual relationships, the team is able to renew its common perspective on the vision, strategy, and approach, and to consider ways to, as one team leader shared, become a world class team. Whatever the technique and approach a team decides to use, the most salient prediction is that teams that learn and grow, get better, and those that don't learn, stay average until they are overcome by the changing acquisition system.

### Key Success Factor 7: Enterprise Partnering

The term *partnering* refers to the intent of two or more organizations to work together to improve the efficiency and effectiveness of a common goal, and to reduce the costs of disagreements. This is not something that can be done instantly. Like trust, partnering takes two

parties and must be developed over time. Trust, ease of communications, and a thorough understanding of each other take patience and usually must be tested.

Enterprise partnering to develop good relations has two parts. First is the identification of mutual goals between the team and the stakeholder so that both parties can work toward the success of those goals and collaborate for their mutual benefit. For example, clear benefits could be improved product performance, reduced schedule, or reduced acquisition cost.

Another partnering benefit could come from reducing the cost of disagreements through the use of alternative dispute resolution (ADR). Another benefit is the learning that occurs from listening and working with multiple stakeholders. Enterprise partnering generates better understanding of the enterprise and how it operates.

A second aspect of enterprise partnering is finding a senior manager in the team's chain of command who will act as a champion, especially while the team is new and may need senior level support. A third aspect is working with the infrastructure to ensure good support for team needs.

### Enterprise Partnering for Program Success

When two teams need to work together to achieve their individual objectives but do not, there can be a cost to the acquisition system. The lack of full teamwork among enterprise stakeholders can slow down the effectiveness of teams in meeting program commitments. This may be due to lack of resources or time, making it impossible to support all acquisition programs. Sometimes it is due to lack of communication between the team and various organizations throughout the enterprise.

The cost may be in terms of frustration, poor communication, missed opportunities, or program delays. Each party is doing what it feels is right, and does its own thing in the best possible manner. Enterprise partnering helps to minimize and prevent such situations from occurring.

Observation indicates that the squeaky wheel gets the grease. A team that wants to get maximum support from its enterprise takes deliberate actions to develop good working relations with all of its stakeholders. This creates a network to support the team and its program as the product is developed. In other words, enterprise partnering means working with stakeholders, keeping them informed, seeking their advice, *helping them when they need it*, and seeking help when the team needs it.

In one sense it is common sense, in a second, it is relationship management, in a third it is good marketing. Whatever it is, it works. Good relations are much easier to establish *before* problems arise than *afterwards*. Partnering takes time and effort, fortunately the payoff is more than warranted where there is a clear connection between or among organizational stakeholders and the vision/task of the team.

A team can develop a formal plan to partner or it can come to an informal agreement on what needs to be done and get all team members to develop relationships with their colleagues in the infrastructure. The danger of an informal approach is it can easily get lost in the day-to-day pressure of work. A formal plan would provide for periodic reports on the status of relationships with key stakeholders and discussions on actions needed to be taken. It can be an illuminating learning experience for a team to identify all stakeholders that it deals with (typically twenty to forty) and to prioritize them in terms of threats and opportunities as seen by the team. The team can then develop a plan to work closely with the most important stakeholders to ensure continuous support for their program.

## Enterprise Partnering for a Champion

As noted in the CNA study (DiTrapani and Geithner 1996), *Getting the Most Out of Teams*, industry found that the existence of a senior executive or champion can pay big dividends in team performance. When teams are initially set up, there are a great number of concerns, problems, issues, and hesitations on the part of team members and also the surrounding infrastructure. Questions concerning the reason for their existence, how effective they will be, their cost, exactly what authority, responsibility and accountability they will have, and how that will impact the *normal operation* of the rest of the organization can create a number of questions and pressures on a young team. A senior executive may need to step in and look into problems and issues and provide effective high-level defense and explanations for the rationale and the authority of the team.

Other issues can arise as to the style of team leadership, specific boundaries of the charter, and the scope of responsibilities and authority of the team as seen from the surrounding enterprise and its key stakeholders. When this occurs, a senior executive can provide invaluable help to the team leader in dealing with other enterprise stakeholders and internal problems. The senior manager knows the politics and culture of the enterprise and can help the team learn how to get things done.

*Sounding Board.* A team champion can also be a sounding board for the team leader as well as for the team. If resources become a concern, then a key senior executive can break down barriers and provide objective recommendations on resource needs and priorities. Another area of contribution could be to make sure that objective decisions are made by the team, and that the correct balance between short and long-term enterprise and program needs is maintained.

Issues arising between the infrastructure and the team may develop, and if they are escalated to higher levels in the organization, the team may need senior level support. During program evolution, problems can arise which are beyond the ability of the team or the team leader to solve, and therefore need to be escalated to higher authority.

*Sensibility Check.* The executive level manager can take an objective look and ensure that the strategy and vision of the team are consistent with, and supportive of, the vision and strategy of the enterprise. If the team becomes subjected to excessive oversight and/or micro-management from other organizations, it may need to call upon executive level defense mechanisms. Where executive level management ignores a team or provides *negative support*, it is extremely difficult for the team to accomplish the job intended.

Occasionally, teams may be initiated by decree where they don't make sense, and then left to survive on their own. If this occurs, it endangers the whole concept of teams as seen by the workforce and essentially sets back the progress of teams to support the acquisition process. In conclusion, teams, particularly young ones, may find themselves in strong need of a champion in their corner at the senior management level.

## Enterprise Partnering for Infrastructure Support

The infrastructure is that part of the enterprise that provides support to, and interacts with, the team. It includes the functional codes where a matrix organization is utilized, legal, contracts, and personnel, as well as the budget, finance, test and evaluation, and sponsor communities.

With some exceptions, most program offices, and hence their teams, do not own all of their people, nor do they perform all of the support functions. However, the effectiveness of the

team is highly dependent upon the quality, cooperation, responsiveness, and consistency of the infrastructure support.

The infrastructure supplies a special expertise and maintains a long-term, high quality capability in its discipline. It acts as a reservoir of professional talent available on an as-needed basis. In addition, the infrastructure may serve as a second opinion, and may have final authority over some areas. Teams can develop tunnel vision with respect to their objectives and the enterprise infrastructure can act as a balance. Where the infrastructure is highly competent, management is supportive, and a good partnering arrangement has been established with a team, great value can be gained by both parties. At the other extreme, if either the infrastructure or the team is non-supportive of the other, narrow in perspective, rule-bound, or operates only according to its own objectives, it can significantly hamper a team's effectiveness and thereby its program success.

One approach a team can take relative to its infrastructure is partnering and cooperation. It may be useful to set up a series of meetings or even off sites with various parts of the infrastructure to create a means by which communications, mutual understanding and cooperation can be built. This, of course, takes time, energy, and the right attitude on both sides. Both formal and informal interactions between the team and components of the infrastructure should be open, professional, and done in the best interest of both parties wherever possible. Each party needs to really understand the other party's priorities, assumptions, concerns and belief systems.

One barrier is the different objectives or goals of the team and the infrastructure organizations. While there is a great deal of overlap, they are not identical. While the TEAM is looking to achieve its objectives, the infrastructure has a responsibility to support the TEAM and also to meet its own organizational responsibilities. It is not a matter of either one being right or wrong, it is a matter of a built-in structural difference in objectives and perceptions that can create friction.

When good partnering relationships are created early in the life of a team, a lot of synergy occurs in which the team has increased performance and the infrastructure has increased professionalism and learning. Most problems arise because of incomplete or inadequate communication on the part of both parties.

Major barriers can also arise from different views toward empowerment, roles and responsibility, career paths, performance appraisals, and training. While most of these problems are typical of any matrix-structured organization, they can be resolved only if both sides recognize their ultimate responsibility is to the long-term acquisition process and its immediate products.

### Key Success Factor 8: Feedback

A popular phrase from the TQM decade is *the customer is king*. It makes a great deal of sense to recognize that the user of the product is the one who should have the final say in whether it is effective and meets user needs. A team also needs feedback from the customer. What makes this issue challenging is that there is not just one customer, but many. Not only does the weapon system have to satisfy the operating forces who are clearly the ultimate customer, but the sponsor, the requirements developers, budget offices, acquisition chain of command, and other team/organizations.

A formal or informal feedback program is one way of improving customer satisfaction and working the multi-customer problem. Feedback represents the primary cycle upon which

teams can learn how well they are satisfying their customers and know when to take action to improve their effectiveness. Teams that operate at lower levels within a program office also may have multiple customers and need the same sort of feedback from them as well.

Without feedback, there is no mechanism by which a team can change its direction or find its mistakes early enough to make cost effective changes. Data on innovation studies have indicated that, in the commercial marketplace, as much as seventy percent of all new ideas come from customers. In addition, constant communication and rapport with customers make it easier for a team to shift directions, if needed, by gaining consensus. This complements the enterprise partnering success factor that seeks to develop an enterprise-wide collaboration to achieve program goals. Feedback seeks to find information, opinions, and suggestions on how well a team is carrying out its responsibilities relative to the product needed by the customers.

Below feedback is discussed in terms of value added, implementation and barriers.

### Value Added from Feedback

One of the biggest impacts from feedback is to identify problems or misunderstandings early so they can be solved efficiently and cost effectively before committing to future stages of the development process. Using modeling and simulation during the design stage, for example, makes it much cheaper to make design changes before bending metal. Practical experience coupled with an independent, objective perspective from the user, tester, or sponsor will add significant value to the acquisition process.

Another value of customer feedback is the opportunity to interact and share ideas, opinions, and concerns with the users and bring their perspectives and experience into play in resolving complex problems.

Another gain from feedback is the completion of the learning cycle. Without comparing where the team is relative to the product versus what is desired by the customer, the team may not see the need for changing its direction. Seeking and responding to feedback not only improves team effectiveness in creating a product but also helps establish a rapport and trust between the team and its environment. Although this takes time, the consequences of a team achieving a collaborative, responsible position within the enterprise pays big dividends.

Getting the customer involved with the product and the team early during the development process gives them some ownership in the product and encourages them to collaborate downstream with the team to work toward an effective weapon system. The more that customers know about the acquisition process the better they can make decisions on system requirements and alternatives. In other words, just as the acquisition team must be *smart buyers*, so must the team's *customers*. By working cooperatively through the entire chain and using feedback to keep timely and open communication going, the team has the best chance of product success.

One study noted in Morhman, et al (1995) indicates that as much as fifty percent of team performance was due to the quality and timing of feedback. While this study was not done specifically for teams, it reinforces the importance of feedback in keeping teams on target and keeping them willing to listen and adapt to customer needs.

### Implementation of Feedback

There are several ways that a team can get feedback from the surrounding enterprise. Every interaction with stakeholders is a moment of truth in which team members find out how the program is perceived by outsiders, get new ideas on its improvement, and project a good

impression of the team. Notes should be kept of these interactions and the team should periodically assess the overall responses to look for trends or significant problems and opportunities. Formal feedback systems such as surveys with a standard list of questions have been used by some commercial organizations with good results. Setting up customer focus groups and analyzing their results is a third approach.

Feedback is probably more important early during the program development phase when the team is starting out and product changes are more cost effective. Starting early establishes a culture of customer response and team flexibility. Feedback is easier if the team also has an enterprise partnering effort. Preparation for major milestone reviews and decisions represent points in time when customer feedback is particularly important, although it may be too late to start a feedback program.

Semi-annual meetings with program briefings to the Fleet, sponsors and others to get their comments and suggestions are another method of feedback. Special peer-assist teams or graybeard panels brought in to review the program are also used. Some teams have a resident Fleet representative on the team to provide advice and liaison to other Fleet organizations.

No matter what feedback approaches are used, the team needs to have constant and objective feedback from surrounding stakeholders. The existence of critical thinking, open communication, and different perspectives will pay big dividends if serious problems arise in the program or the team's activities.

Teams should always get back to individuals who have given them feedback. This shows respect and responsiveness on the part of the team and makes the giver of the feedback feel that they have contributed to product success.

## Barriers to Feedback

Getting good feedback is difficult and takes time. It may take a number of meetings to gain customer rapport and several months to set up a process that provides timely, accurate and complete feedback. Some customers may be reluctant to provide negative feedback. Others may not have enough information about the program to have useful inputs. Still others may feel that it is not their role to influence the acquisition process. Where it is not possible to get good feedback from a stakeholder, the team may be able to get the information from third parties.

Two common internal barriers that can prevent a team from seeking feedback are workload and arrogance. Because of the heavy workload it is easy for a team to consider feedback to be too expensive in time and energy. Unfortunately, this may be a good example of a *systems thinking* error. The long separation in time between cause and effect can mask the negative consequences of a short-term, positive gain.

Neglecting feedback because of pressing workload may keep the workload from increasing at that time. However, not having the benefits of feedback means that more problems keep coming, thereby keeping the team under heavy workload pressure over the long-term. The solution is to prioritize actions based on long-term payoff or short-term survival need. Everything else should be contingent on the situation, be farmed out, or not done.

The barrier of arrogance is a self-delusion occurring when the team believes it does not need, nor want, outside opinions or ideas. Although rare, it may be true that others' opinions are not as competent, experienced, or focused as the team's; nevertheless, outside, well-intentioned, objective perceptions are invaluable in providing the motivation for a team to take a second look at what it is doing and how the program is going. No matter how competent a team is, or thinks it is, a second opinion will usually improve the product.

Another barrier may arise from the belief that it is necessary to protect the program by keeping its status and details from others. While this *closed kimono* approach may sometimes have been successful in the past, the ease of communications provided by today's information technology coupled with the current emphasis on using teamwork to solve problems at the lowest level make full and open communications a more likely success strategy. Problems can usually be solved more readily if identified in their early stages.

There may be psychological reluctance to admitting that the team (or program) is moving off track or may need to make a change in some way. Everyone prefers to solve their own problems. On the other hand, a team trying to do it by themselves without taking advantage of all resources, especially customers, may create an isolationist image that leads to a lack of enterprise cooperation.

Given that actively seeking, listening, and responding to feedback will take time and effort from other duties, the bottom line is that by taking this time, the team can create a safety net for itself and lower the chance of major problems arising later. The mode of constantly listening, learning, and taking in new information keeps the team alert to its changing environment.

### Key Success Factor 9: Collocation

Collocation is a measure of whether the members of a team are physically located together or spread out among several locations. Many situations make it difficult for teams to be collocated. The nature of the program, the task, and the number and location of contractors and program offices all must be taken into consideration.

Full collocation is considered to be the most effective for the team, though the degree of collocation may change with the phase of the program. The number of people collocated may vary as well as the time they spend together. Full collocation is considered the most desirable because physical distance among team members plays a significant role in determining their level and frequency of communication and their ability to achieve a high level of collaboration. Even small separations in space have a large influence on the frequency of interaction among team members outside of team meetings, reducing informal learning. Figure 2 provides a notional curve showing the probability of interaction among individuals as a function of the spatial distance between them.

Face-to-face meetings with all disciplines represented in the same location, where they can be brought together quickly to resolve problems, and *get to the heart of the matter*, will pay big dividends in terms of speed of decisions and team spirit. Cleland (1998, p. 441) notes in *Field Guide to Project Management* that,

*Being co-located is another technique to greatly accelerate and raise the reliability of communication. This in turn improves problem solving and decision making, which are both core activities in product development. Because physical proximity of team members is a great asset to a team, it is worth the extra effort required to obtain it...*

As physical separation among team members increases, communication is still essential, although now it is at the expense of travel time and money to have face-to-face meetings. The increased use of VTC, E-mail, and conference calls will help resolve these *virtual team* communication problems. While these technologies can help transfer information, their

communication effectiveness is a function of the nature of the information being sent and the interpersonal relationships of the team members. Where complex issues are concerned, they do not provide as effective a collaborative environment as face-to-face meetings.

Those teams that are separated physically require special attention from the team leader and all team participants. There is more need to develop a close sharing of information and individual experiences with stakeholders. A shared vision/approach takes on an even bigger role in helping the team leader achieve a good alignment of team member actions. The team leader has much less influence over team members and trust becomes a strong factor in effective team performance.

It is easy for team members to feel isolated and to lose their sense of unity unless there are frequent opportunities to be kept up-to-date. Team member empowerment takes on increasing importance when team members are separated and must act on their own. Another issue is keeping all team members advised of the real time *situational context* of the program and the sensitive issues that may come up.

As technology advances continue to increase communication bandwidths and the use of desktop video communication becomes more widespread, virtual teams will find it easier to work together. However, developing the desired trust and open communication will take longer if virtual communications is the predominant way of working together. Technology can serve teams well in the areas of common databases, simulations and knowledge support systems making information available to all team members independent of their spatial location or the time of access.

As the number of virtual teams and virtual organizations increases throughout industry and the government, their effectiveness will undoubtedly improve with time, particularly as technology provides more and more support. Virtual teams can provide leadership, feedback, and improved optimization of the various activities located throughout the country. In addition, they can quickly bring special expertise through their network as needed. These are some advantages over a fully collocated team. As Kostner (1994) points out, leading a collocated team and leading virtual teams are two different challenges.

### Key Success Factor 10: Team Size

There have been many studies on team performance as a function of team size. The general conclusion is that the optimum team size is roughly between seven and eleven people. This is a balance between a team with too few people to provide diversity and expertise and too many people to get full participation and open communication.

As teams become too large, they find it very difficult to reach a common understanding of a problem or situation. Large meetings usually end up as briefings rather than team collaboration. Many people feel ill at ease in actively participating in large groups, and discussions are usually dominated by a small number of participants.

Open disagreement is rare in a large group, except when it becomes a showcase for individuals to sound off. In either situation, true collaboration is rare because participants do not have the opportunity to interact in a collaborative environment. Large teams make it difficult for team members to get to know and trust each other. In addition, team members do not understand and appreciate other participant's roles, responsibilities, and contribution to team success.

On the other hand, larger size teams provide the opportunity for more innovative ideas if they are properly facilitated. Organizational buy-in on key decisions may prove difficult unless off-line conversations occur. Even when a team starts out small, as they become successful

people may want to be on the team, eventually reaching a size where team effectiveness is hampered.

From an efficiency of information transfer perspective, large teams sound good. From a problem solving, decision making, and alignment perspective, large teams can have great difficulty. The curve (see Figure 2) is a nominal representation of team performance versus team size.

Performance is very sensitive to individual relationships among team members. For teams to reach a high level of collaboration, their members need to know each other, know how to work together, and have developed a feeling of mutual accountability and responsibility for each other, as well as for program results. As Katzenbach and Smith (1993) noted in *Wisdom of Teams*, high performance teams are made up of team members who have a strong personal concern for each other as well as professional respect and collaboration. Large teams, because of sheer numbers of people, are unable to meet this criterion.

Although team size can vary as people depart or join the team, these changes have a dual impact on team performance. New members take time to become *part of a team* and to contribute their share of the intellectual resources. A high performance team is made up of individuals who know each other well, learn to work together, and recognize the strengths and weaknesses of their fellow team members. They also take on specific roles within the team, dependent on its current objectives. Thus team members cannot be replaced ad hoc and maintain team effectiveness. While it will always be necessary to change team members, the potential impact on performance must be recognized and dealt with effectively.

There are advantages to bringing new members into the team to replace others. New team members bring fresh ideas and experiences to the team and can serve to keep the other team members open and flexible. New people can keep the knowledge base of the team capable of meeting the demands placed on the team as the phase of the program changes. Although the team always needs a full spectrum of disciplines, some program phases may place more emphasis on one discipline than others.

Finally, teams can become so cohesive and internally focused that they lose the ability to remain flexible and open to other views. When this occurs it is essential that new blood be inserted into the team. The team leader must make sure that peer pressure on the new member doesn't prevent the full and open discussion of different ways of doing things.

## DIAGLOG IN SUPPORT OF THE KEY SUCCESS FACTORS

*Dialogue* is the capacity of members of a team to suspend assumptions and enter into a genuine thinking together. According to Senge (1990, 10) and Ellinor and Gerard (1998, 20), dialogue involves gathering and unfolding meaning that comes from many parts, as well as inquiring into assumptions, learning through inquiry and disclosure, and creating a shared meaning among team members. *Discussion* is the heaving of ideas back and forth in a winner-takes-all competition. Senge (1990, 10) and Ellinor and Gerard (1998, 20) refer to discussion as breaking the whole down into many parts and justifying and defending assumptions, persuading and gaining agreement on one meaning.

### The Concept

Dialogue is dependent upon the intent of the group. The intent of all participants must be to inquire, learn together and work toward a shared understanding of some issue or problem. With that intent, advocacy is appropriate if it helps the team learn.

Other defining qualities of dialogue are:

1. *Withholding judgment.* Everyone automatically makes judgments about almost everything they hear, see or do. These judgments preclude our ability to objectively consider and think about an issue or situation. While judgments are useful to measure feedback on some objective, they are based on a preconceived model of the situation and can act as a barrier to questioning that model, that is—to learning.
2. *Preventing closure or results.* Without a specific outcome or end result in mind, it is hard to render judgments. There is no basis to judge by. Understanding and finding the meaning in a situation, problem, event or pattern can best be done by not letting judgment get in the way. Thus in a dialogue, outcomes are not desired.
3. *Investigate basic assumptions.* Assumptions are those things we think we know. Even without judgment, assumptions will severely limit and control our conclusions and interpretations. If someone mistakenly believes that their assumptions are based on fact and truth they tend to close off all possibility of listening to differing views and block both learning and communication. When this occurs there is little hope of building trust, open communication and collaboration. To minimize the danger of assumptions, they must be made visible, openly evaluated by the team and assessed as to their validity. This forms the basis for further conversation and inquiry.
4. *Honesty.* If a team is to learn, team members cannot play political, organizational or personal games. Individuals who are not honest with themselves, and with others, cannot learn nor contribute to a dialogue. Their intent has to be real and their participation natural before they can learn and contribute to the teams' shared meaning.
5. *Slow down the conversation.* Normal conversation is too fast for individuals to think about what was said. Usually you are thinking about a response to what you think you heard or what you think the speaker is going to say. Often individuals do not actively listen. In a dialogue it is important that everyone reflect and think carefully about what is being said. Slowing the pace of the conversation is a good way to encourage such thinking.

As a dialogue progresses, ideas and concepts will come up that conflict with our view of the world or the situation. When this happens, participants need to question their own beliefs, knowledge, experience, and feelings. As team members try to relate others' views with their own, they will find a common interpretation and framework for understanding.

The purpose of dialogue is to create a shared understanding among participants. If the diversity of the team is sound and team members are knowledgeable and experienced in their disciplines, the resulting understanding forms the grounding for innovation, problem solving, decision-making and implementation.

To summarize, dialogue helps team members pay attention to the ways in which they work together. It helps form the basis for team learning, open communication, partnering, and the development of effective interpersonal relationships.

### How It Applies to Teams

Since communication and collaboration are at the heart of teams, the value of dialogue should be clear from the above. Teams could use it periodically to bring team members into agreement about program status or vision. A team may want to have a dialogue session to

explore the context and ramification of forthcoming problems or decisions. Both dialogue and discussion are important to team effectiveness. The key to their contribution is to make use of each of these processes at the appropriate time in team deliberations.

### Value Added to Team Performance

Dialogue creates a shared understanding and meaning among team members. This common frame of reference, mental model, perspective or understanding forms the basis for team member collaboration and open communication. If the diversity of the team is sound and team members are knowledgeable and experienced in their disciplines, the resulting understanding forms the foundation for learning and achieving high performance.

The payoff will be through improved team innovation, problem solving, decision-making and implementation. The final value added will be in better team products, customer satisfaction and sustainable acquisition excellence. The purpose of using teams is to take advantage of many individuals working together. Dialogue improves their ability to communicate and work together.

## INTERRELATIONSHIPS

This model is designed according to the following strategy for achieving high team learning and performance. A team first identifies and uses a set of ten *key success factors* to develop its ability to perform. It then uses these capabilities through the four *major team processes* to achieve results. In general, there is some relationship or connection between every key success factor and every major process. In the following paragraphs, *some of the influences* of the success factors on each process will be described. Recognizing that every team, task, and situation may call for slightly different relationships between the success factors and the processes, this can provide an understanding of how the processes depend on the success factors.

For example, two key success factors—*team leadership* and *team learning*—strongly affect every one of the major processes. Leadership plays a role in almost everything that a team does. A good team leader exercises influence through facilitation, coaching, and role modeling in all of these processes. Team learning is the development of the team's ability to execute these processes and to adapt its behavior and thinking to new challenges and tasks.

The innovation process is dependent upon the team's *shared vision/approach* to guide the creation of new ideas. Innovation is used to solve problems and problems are defined by some deviation between where the team wants to be and where it is. Without a vision and approach to guide them, innovation may be misguided. *Collaboration* sets the tone of team interaction, which can encourage or minimize the generation and constructive evaluation of new ideas. *Feedback* is where many new ideas come from. It is also the origin of the need for innovation and can stimulate team members to learn and think differently about their perspectives. The three principal key success factors that affect innovation are *shared vision/approach*, *collaboration*, and *feedback*.

Team *problem solving* is also dependent on the team's *shared vision/approach* to guide the direction of its solutions. *Collaboration*, in the same sense as above, plays a large role in team member interactions and team ability to combine divergent views and knowledge to arrive at a strong set of alternatives. Finally, *enterprise partnering* establishes relations with key stakeholders who provide different views of both problems and their possible solutions. They may also have resources or knowledge of other individuals who can help in the problem solving

process. The three principal key success factors that affect problem solving are *shared vision/approach*, *collaboration*, and *enterprise partnering*.

Team *decision making* is dependent on *collaboration* to achieve quality decisions and to get buy-in from all team members. *Empowerment* is also very important because it allows team members to commit their organizations and let the team make decisions without having to get multiple agreement from enterprise stakeholders. *Team size*, either too small or too large, can affect the quality of decisions made. Small teams may not have enough diversity of experience and knowledge and very large teams may never reach agreement or, if they do, many team members may remain quiet and not buy into the decision. The three key success factors that affect team decision making are *collaboration*, *empowerment*, and *team size*.

Team *implementation* is influenced by the *shared vision/approach* because it guides individuals as they carry out the plan of action and milestones. Common understanding and ownership of the team vision empowers team members to act on their own, yet stay aligned toward the team goal. *Enterprise partnering* can be of considerable value during the implementation phase of a decision. Key stakeholder support may be the difference between success or failure of a team's efforts. Often there are many organizations and individuals impacted by team decisions and any of them may have the capability to block or slow down progress if they do not support or understand what the team is doing. Empowerment supports implementation by giving team members the authority and freedom to act without continuously going back to the team for direction. The three key success factors that affect team implementation are *shared vision/approach*, *enterprise partnering*, and *empowerment*.

In addition to affecting the major processes, the key success factors influence each other in many ways. For example, the team leader sets the tone of the team and by his/her actions and management style influences all of the other factors. A shared vision helps pull team members together and improve their collaboration level. At the same time, a high collaboration level will help a team in developing its vision and approach to task implementation. The degree of team collocation will affect its ability to work collaboratively. Both partnering and feedback help a team develop and maintain its vision/approach.

Collaboration makes it easier for a team to learn. Enterprise partnering makes it easier for a team to obtain feedback from its stakeholders. In turn, a high collaboration level can help develop and implement a strong enterprise partnering program. Feedback indicates a potential need for the team to reassess itself and can help direct team learning. Both collocation and team size can influence the degree of team collaboration. The appropriate use of technology improves the speed of communication and the efficiency of many of the other success factors.

The success factors are closely related to each other, indicating they represent the structure of a complex system. These relationships will vary in strength depending on the team, its situation, and the task at hand. It is the challenge of every team to dynamically manage these factors to get the team learning and performance needed for a given task.

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