Diversify your teams and collaborate: because great minds don't think alike

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Abstract

Purpose – This article aims to provide business managers and executives with a framework of how to best utilize and implement teams in the workplace so as to maximize both internal and external diversified skill sets capabilities in team members.

Design/methodology/approach – A combination of primary and secondary research was conducted to highlight and strengthen the authors' views and opinions. The original ideas and basic concepts are based upon the authors' own experiences.

Findings – Companies have much to gain from utilizing teams and teamwork within and across corporate boundaries. Success is more likely to be achieved if the team has certain core characteristics. In addition, a heterogeneous team composition could optimize efficiency, quality, and innovation. By collaborating and teaming with external parties companies can overcome internal resource limitations and achieve competitive advantage, greater profitability and maximize chances for long-term survival.

Research limitations/implications – The article is primarily based upon the authors' own experiences and opinions, which may differ from results of studies and research done on the subject. The secondary research was limited. The survey conducted by the authors was not scientifically constructed. The sample size was small ($n = 32$) but yet statistically significant and based upon a convenience sample.

Practical implications – The article may help company executives and managers who want go get the most out of their employees and enhance their work teams' productivity levels, output quality, and creativity.

Originality/value – The article is a clear and concise read relating to a highly relevant business topic. It takes a multi-level approach to the concept of teams in the workplace, and could serve as a good guide to business leaders on how to create the most efficient and effective work environment for their employees that will ultimately result in more successful and profitable operations.

Keywords Team working, Skills, Teambuilding, Organizational performance, Resource management

Paper type Viewpoint

1. Introduction

In today's increasingly competitive business environment the need to differentiate and achieve more with less should be a primary focus of forward-thinking organizations. Executives know this and constantly search for ways to become more innovative and create more efficient processes. One very important tool available to executives and managers in this search is team development and deployment. By understanding and implementing teams in the most effective way possible, companies will improve their chances of success. A well performing team will create additional value to a company

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by combining individuals' strengths and take advantage of synergies that may exist, thereby making the whole greater than the sum of its parts.

Many have studied the value that teams and teamwork can bring to an organization and agree that significant value can be created if teams are used in the right way. Done wrong, teams will not only hinder company performance but also prove economically taxing. For a team to be successful, certain core ingredients are required. These include competence, clear performance metrics, commitment to a common goal, aligned efforts, contribution from every member, and a supportive environment. A team that has all the above-mentioned characteristics has a good chance of becoming successful.

If the team, in addition to the essential elements, has members with diverse sets of backgrounds and skill sets an even higher level of performance can be achieved and the likelihood of producing breakthrough innovations increases. It is the authors' contention that heterogeneous teams present greater opportunities for success than do homogeneous teams. Heterogeneity, as discussed in this article, refers to a group of individuals with a diverse set of skills, talents, and experiences. A heterogeneous team could, for example, have one marketing expert, one engineer, one person with strong organizational skills, and one quantitative genius. Homogeneous teams, on the other hand, are characterized by having individuals with similar strengths and competencies, such as a team comprised of five engineers. A heterogeneous team can introduce challenges not present in homogenous teams, but with the right leadership such challenges can be overcome and synergies will be achieved. A survey of 32 executives and department managers conducted by the authors show that 84 percent of business leaders prefer to construct and utilize heterogeneous teams instead of homogeneous ones. These executives and department managers believe that heterogeneous teams are advantageous because they lead to multiple viewpoints and ideas, leading to innovative and creative solutions.

In order to maximize the value of teams, it is important for managers to realize the potential of collaboration between different teams within the organization as well as working together with teams from other companies, including those of competitors and supply-chain partners. Teams should not be treated as separate entities that work in isolation from one another. Inter-team and inter-company collaboration add another dimension to the concept of teamwork and can create win-win situations for all parties involved. All organizations, no matter how large, have limited resources. At the same time, all successful companies and teams, no matter how skilled or diversified, perform certain tasks very well and others not as well. By collaborating with external teams, companies can focus on what they do best and let their partners complement them in areas where they do not have core competencies. Capgemini, a multinational consulting firm, is one of the many corporations worldwide that promote collaboration. The company web site clearly states that firms that wish to remain competitive must be able to share information quickly, "not only within their own organization but also externally up and down the supply chain" (www.capgemini.com/services/).

Although we believe that diversity in team members' skill sets is critical for breakthrough results and external collaboration has the potential to add significant value to all parties involved, we should not overlook nor underestimate the value of the basic essential ingredients that are required for team success. The most important core team characteristics are discussed in section 2.

2. Teams: critical success factors

Competence

To succeed, the team should have all the talent, knowledge, organizational clout, experience, and technical know-how needed to get the job done. An effective team should be composed of people who collectively bring all critical competencies to the effort. Any weak or missing competencies jeopardize the team goal(s). In these cases, teams must strengthen weaknesses or recruit for the missing competencies, something that successful teams learn to do as they move forward.

Some companies make the mistake of basing team membership on formal titles or organizational positions. Someone will suggest that "you will make Peter angry or jealous if you don't put him on your team", or that "Joe is the national sales manager and therefore you should be sure to include him on your team." Unfortunately, neither Joe's potential angst nor Peter's title is a good reason to put either of them on a team. As a team leader, your assignment is to achieve a particular goal: to design the new product line of chemical catalysts within six months and to reduce the annual production costs by $2 million dollars per year. Neither employee's frustration should be the primary consideration of the team or team leader. The team needs individuals who can and will bring critical competencies to the effort with no distractions and an unwavering commitment to attaining the objective.

As a practical matter, the advice given above may need to be tempered by the political realities of the organization. For example, a team member's goodwill could be extremely important if he or she is in a position to block the team's progress. Making that person a team member could have the effect of getting him or her to buy in to team objectives, thus neutralizing the danger to the team.

Common goals and clear performance metrics

Have you ever been part of a team or project group that did not have a clear idea of its purpose? If you have, you probably understand why groups like this are rarely successful. It is virtually impossible to succeed when team members cannot clearly articulate a clear and common goal. The situation is even worse when the executives who sponsor and engage teams lack the clarity or are uncertain as to what they want done.

One way to test for clarity of vision and common goal of each team member is to try the "elevator speech" test. Take each team member aside and ask the following question: if you were traveling by elevator between floors with the client's CEO and he asked what your team was working on, what would you say? Everyone on an engagement team should be able to clearly articulate and explain the team goal to the CEO or any intelligent stranger for that matter.

Can everyone on your team articulate the team goal with a degree of succinctness and clarity? Would everyone's articulation of the goal be the same? If you said no to either question, you have a problem. Try to address that problem as a group. A team's goal is generally handed to it by higher management, which sees a problem or opportunity and wants it dealt with. Ideally management identifies the end but leaves the means to the team. Nevertheless, team members must share a clear understanding of the goal. Otherwise they will head in different directions, dissipating both energy and resources. Conflict and bickering would be guaranteed.

Once they reach a common understanding of the goal, team members, in concert with management, should specify it in terms of performance metrics. For example in reengineering a chemical process, the team can specify its goals as follows: "Increase the efficiency of chemicals used by 80 percent while at the same time increasing the speed of the chemical production processes by a factor of four within a two-year period of time." Metrics like these not only specify the goal more completely, they also provide a way to gauge progress toward goal achievement. For example, this team could have set up intermediate milestones such as these:

- Within six months, 30 percent increase in chemicals efficiency utilization while increasing the speed of the processes by a factor of two.
- Within the next 12 months, an additional 30 percent increase in chemicals efficiency usage, maintaining the same speed of critical processes.
- Within the last six-month period (two years from the start of the project) achieving an additional 20 percent increase in chemicals usage utilization while again doubling the speed of the processes.

A team without performance metrics cannot determine whether it has been successful.

Commitment to a common goal

A shared understanding of the goal is extremely important, but really effective teams go a step further. Their members are committed to the goal. There is a big difference between understanding and commitment. Understanding assures that people know the direction in which they should work; commitment is a visceral quality that motivates the team members to work and to keep working when the going gets tough. Few teams have faced tougher conditions than teams in the military. This is the ultimate example of a team where individuals find themselves relying and committing to the platoon team members for everyone's survival and project success.

Commitment is a function of goal ownership and mutual accountability. Consider the following example. A number of individuals from different functional areas of a company are brought together to solve a problem. Their company is losing customers to a rival that provides the same service at a markedly lower price. That lower price is a function of the rival's greater efficiency in delivering its service. The only solution is to find a way to provide customers with greater value: a lower price, measurably better service, or a combination of the two.

Every member of the team understands the importance of the goal. Their economic futures, and those of their coworkers, depend on their success. Since management has not told the team members how they should achieve their goal, they have a sense of ownership for both the effort and the result-and hold each other accountable for that result.

That is commitment. Furthermore we should not confuse shared commitment with social compatibility. It is less important that people get along with each other than it is that they are willing to work together to get things done. Having a purpose that all see as important can overcome social incompatibilities.

One can recognize shared commitment in the vocabulary used by team members. When people use "we," "us," and "our" instead of "I," "you" and "they," team commitment is in the air. Statements like these suggest real teamwork: "we are making good progress, but each of us must pick up the pace." Commitment to a common goal is more easily achieved if the number of the team members is small. That seems intuitive. The military among others has long recognized the importance of "small group cohesion" in generating individual commitment to both the unit and its goals. Soldiers will gripe endlessly about the army but will often risk their life and limb for the well being of their infantry platoon and its individual members. For this reason, some team experts recommend membership of no more than ten individuals, and fewer is better if all of the right competencies are represented.

Commitment is also enhanced through rewards. If people understand that promotions, bonuses, or pay increases are associated with their success in achieving the team goal, their commitment will increase. If the team members understand that the boss will get the credit and the vast majority of the monetary rewards, their commitment will prove ephemeral.

Every member contributes and as a result every member benefits

If you have ever participated on a sports team you know that every member must contribute his/her maximum effort and with the same intensity if the team is going to prove victorious. A rowing team is a primary example, where it is critical that every member contribute the same level of intensity. There is no room for slackers or people who do not keep the right pace. Work teams are very similar. Their performance depends on everyone pulling and contributing for the same unified goal. Individual members who simply show up at meetings to render their opinions but do not work in fact impair performance and demoralize the active teammates. If team membership has any real value it has to be earned through real work and productive contribution to the team's deliverables. In other words, free riders, team members who obtain the benefits of membership without doing their share cannot be tolerated.

This is not to say that every member must contribute the same amount of time on team activities. Certainly a senior manager's role for example will be different from a staff person's role on an accounting/tax engagement. A senior manager may be a regular team member even though much of his or her attention must be directed to other duties. This person may contribute by securing resources or by building support for the team within the organization. While some people might not see this contribution as "real work", it is nevertheless critical to the team effort.

The team leader must also do "real work" including a share of the less pleasant tasks. He or she cannot be a team member and behave like a traditional boss, delegating the work to others. This behavior might be acceptable for the engagement partner as this individual's primary objective is bringing in additional work and managing the client relationships. Therefore there is a certain element of role ambiguity for the team leader, who must wear a leadership cap some of the time and a team member's cap the rest of the time. Of these roles, leading is bound to be more important, and it is indeed work. In addition, just as each member must contribute to the team's work, each should receive clear benefits. These benefits can take many forms: the emotional/psychological reward of doing interesting and meaningful work, and/or a learning experience that will pay future career dividends or extra money in a paycheck. In the absence of clear benefits, individuals will not contribute at a high level, at least not for long. The benefits they derive from their regular jobs will absorb their attention and make team duties a secondary priority.

A supportive environment

No business team operates in a vacuum. A team is a small organization embedded within a larger environment of operating units and functional departments. It depends on its organizational environment to one degree or another for resources, information, and assistance. The extent to which operational units and departments are supportive, indifferent, or hostile to the team and its goals is bound to have an impact on team effectiveness. In particular, the team builder needs to consider these environmental factors:

- *Leadership support*. Support at the top is essential. It ensures resources and helps recruit the right people. Leadership support also provides protection from powerful managers and departments that for one reason or another would be inclined to thwart the team objectives and goals.
- *Nonhierarchical team structure*. Team based work is more likely to be successful if the organization does not conform to a rigid hierarchical structure. Why? Because a nonhierarchical structure creates habits that are conducive to team-based work: specifically, a willingness to share information, collaboration across organizational boundaries, and employee empowerment. These habits are weak or absent in organizations where the bosses do all the thinking and directing and everyone else follows orders. Such organizations are not team-ready.
- *Appropriate reward system*. Companies that are new to team based work need to examine their reward system before launching teams; they must find a different balance in rewards for individual and team based success. Doing so is one of the most daunting challenges faced by those who sponsor teams.
- *Experience with team-based work*. Teams benefit when their companies and individual members have plenty of experience with team based work. Experience provides insights into what works and what does not, how best to organize around a goal, how to collaborate, and how to alter the team at different points in its life cycle. Many companies that rely on team-based work provide training on team methods, and with good reason. Individuals must be trained in team-based work. Specifically they need help with skills such as listening, communicating with different kinds of people, collaborating with people outside their departments, and staying focused on the common goal.

Importance of alignment

Alignment is critical for team effectiveness. Alignment refers to the coordination of plans, effort, and rewards with an organization's highest goals. In an aligned organization, everyone understands both the goals of the enterprise and the goals of his or her operating unit. In an aligned organization people work in the right direction and the rewards system encourages them to do so.

Teams also need alignment. A team should not even exist unless it represents the best way to help the organization achieve its goals. So team goals should align with organizational goals, and the goals of the individual team members should align, through the team, with those higher organizational goals. Furthermore, everyone's efforts should align through the rewards system. This last point is critical, and it begins at the top, with the sponsor. Since the sponsor is accountable for team success, some part of his/her compensation should be linked to the team's performance. Moving down the chain of command, the team's leader and members should likewise see their compensation affected by team outcomes. Incentives alignment gets everyone moving in the same direction, the right direction.

In short, there are several basic ingredients that are critical for team success. Essentially, competence is an essential ingredient of team effectiveness. An effective team is comprised of people who collectively bring all critical competencies to the effort. Missing competencies must either be recruited or developed internally. Commitment to the common goal is another essential ingredient of team success. You can assure commitment by directing teams toward compelling goals and things that really matter to the organization, keeping teams at no more than ten members, and aligning team-based work with tangible rewards. Every member should contribute and every member should be rewarded for his/her efforts. Make sure that the organization structure is compatible with team-based work, and that it encourages success. Lastly, it is essential that team goals are aligned with the organizational goals.

3. Heterogeneity: the multiplier effect

The attributes discussed in the previous section are all very important characteristics of a successful team. Lacking one or more of them could be detrimental to team performance and any synergies that exist may be reduced or even eliminated. On the other hand, teams that do have all of the core characteristics discussed above are well positioned to take advantage of all the benefits that a well working team can bring to the table. However, while such teams will create value to an organization they are likely to be evolutionary, not revolutionary. Companies that really want to set themselves apart from the competition, maximize resources, and create breakthrough innovations should consider deploying so called heterogeneous teams, which are teams comprised of individuals with diverse backgrounds and skill sets. It is the authors' experience that three main benefits can be derived from the use of heterogeneous teams: higher efficiency and quality, less redundancy, and increased innovation.

Higher efficiency and quality

Early in his career, one of the authors was responsible for a remarkably mixed team. One person was strong on organizational issues but weak with numbers. Another team member had superb analytical and mathematical skills but lacked in other areas, and a third individual was a creative thinker with impressive problem solving abilities. At that time the author, who was the team leader, assumed it was better (or certainly easier) to build an effective and efficient team from people with similar strengths that were ideally suited for a particular task. He would soon change his mind, and over the years the author has learned how wrong he was in his thinking back then. Efficiency will be higher in heterogeneous teams because the diverse team composition allows for each member to focus and fully own his or her area of expertise. For a team to maximize engagement results, each individual must focus on his or her respective strengths (Wee and Morse, 2007). People should be given the opportunity to leverage those things they do well and consistently and energetically:

> The best companies are made up of great teams. And those teams have individuals who know their strengths, take them seriously, and offer them up to the organization (Buckingham, 2008).

It is important to realize that even highly specific projects almost always reach across disciplines or at least sub-disciplines. A diverse team composition will ensure that all tasks are covered. A homogeneous team, on the other hand, runs the risk of performing very well in one particular area but fail in others. For example, a highly quantitative team may have an excellent idea but if nobody has the ability to communicate and present the idea in a convincing way, it is unlikely to develop or mature. Similarly, a team made up of all engineers could come up with a great product, but might be out of touch with whether or not there exists a demand for such a product.

Based upon the authors' experience there is a high correlation between what individuals love to do and what they excel at. This creates a win-win situation in which each team member is not only contributing to the team's success in the most effective way but is also doing what they love to do. This will create a more positive atmosphere that further enhances productivity. By establishing clear areas of responsibility for each team member a sense of ownership and pride will develop since each individual's contribution will be clearly visible to the other team members as well as to outsiders. Creating this heightened sense of ownership should result in the quality of work drastically improving and probably exceeding expectations.

Less redundancy

Although closely related to (and one reason for) increased efficiency, the reduction in redundancy that can be achieved by deploying heterogeneous teams is so important that it deserves special attention. In a homogeneous team, not only do you miss out on all the benefits that come with a heterogeneous team but you also run the risk of duplicating efforts. Chances are that people with the same types of skills and backgrounds will tend to work in similar ways, thereby increasing the risk of redundancy, which could also lead to cost overruns and bad engagement economics.

The authors strongly believe, based upon their 20 + years of business experience, that teams in the workplace can and should achieve more than all the individual team members could on their own. Any redundancies will have the opposite effect, lowering or eliminating any synergies that may exist in a team. Management should play a critical role in ensuring that the right number of people with specific sets of skills is present in the team. This number is situation specific and will depend on the team's goals, objectives, and nature of work. A highly focused, specific project may need multiple individuals with similar skill sets because the nature of the project requires it. Management needs to analyze the situation and allocate resources accordingly so that each area is sufficiently covered, but not "overdone". As pointed out earlier, almost all projects, no matter how specialized, will require work in more than one area if the project or idea is to ever come to fruition.

Increased innovation

The authors have defined a heterogeneous team as one made up of a "diversified portfolio" of team member talent. Due to the differences in skills and backgrounds, the team members are more likely to look at a project or problem from different points of view. This will lead to more out of the box thinking, which in turn will lead to breakthrough innovations. Hans-Paul Burkner, President and CEO of The Boston Consulting Group, has been quoted saying:

> When we're faced with what looks at first like an unsolvable problem, a team with what I call "spikes" of different talents will come up with a better solution than a team whose members have similar strengths (Meier, 2008).

Burkner, in the same interview, continued by saying that:

> The process can be slow and uncomfortable; spikiness hurts. But it can yield spectacular results – as long as the firm and project leader ensures that the team and members appreciate one another's talents.

We will discuss the importance of the team leader below. One example of a company that promotes heterogeneous teams is Goldman Sachs. For example, Goldman Sachs had an advertisement in the *Economist* back in 2000 that stated:

> The good news is great minds don't think alike ... We believe the best ideas come from a room full of differing opinions. With our substantial global resources, we're able to bring different minds and disciplines to the table. The result is out of the box thinking instead of conventional solutions (Mello and Ruckes, 2006).

The Boston Consulting Group and Goldman Sachs are two good examples of companies that have successfully embraced heterogeneity in the workplace, but they are far from alone. In a study on more than 17,000 patents, Fleming (2004) shows that breakthrough innovations are more likely to arise out of teams made up of people from very diverse disciplines. On the other hand, his research also indicates that the average value of innovations will be higher when the team is comprised of individuals from similar disciplines. While this last point might appear to contradict with the authors' views and experience, we are of the opinion that heterogeneous teams can produce consistently high value innovations as long as all the core characteristics of a team (discussed previously in this paper) are present and the team leader is of high caliber (discussed below).

One of the strengths of heterogeneous teams is that they have a greater variety of information sources than homogeneous teams and therefore have the potential to reach better decisions and more creative outcomes, especially in uncertain situations and when the stakes are high (Mello and Ruckes, 2006). Product development teams commonly operate in environments such as the one described above and leaders of such teams should carefully evaluate the potential benefits of heterogeneous teams. To develop a new product often involves significant investments in both time and capital and mistakes can be devastating to a company's future, thus the stakes are quite high. Product development teams also deal with a high degree of uncertainty since it is very difficult to know how a new product will be received in the market. A firm can reduce such uncertainties by involving individuals from different disciplines early in the product development cycle. Such interdisciplinary teams will ensure that all the pieces required to produce a successful product are present. This goes back to one of our earlier points about developing the right product for the right market at the right price/cost. "The house of quality", the basic design tool of the management approach known as quality function development could be a useful aide to product development managers. The house of quality is discussed in detail in Hauser and Clausing's (1988) *Harvard Business Review* article with the same name, but the basic premise is that products should be designed to reflect customers' desires and tastes which means that manufacturing, engineering, and marketing people need to work closely together from the time a product is first conceived through commercialization.

Challenges to heterogeneous teams

Owing to the very nature of heterogeneous teams, which are made up of diverse individuals, challenges not present in homogeneous teams are introduced. Polzer (2008) argues that diverse teams "are prone to dysfunction because the very differences that feed creativity and high performance can also create communication barriers". Similarly, Mello and Ruckes (2006) suggests that members of heterogeneous teams are more likely to diverge in their preferences with respect to courses of action, which will lead to lower effort. As previously noted, Fleming's (2004) study on patents indicates that innovations from heterogeneous teams are, on average, of lower financial value than those coming from homogenous teams.

The above are all valid points that should be carefully considered. However, we believe that if all the essential team core characteristics discussed above are present, none of the proposed challenges will hinder the performance of the heterogeneous team and project goals and objectives will be achieved. Whereas the heterogeneous teams will perform just as well as homogeneous teams on the incremental projects, the heterogeneous teams will prove far superior in achieving disruptive technological breakthroughs and innovations. If, in addition to the basics, the team also has a strong leader the chances of success become significantly greater.

The team leader

Two crucial aspects of being a good team leader of any team, but especially heterogeneous ones, are a clear vision and the ability to create open communication and flow of information. A team with dissimilar individuals and opinions need a leader that can guide the group in a common and productive direction and align efforts. "A leader can be wrong but not confusing" (Buckingham, 2008). Just as important to team success is the team leader's ability and willingness to encourage open communication. Whenever we are in charge of a project team, we try to meet with each team member individually every week to discuss how they perceive their performance, what they like to do, and what they think they can bring to the table to help the project go well. We have found that these one-on-one meetings work very well because not only does the leader get valuable information that can be used to help the team, but it also motivates people when they know their opinion matters. It is the role of the team leader to delegate appropriately (Wee and Morse, 2007), which means that he or she needs to know each team member's strengths, weaknesses, likes, and dislikes and the only way to achieve this is through open communication. One approach would be for the team leader to "take an initial inventory" at the beginning of the project by talking to each team member to find out how to deploy the team's resources in the most optimal way

(Meier, 2008). It is also important that information flows freely between the members of the team:

> Collaboration is really the only game in town for teams if they are to truly harness the potential synergy that exists between individuals. For a team leader, understanding this and working with the team to realize this potential is probably the most valuable work you can do (Whitaker, 2009).

Whenever we have the opportunity to assemble a team, we try to make it as diversified as possible. Nothing is more rewarding or has greater upside potential as turning a diverse set of individuals into a high performing team methodically and gradually over time. If team members complain that their differences will cause problems we tell them that if everyone focuses on what they do best, each individual's efforts will be recognized and appreciated by the team and together we will achieve results greater than otherwise possible.

4. What our survey of executives/managers has shown

A total of 32 executives and managers were surveyed, either by phone, e-mail, or in person about their views on heterogeneous vs homogeneous teams. The questions asked are:

(1) When given the opportunity, do you choose to compose a team of individuals with similar backgrounds and skills (homogeneous team) or do you pick individuals with differing backgrounds and skill sets (heterogeneous team)?

(2) What do you see as the main benefits of homogeneous teams?

(3) What do you see as the main benefits of heterogeneous teams?

(4) Does you leadership approach change depending on whether you are leading a homogeneous or heterogeneous team?

(5) Of all the teams you have ever worked with (as a team member or leader), what percentage would you say were homogeneous vs heterogeneous?

The results of our survey indicate a clear preference amongst business managers for heterogeneous teams rather than homogeneous teams. A total of 84 percent (27 of 32) of respondents said that they choose to compose a diversified team if they have the opportunity to do so (question (1)). A few managers pointed out that it somewhat depends on the team objectives and goals, but that they generally prefer heterogeneous teams. Several respondents reported that homogeneous teams present advantages in terms of a smoother workflow, less confrontations, and faster completion (question (2)). Heterogeneous teams, on the other hand, were said to be beneficial in terms of approaching tasks from different angles, coming up with creative ideas and solutions, and bringing diversified expertise to the table (question (3)). A total of 23 of the 32 (72 percent) surveyed executives and managers do not change their leadership style based upon if they are managing a heterogeneous or homogeneous team (question (4)). The 28 percent of executives and managers that do change their leadership style depending on the type of team they are working with reported that a more hands on approach and clear directives are needed in a heterogeneous environment, while a homogeneous group need to be challenged more in order to be more creative. When asked what percentage of all the teams they have ever worked with were homogeneous vs heterogeneous (question (5)), the responses suggest that diverse teams are quite common in the workplace today. The average response was that almost two-thirds (65.5 percent) of team experiences had been with heterogeneous teams, while only one-third (34.5 percent) had been homogeneous.

The results of the survey resonate with the authors' proposition that by utilizing the power of diversity and constructing heterogeneous teams, organizations can achieve a higher level of performance than is possible in a homogeneous environment. The survey also indicates that many firms have embraced the concept of heterogeneity and more often than not form teams that consist of individuals with diverse skill sets and expertise. The authors believe that this trend will continue and grow even stronger in the near future.

5. The macro view: team collaborative development management across organizations, companies or a supply chain

Collaborative team development, developing products across corporate boundaries by collaborating with a range of external partners, is a recent product development trend, and a key element of the new R&D productivity generation of development management. Companies realize that they do not have all of the internal resources and competencies needed to do everything they want to do, and they are increasingly turning to development partners such as customers, suppliers, contractors and co-developers (Holtzman, 2008).

Collaborative team development across companies, divisions, or different contributors within a supply chain will eventually change the very nature of product development and possibly even the research and development process. These processes will become less resource constrained by the availability and capabilities of internal resources, as external resources and alliance teaming will provide the ultimate flexibility.

For example, product development investment will become more variable, instead of the predominantly fixed cost it is today in most companies. However, there is a lot to be done in order to get there. Companies need to wrestle with issues such as increasing their outsourcing of R&D and understanding the true cost of complete internal development. Teaming effectively might also require putting in place the appropriate infrastructure necessary to manage collaborative development.

Prior to the new generation of teaming development management, and the advent of development chain management (DCM) systems with partnering capabilities, collaborative development was an elusive goal because the necessary infrastructure to manage collaboration was not yet in place. Companies might have wanted to collaborate seamlessly with external partners but the reality was that they could not even achieve seamless internal collaboration because they lacked the common systems and processes across their own enterprise.

These missing systems and processes are now within reach, and they allow companies to employ defined strategies to coordinate project schedules and to work collaboratively across supply and value chains.

Categories of teaming in collaborative development

There are several different categories of collaborative teaming for development, since the collaboration required is different for each. In all of these a DCM system can be used to allow the team to designate specific items to be shared with specific collaboration partners. This sort of team collaboration is complex and allows the project team to manage thousands of project items or sub-projects, including documents, drawings, financial data, tax data, scheduling, procurement, action-items, and project meetings.

Teaming with the customer

Collaborative team development gets the customer much more involved in the development of new products and technologies, both by soliciting their insights and by gaining their early support for new products. There are many ways in which a company's customers can be drawn into participating in the development of a new product. At the high end of involvement, a few lead customers can be recruited to provide deep collaboration on a new product, where they spend significant time helping to guide the new product from concept through requirements and into final design and possibly even testing. With this approach there is likely to be a lot of information shared.

At the other end of the customer involvement spectrum, new product development teams could solicit customer feedback on current and prospective products and technologies, and then apply the feedback in updating product features on a regular basis. These customer forums can either be moderated, or not, depending on the project team's objectives. By teaming online and in person with customers, new products are brought to market faster and allows for more iterations in fine-tuning the customers' requirements. This collaborative teaming effort allows the development team to react immediately to what they learn and allow for rapid changes and customizations. As a result, the development cycle could be cut substantially through teaming and collaborating with the ultimate end-user (Holtzman, 2008).

Lead designs and development can be worked on by the internal designers and developers, external development partners, who are collaborators on the project as well as the end-user. So that to decrease development cycle time and increase the value-add of the development process teaming is not only more commonly found, but many times critical to project success. The DCM management system, for example, automatically manages the information for the right customer.

Development partners

A project team may decide to partner with another company to develop a product. External partners can have broad responsibility for a portion of the product or technology, and typically that portion is managed as a subproject within the overall project, similar to what we see in distributed program management (internal) except that this is an external project. Typically the external partner is under contract and is paid for its services, but in the future, external partners may have some or all of their earnings based on a percentage of the product's revenue. Another advantage of using developmental teaming in a "siloed-fashion" is that none of the development teams have the complete picture of the new technology or development effort, allowing only the ultimate owner the benefit of owning and understanding the complete technological breakthrough or product development vision.

Contractors
Using outside contractors is the traditional form of external development, with contractors used like temporary workers who work on site as part of the project team. With systems-enabled collaborative development, the internet, e-Rooms, however, outside contractors will be better integrated into projects and will not be constrained by distance and differences in time zones since they will be able to work remotely from the project team. Many times in product development specific capabilities are sought and these might be found all over the globe and today's technology facilitates virtual teaming and collaboration.

Suppliers
The integration of suppliers into the development process is a natural extension of collaborative development. Suppliers can take on some of the burden of the product's design, enabling the original equipment manufacturer (OEM) or design company to complete more products and have these products be more "on target". In many cases suppliers also have a lot to offer in terms of improving the design of the product, since they better understand the technology of specific components or materials. There are several unique issues that need to be addressed with teaming up with suppliers in the supply chain. When a supplier collaborates on the development of a product by providing some component, it is usually designated as the sole supplier of that component, eliminating the opportunity for purchasing to reduce costs through strategic sourcing. There is also the issue of whether the supplier gets paid for development work or includes this cost in the future price of the components it provides.

Channel partners
Sales or marketing channel partners can also benefit from collaboration with the product development team, especially toward the end of development, but also just prior to a product's release. This teaming and collaboration can help sales and marketing partners prepare to sell the product, participate in release planning, and understand the functions and features of the product, and so on. Some companies find this collaboration helpful, especially where they have a very close relationship with these types of partners, but others are more cautious. They want to avoid scaring their channel partners with the problems that are typically associated with new product development, and prefer just to give them periodic updates emphasizing the positive.

6. An example: teaming externally to institutionalize open technical innovation and alliance management

Today's innovative companies are building new, virtual R&D organizations. The traditional internal hub and spoke system has evolved into an innovation web (Figure 1) with virtual processes across a network of both internal and external strategic partners (Holtzman, 2008). These partners may include internal functional groups such as sales or marketing, but they will also extend beyond internal groups to include a broad network of collaborators such as vendors, retailers, entrepreneurs, venture capitalists, and analysts. For example, Apple has embraced the open innovation concept; they were recently described as an "integrator of technologies who is unafraid to bring in ideas from outside but always adding its own twists" (Gibson and Skarcynski, 2008).

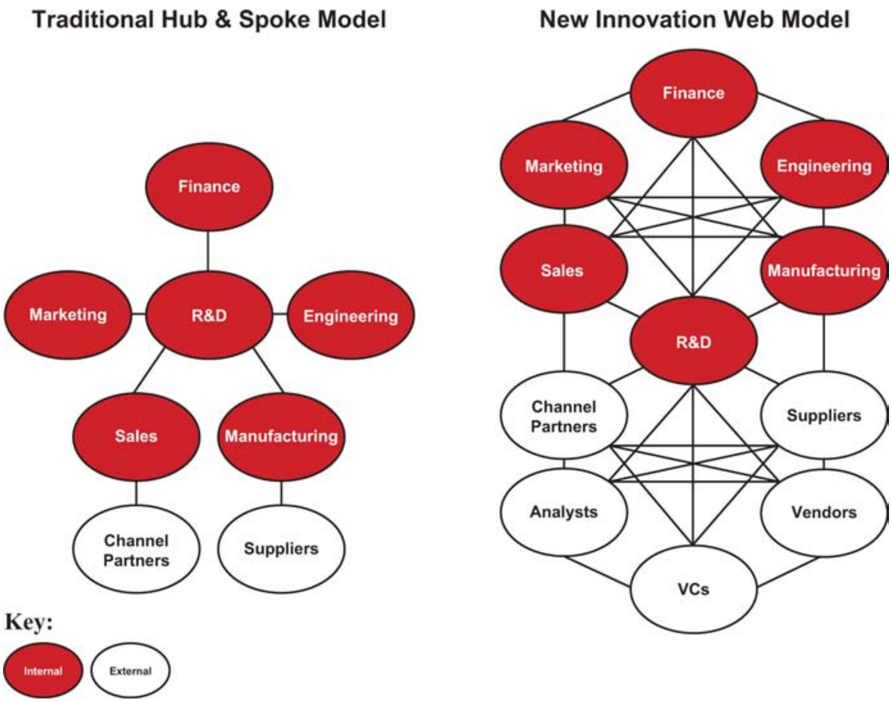

Figure 1.
Teaming Externally for R&D Innovation

Open innovation networks can help the organization quickly identify market or industry trends, better understand consumer and customer preferences, source needed technical capabilities and appropriately customize marketing or packaging. The virtual network of collaborators work together to identify and validate additional innovation opportunities and ultimately to expedite selected opportunities time to market.

Developing such a broad and diverse external partner network is difficult. Best in class companies are developing finely tuned alliance management processes that allow innovative ideas generated or validated by the network to be seamlessly integrated and executed through their existing internal development machine. These alliance management processes must be well documented and clearly articulate how to capture innovative ideas, transition them into the development process and turn them into profitable innovations. In 2006, the chief innovation officer of a major consumer packaged goods company was concerned that the company would not be able to keep up with competitive product innovation. Because of this, she initiated a major redesign of the company's approach to innovation. She aggressively pursued open innovation by forming more than 30 partnerships in the form of joint-development agreements, joint ventures, co-distribution and supply agreements, and licensing deals (Gibson and Skarcynski, 2008).

To achieve this open innovation approach leading R&D organizations have developed new skill sets that were largely not needed in the past when organizations relied on internal capabilities to ideate and develop new products. The ability to build and manage the alliance network is now recognized as a critical skill for leading R&D organizations (Holtzman, 2008).

Companies are finding that effective alliance management requires skills in both relationship management and alliance structuring. Relationship management focuses on the organizational dynamics and communication challenges that alliances encounter and alliance structure refers to the governance and processes that have been established for the alliance. The extent to which these are developed and leveraged will significantly impact the operational efficiency of the alliance.

Well structured, mature and open innovation networks provide best in class companies with a competitive advantage that is hard to replicate. While the R&D function is responsible for managing this network, the decision to build and maintain the most important strategic relationships is often a corporate strategic initiative. C-level executives are now recognizing that it takes the whole organization including an open network of alliance partners teaming together to drive innovation.

7. Conclusion

We have discussed how teams and teamwork in the workplace can take many forms. The way a company and its managers apply teams in their organizations can make a substantial difference in terms of value creation, innovation, and ultimately corporate performance, profitability, and sustainability.

Increased globalization and improvements in technology have opened up new possibilities for companies that want to get the most out of their resources and capabilities. It is now possible to assemble a team of individuals located across multiple continents, collaborating by e-mail, video conferencing, and other technologies made available through the worldwide web. This is something that was not possible, or at least effective, only a few years ago.

Companies at the forefront of their respective industries have embraced the power of collaboration and are reaching across teams and corporate boundaries to find synergies and build hard-to-replicate competitive advantages. Firms are moving away from the traditional hub and spoke model and developing so-called open innovation networks in order to be more responsive to market trends and user preferences. These collaboration networks also help in bridging any internal gaps in skills and capabilities as well as speeding up new product and service offerings' time to market. We believe that this type of inter-company and inter-team collaboration will continue to become more widespread in the future. Firms should expect to compete effectively in the marketplace by understanding that they can no longer operate solely on their own. External collaboration can involve many different types of partners, including customers, development partners, contractors, suppliers, and channel partners. Developing a well structured external partner network can be difficult and requires skills in both Relationship Management and Alliance Structuring but should pay dividends in the intermediate- and long-term.

Although external collaboration teams present exciting opportunities for companies to maximize performance we must appreciate the criticality of the functional core characteristics that need to exist for a team to become successful. Team leaders should carefully evaluate their teams' strengths and weaknesses, so as to build upon the strengths and facilitate improvement of weak areas. Sometimes it will be necessary to modify the team structure by either recruiting for missing talent or removing weak links that hinder performance so as to ensure that the appropriate competencies are present. It is also critical that the team's goals are clear and that every member of team is committed to, and contributes to, reaching those goals. Further, by aligning team goals with corporate goals and by aligning team performance with a rewards system, a company's resources will be used in the most efficient way. In addition, team success often depends upon support from operational units and individuals that are not necessarily part of the immediate team. A team should never operate in a vacuum.

Finally, teams that encompass a wide range of talents are more likely to achieve extraordinary results than teams that do not. Our research shows that 84 percent of executives and department managers prefer so called heterogeneous teams over homogeneous ones. By utilizing the strengths of diversity, teams will experience an increase in efficiency and quality, less redundancy, and more satisfied employees. Efficiency and quality will be improved because members of a heterogeneous team bring different types of skills that, when combined, will create higher value than can be achieved by a homogeneous group of employees. By allowing each team member to focus on the areas in which they have expertise, both quality and efficiency will be substantially higher. Redundancies will be minimized because each individual will have clearly delineated responsibilities that are all important to the overall success of the team. This will create a heightened sense of ownership and pride around producing quality outcomes. If poor performance and lacking work ethic still exist, the culprit can easily be identified, resulting in increased personal responsibility. Additionally, the chances for breakthrough innovations will increase because, as previously noted, great minds do not think alike. Heterogeneous team members tend to approach problems and assignments in different ways, which often times lead to unconventional solutions. Companies that are able to continuously bring innovative products and services to market undoubtedly have a huge advantage over their competitors and a better chance for long-term survival.

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