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What Management Style is Considered Best
for a Team-Based Organization and Why?

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Abstract. The paper reviews various styles of management that are commonly employed for managing team-based programs and projects in many manufacturing industries. It analyzes the characteristics of each style with respect to the needs for decomposing the goals into smaller chunks in a team-based organization or in a program. Three styles of management were considered at Electronic Data Systems (EDS) for this analysis. Based on the experiences of applying each style during various team-based programs at EDS, Ford Motor Company. General Motors, and Unigraphics Solutions accounts and from the varying degree of success achieved then, the paper points out which management style is well suited for managing this decomposed set of goals and why. It then analyzes which style is best suited for managing a team-based organization. As W. Edward Deming said in his book *The New Economics*, setting a particular numerical goal accomplishes nothing. Setting a method to achieve a common set of consistent goals is important. Clear and consistent set of decomposed goals provides a 'constancy-of-purpose.' Without a *common subset* of consistent goals identified for each concurrent team (decomposed from its original sets), the product development teams do not know what is expected from each other and how to accomplish the tasks concurrently. Finally, the paper discusses why a management style, which is based on a set of *constancy-of-purpose* (governing) principles, is considered superior for managing a team-based organization.

Keywords: team-based programs, constancy-of-purpose principles, collaborative thinking, commitment, continuous improvement, directive management, communication

1. Introduction

The basic intent of any manufacturing company is to employ a skilled (or trained and talented) work force, machinery, computers, capitals, etc., which could help make good products. The traditional hierarchical (manufacturing) organizations were designed to help managers and supervisors easily keep track of their employees (people) and the jobs they were doing, tools, machinery and capital they were using, etc. (Shonk, 1992). The structural orientation and the organizational set-up for product development were mostly functional and vertical in nature. Few 'Experts' made improvements within the confines of a so-called department or a functional unit (McGrath, 1984). The result of that expertise gave those hierarchical organizations, for a short while, tremendous marketplace advantage (Schuster and Carpenter et al.,

1996). Even the use of certain job titles such as manager, director, supervisor, rather than leader, facilitator, coach had reflected that bias (Schulte, 1997).

Recently, products like automobiles, aircraft and helicopters are becoming more and more complex than before. It is beyond the imagination of a single person, a single group, or even a single department to comprehend fully all aspects of a product design and development needs (McKenzie, 1997; Prasad, 1997). The nature of the parent organization, engaged in developing those products, however, over the years has not changed as much (Schulte, 1997). As such, it has been a challenge for the design and manufacturing engineers in those traditional organizations to work together as *members of a coherent team* to improve quality while reducing costs (capital, investment, etc. (Dika and Begley, 1991)), weight, and lead-time (time-to-market) (Huthwaite, 1994). In many such organizations, the realizations of productivity and efficiency gains through teamwork, empowerment, etc., have been slow and very painstaking. There are many reasons cited for such poor outcomes (Pipp, 1990). The most commonly cited reason was the *people*, which is actually composed of an *employee* component (Argyris, 1992) and a *management* component. The best illustration of these *employees and management* components comes from the remarks of Roy Wheeler of Hewlett Packard, when he was asked (Prasad, 1996): *What tools does an employee or a manager need to get started in team-based engineering?* His answer was: Pencil, paper, some intelligence and a willingness to work with peers in other functional areas to get the job done (Watson, 1991).

The *people component* involves many constantly changing variables (Hartshorn, 1997) that are more difficult to manage or control than any other variables (Stryer, 1990). This is because *human behavior, managerial psychology* and *corporate cultures* are difficult to measure and quantify (Taylor and Felton, 1993). There is a close association between the two. Changing the corporate culture (Fisher, 1997) *by institutionalizing team-based organizational structure* does not guarantee that the employee behavior or managerial psychology (Hartshorn, 1997) will be changed or that the two will work in close (and mutual) synergy and viceversa (McCusker, 1992). Difficulties in understanding such interactions between employee behavior and corporate culture, in general, and the lack of synergy in particular, tend to be underestimated or even unaddressed as major organizational problems (Shonk, 1992). The paper, first, describes what is lacking in a traditional organization and what styles of management were commonly employed in industries to manage such manufacturing workforce. It then analyzes the key differences in those styles with respect to meeting the customer and company interests and for the workgroups (employees) to collaborate efficiently in a team-based organization. The paper then describes an empowered approach to managing

a product development team (PDT) based on a 'constancy-of-purpose' oriented management style for concurrently designing and developing products. The paper outlines a goal oriented design of PDT (consisting of parallel work-groups) that has been found useful in managing team-based projects at Delphi accounts of General Motors. Finally, the elements that are essential to providing a *deep common understanding* and *convergence of collaborative thinking* in a team-based environment and which have been found useful to carrying out an integrated product development at Delphi are outlined.

2. Problems with team cooperation in an hierarchical organization

Most traditional organizations are set-up in a hierarchical fashion (McGrath, 1984). Such set-ups have lacked the motivation for the groups to cooperate and to work as coherent teams (Shonk, 1992). For instance, not too long ago, engineers were valued according to their ability to fix manufacturing problems, not according to their ability to eliminate sources or causes of the manufacturing problems (Imai, 1986). Most reward systems, including incentives and sanctions, in traditional hierarchical organizations were solely based on individual creativity and contributions (Katzenbach and Smith, 1993). Still today, there are not many incentives on the part of an individual employee to develop defects-free products or services, or to entice him to work as a willing team player (Gittler, 1997). Other contributing factors in traditional organizations that are commonly cited are (e.g., Hamel and Prahalad, 1994; Prasad, 1996): (a) Lack of Management Commitment or Action; (b) Policies, Practices, Procedures (3Ps); (c) Lack of Common Understanding, Commitment, or Action; and (d) Ineffective Communication.

Effective communication between PDTs is the key to developing a knowledgeable and committed work force and setting a common set of consistent goals (George, 1997). Clear and supporting goals provide 'constancy-of-purpose' (Deming, 1993). They allow everyone in PDT to set aside frivolous issues and focus on what is really important to the 'total product system.' Communication is a two-way street. Effective communication takes place both vertically (in spite of differences in responsibility or PDT ranks) and horizontally (in spite of work-groups' functional differences). An ineffective communication environment (that is, giving partial information and holding the rest of it) discourages free exchange of ideas up, down, and across organizational lines. Due to ineffective communication, there is a danger that deficiencies discovered in the downstream activities (related to a product's life cycle) may not be rightly communicated to the upstream activities (Clark and Fujimoto, 1991). This inhibits innovation, retracts teamwork, and strangulates opportunities for continuous product improvement.

The aforementioned points are some typical reasons cited by many industrial product developers (Mckenzie, 1997; Pipp, 1990; Adler and Cole, 1993) in a team-based organization for causing numerous project delays, inciting horror stories, initiating general chaos, or having ultimate productivity loss. The above were true even though the products were designed concurrently through PDTs. Why the things have to come to this? It would be preferable for the management to use the collective experience or knowledge of the entire project teams in a team-based organization to develop design and manufacturing concepts so that, if circumstances change, the decisions can be altered quickly (Hirschhorn, 1991). It is also desirable to collectively come up with a reasonable set of 3Ps (policies, procedures and practices) and a Work Breakdown Structures (WBS) that are feasible and fully understood by all parties (PDTs) before they are finally committed and deployed by the team-based management (Gatenby and Foo, 1990).

It is well known that the success of any organization involved in rapid product realization depends on its management style – how to empower the PDTs so that they are able to make good decisions appropriately and able to handle changes quickly (Hammer, 1990). Changes occur at all levels in an organization: during people management (Stryer, 1990; Carroll, 1997a), product management (Gatenby and Foo, 1990), process management (Schuster and Carpenter et al., 1996), or during enterprise management (Garvin, 1993). Organizational learning (Argyris, 1992), building a learning organization (Senge, 1990; Garvin, 1993), and establishing 'knowledge for managing change' (Andrews and Stalick, 1997) are becoming strategic tools for winning product competitiveness (Hamel and Prahalad, 1994; Huthwaite, 1994). Concurrent Engineering teams must manage change carefully, whether it occurs upstream (for instance, during a strategic planning process of a product design), or downstream (for instance, during a phased deployment process, such as manufacturing) levels (Prasad, 1996). One of the greatest challenges in managing change is to figure out how to manage a PDT – get people to work with each other and as a part of a concurrent team (Hartshorn, 1997) for product development. Unfortunately, work-groups in such PDTs, by nature, tend to be territorial and look for their own work-group's interests (Fishbein and Azjen, 1975) as opposed to interests of the enterprise organization globally.

3. Self-interests versus company-interests

Part of the change involves recognizing that not just individuals, but work-groups and departments all operate out of their own self-interest. Some groups even fight to protect their own turf instead of working toward a
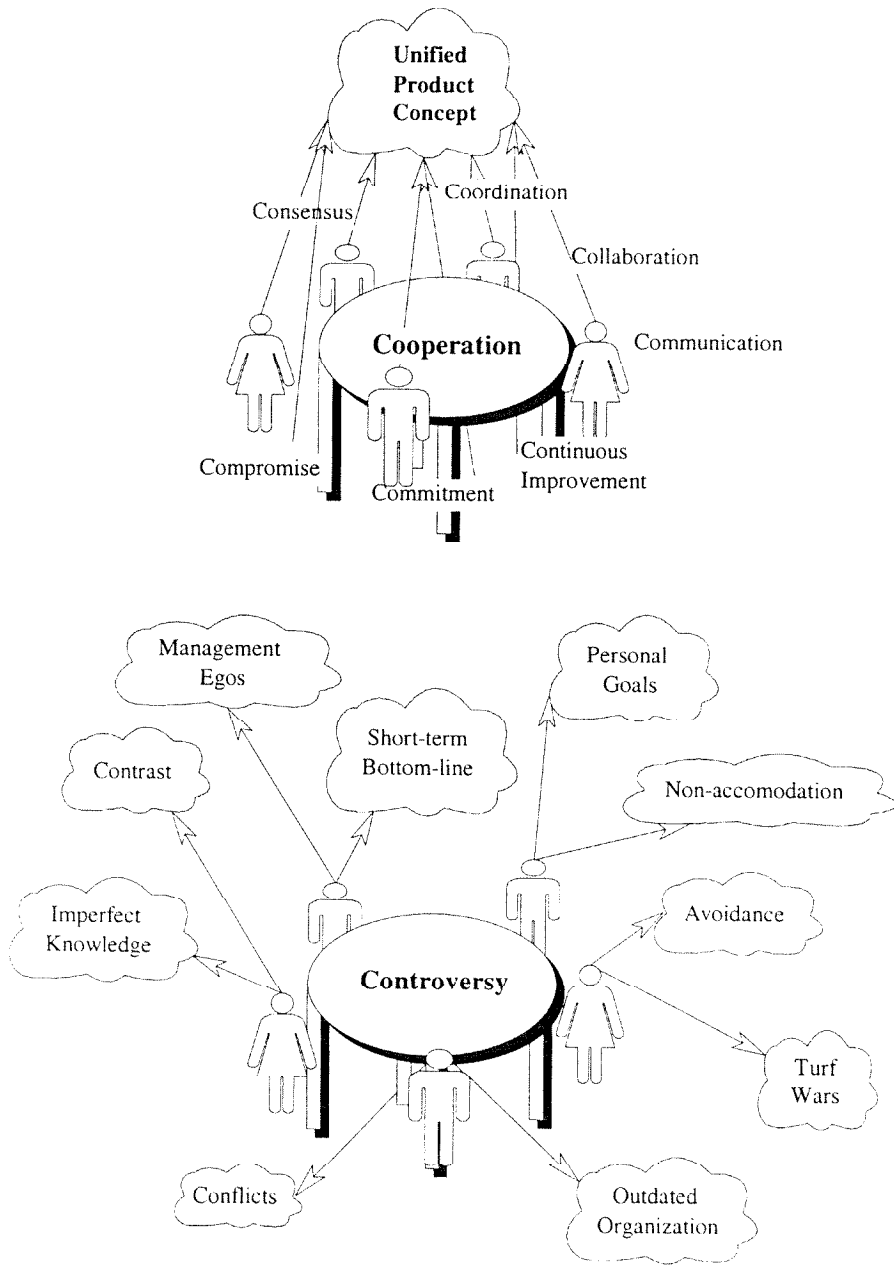
Figure 1. Controversy versus Cooperation.

common set of consistent goals. This generates a number of controversies (see Figure 1). Early indicators or signs of controversies are avoidance, non-accommodation, conflicts, personal goals, egos, etc. A number of these are listed in Figure 1. The defensiveness, foot dragging, and 'so what' attitudes are all potential hindrances to implementing change. For example, personal attitudes are more important than the computer productivity tools for effective communication. When controversies occur and something goes wrong, finger pointing begins along some familiar refrains: 'if they only built it the way we designed it, we would not have these problems!'. ... 'If they had listened to what I said regarding...!', 'I told you so ... what is in it for me,' etc. These counterproductive arguments are merely a reflection of who we were, our heritage, our cultural history, and there is not much one can do to change that significantly. It might be easier to exploit ones' own sense of 'self-interest' or pride and apply it towards the teams' or the groups' interests. It would be nice if management could create an environment where the teams feel that it would be in their best 'self-interest' or 'self-esteem' to cooperate with one another rather than compete. This would not be an unusual change. Cooperation has been and usually is a part of ones' daily work environment. In Japan, for instance, cooperation has been a way of life for many years. All parties were able to share information right from the conceptual stage. There was no hidden agenda or designers' secret in the work. For many years (as late as 80s), teamwork was not encouraged in the American academic institutions. The culture and the curriculum discouraged people from cooperating. In the past, when students worked together, it was referred as 'cheating.' But in recent years this has changed. Many schools have remodeled its curriculum to emphasize computer, teamwork, open-ended problem solving, design lessons and communication skills. The change we are seeing is not very unusual. Professionals all over the world has communicated for years. They openly share their views in journal articles on new ideas, new theory, and new applications. Team's skills are very much encouraged and rewarded in the industry. Competition, on the contrary, leads to loss. People pulling in opposite directions on a rope only exhaust themselves – they go nowhere (Deming, 1993). The cooperation is the key lynchpin of achieving teamwork. There are seven elements (called 7Cs) to this team cooperation philosophy.

- *Collaboration:* This describes a process of value creation that a traditional structure of communication and teamwork cannot achieve. Instead of focusing on methods of communication (such as teams with definite roles and set of operating procedures), collaboration seeks out the unplanned and unpredictable.
- *Commitment:* Empowered teams define the tasks and prioritize areas to make breakthrough opportunities. Goals and objectives, duration, utility,

complexity, expected results, and key success factors are outlined as much as possible. Management is fully committed to meeting the goals.

- *Communications:* Effective communication is the precursor to meaningful collaboration and communication is the exchange of information, whereas the collaboration is a commitment to create a shared understanding and work together (Sullivan, 1991).
- *Compromise:* There is compromise and input from every discipline so that simultaneous development of the product, process, and associated tooling can be achieved.
- *Consensus:* Project team and management members may disagree, but team support on the requirements and a commitment to objectives at the very outset of a project is essential. These common objectives are reinforced throughout the life of the project.
- *Continuous Improvement:* Product or process design teams work toward the total elimination of waste. The concept focuses on enhancing productivity and profitability through the improvement of product quality and reduction in product development cycle time.
- *Coordination:* The most cited definition of coordination is by MIT Sloan School of Management – 'Coordination is the act of managing inter-dependencies between activities' (Malone, 1991). Coordination involves actors performing interdependent activities that achieve goals, and its analysis includes goal decomposition, resource allocation, synchronization, group decision making, communication and the preparation of common objectives. Partnerships are formed among all disciplines involved in the project and communication links are formally established and utilized. Suppliers are involved in the early stages of the project.

Figure 2 lists these 7Cs characteristics for achieving cooperation. Cooperative teams must examine the extent to which the organizational culture or 'self interest' supports or detracts from achieving a unified product concept (or deviates from a common set of company goals).

4. Some key management styles or philosophies

Developing a coherent management style or philosophy seems a daunting task, given the wide range of possibilities and practices that must be addressed. The job of managing is becoming very difficult due to rising complex web of changes and competitive pressures. Many mangers would like to swim through the currents of change, but they do not know what policy they need to follow to be successful. While others have realized that the currents
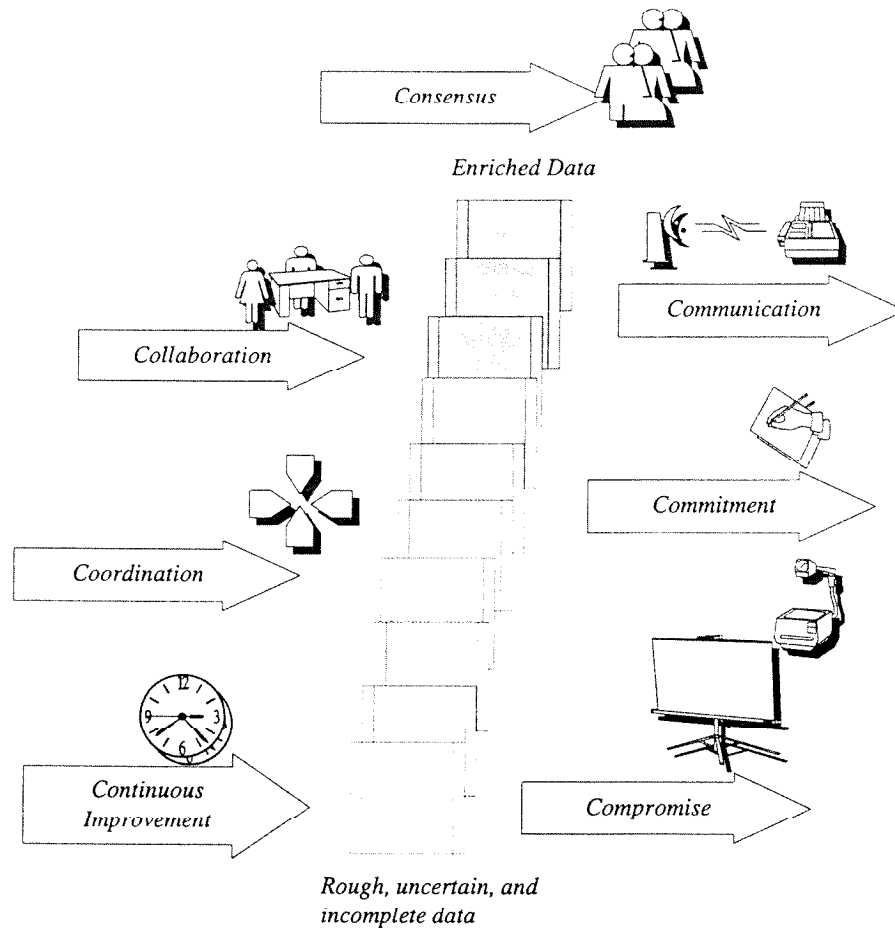
Figure 2. Optimization of seven C's – Cooperation.

are simply blowing too fast for any old style of management to withstand. Changes are forcing companies to adapt to a more flexible management style and structures. Empowerment and responsibilities are shifting from the usual vertical setting to the horizontal setting. The chain of command is shifting from tall silo structure (or pyramid) to peer networks and cooperative teams. The three primary management styles are: (a) Directive Management style; (b) Supportive Management style; and (c) Constancy-of-Purpose-Oriented Management Style. These are shown in Figure 3.

4.1. *Directive Management (DM) style*

Directive management (DM) style has no theory. It is a grab bag of techniques, rituals, customs and superstitious form of management. Some
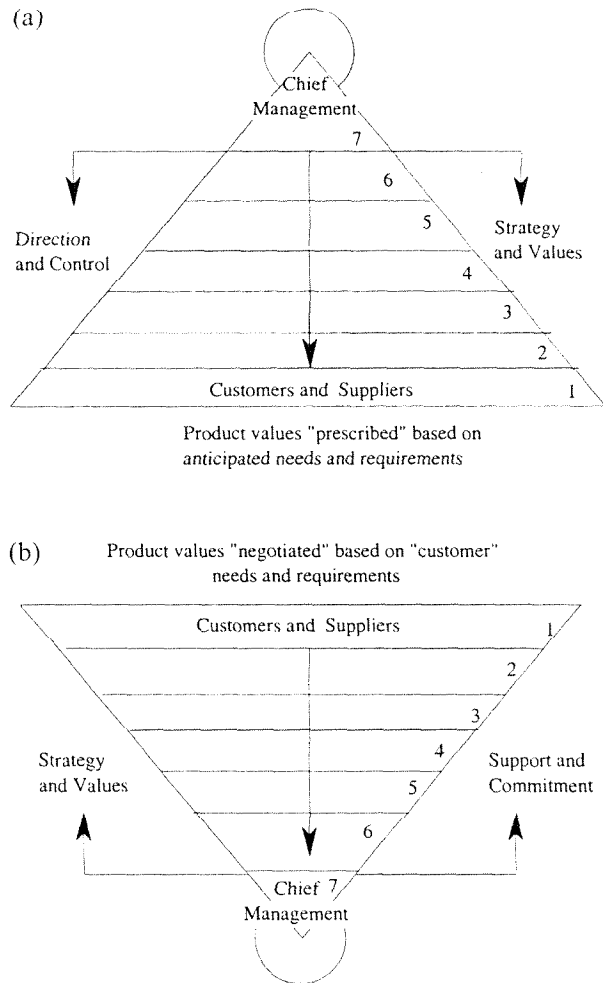
Figure 3a,b.

examples of such techniques are setting a pyramid for reporting – as in management by objectives (MBO) or in management by results (MBR) (Mc-Grath, 1984). The concept is not based on any sound theory of cooperation or any theory of system optimization thus leading to the fragmentation of the organization.

In DM, the style of decision-making is mostly top-down and most design decisions follow an unidirectional path (such as a directive management style) (Fisher, 1997). By the time a design or a process engineer gets ready on a new development project, many decisions are already made (Prasad, 1996). The planner has chosen key product offerings, such as major design specifications,
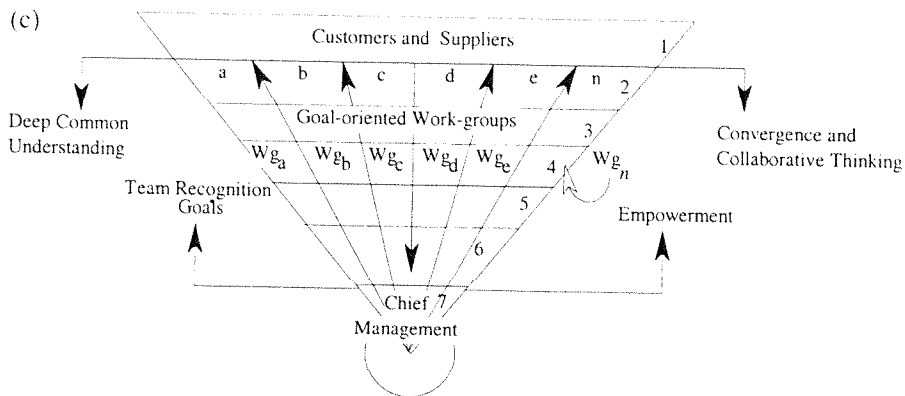
(c)

Figure 3c.

Figure 3. Management styles and philosophies.

gross weight, length, width, etc. The finance community has determined what the product must cost and how much the company can afford to invest into it. Marketing has decided how many will be sold. The timing office has decided when the product must be introduced. Under these circumstances, the rest of the organization's job ends up merely engineering the product under the aforementioned restrictions or constraints. Inputs or feedback from technical experts and the product feasibility team could not be taken into consideration in those early decisions. Neither the limitations of the manufacturing equipment at hand could be taken into account. Under such situations, often there is not much room or time left for the engineers to maneuver for good product realization. At times it becomes difficult to satisfy many of the critical competing requirements and still be able to meet stated product quality and other demands within a stipulated delivery timing (Dika and Begley, 1991).

As Deming said in the course of fragmentation, each component becomes the individual profit center, destroying any hope of how they would contribute to make the system work better. Other techniques that belong to this style are buying materials and services at lowest bid, setting numerical quota for sales, performance measures, ranking, etc. In this style, the chief management sets the direction and control. Management defines the strategy and values from top-down for the customers and suppliers. The differences among the three management styles are contained in a matrix in Figure 4. The three columns list the distinguishing qualities of the management styles against eleven measures-of-merits. In directive management style, product values are 'prescribed' based on anticipated needs and requirements.

Qualities	Directive Management Style	Supportive Management Style	Constancy-of-purpose Oriented Management Style
Power	Authoritative	Teams	Goal-oriented teams
Information	Withheld/Screened	Support and Commitment	Open/Available
Representation	Political	Selective/Mutual	Open/Need-based
Competencies	Position-based	Technical	Technical/Interpersonal
Partnership Commitment	Personal Management - high Team - low	Mutual Management - medium Team - medium	Goal-oriented Management - high Team - high
Product Values	"Prescribed" based on anticipated needs and requirements	"Negotiated" based on customer needs and requirements	"Defined" based on goals
Customer Priority	Management on the top	Customers and suppliers first	Customers and partners first
Boundaryless	Low	Medium	Maximum
Colocation	Needed	Needed	May not be neccessary
Participation	Empowerment	Convergence and collaborative thinking	Deep common understanding

Figure 4. Key features of the three management styles.

4.2. Supportive Management (SM) style

Supportive management is based on the principles of total employee cooperation and involvement. Product values are 'negotiated' based on customers' needs and requirements. The effects are reflected in Figure 3b by an inverted triangle – depicting the 'customers and suppliers' at the top and the management at the bottom. A strong multi-disciplinary team effort, with continuous interaction between the customers and team members, and a clear focus on goals is the most important. Simultaneous processing and problem solving, along with effective project management, are the keys to continually improving cycle time. Instead of setting numerical quotas, management works with the teams and defines a method to improve the process. The long-term vision of Supportive management style involves 7Cs: *Collaboration, Commitment, Communication, Compromise, Consensus, Continuous Improvement,* and *Coordination* (Prasad, 1996). These are referred as 'cooperative team characteristics' and are shown in Figure 2.

4.2.1. Management by fact
The supportive management style is frequently based on 'management by fact.' This means giving information to the supported teams so that decisions

are based on facts (Dr. Deming calls this a theory of profound knowledge in his book *The New Economics*) rather than a 'gut-feeling.' The information could provide some valuable steps towards supporting management style, but all by itself these steps are not enough. We need to know where we are starting from (facts) and what are the current levels of our products and services that in our customers' hand (profound knowledge). Having the facts or profound knowledge necessary to manage the business at all levels is the second principle of supportive management style. Having both principles, a company is in a better position to manage and discharge its responsibilities based on customers' needs.

In the past, some companies have institutionalized supportive management styles by planting 'tiger teams.' Tiger team consists of pulling in the best and the brightest talent from the different areas or disciplines that were essential for the project. NEC followed this approach for developing a new laptop computer. They set a ninety-day limit to prevent apparent loss of market share to their competitors. They instituted a 'tiger team' consisting of experienced management and personnel from various computer development projects. They gave this tiger team full authority over all aspects of product development. A 'backward scheduling' technique was used to assure that the product would meet the ninety-day target. The success of the NEC tiger team is a significant example of what a highly motivated group with a strong experience-base from related disciplines can do in a short while. A highly co-operative team with decision-making authorities and a high urgency and strict enforcement of target can do many things. It was certainly a challenge since the infrastructure was not in place. Does this mean that planting a 'tiger team' is the answer? Many argue that the tiger team worked well because they were the best and brightest people, there was ample peer respect and management visibility. People knew it was a one-time deal. One cannot expect the same result by applying this scenario to everyday work life because not everybody works well together, or possesses the same level of competency and respect among their peer groups. In everyday work, what is necessary is an open team system or something close to it. This refers to a team-system that is open and capable of implementing the pertinent features from these ad hoc operations and to their work practices. What would be ideal in an empowered team system as opposed to the 'tiger-team?' It is the establishment of an infrastructure that facilitates C7 (*Collaboration, Commitment, Communications, Compromise, Consensus, Continuous Improvement,* and *Coordination*) on a regular basis. There is no need to strictly enforce all targets. As a part of the team-based infrastructure, among other things, the team receives the training on how to work together and achieve an understanding of product, processes, tools, teamwork, capabilities, and limitations. Once the team members have

a common understanding, they can work together better. The infrastructure is equipped to minimize the impact of variation on any of the above elements. It insulates the outcome so that their effects would not be felt as much.

4.3. Constancy-Of-Purpose Management (COPM) style

Constancy-Of-Purpose Management style is a variation of supportive management style in which most of its structure, including an inverted triangle style, are shared (see Figure 3). Here, the individual goals are targeted toward providing a constancy-of-purpose – where goals are supportive of other goals. This style requires the most significant change and it is quite a departure from the traditional approach of management. Here, all personnel may report technically to the same manager and work toward a common set of consistent goals. For instance, one goal is to manage a large and diverse organization to operate as if they were one intimate and cohesive work force. This may require a shift in allegiance of an employee from their parent functional organization to a strategic business unit or to a product development team (PDT). If the employees are not a member of the same PDT, the probability is higher that some of the eight team-based principles will be violated (see Prasad (1996) for the listing of these principles). All members of various teams are expected to owe their allegiance to the company's or SBU's goals (a constancy-of-purpose-oriented management). This requires a change in thinking beyond the goals of one individual department or work-groups to those of the SBU's or the company's goals. The arrangement is very much the same as the inverted triangle style of Figure 3b. The customers and suppliers remain on top and the chief management on bottom. The roles of management are, however, changed. The obligation of any supporting unit management is to empower the unit so that they can contribute its best toward the system's goals. The aims of the units are not to sub-optimize their own performance (such as units' profit potential or sales) without a clear and direct relationship to the company's overall goals. The project's goals must be supportive of the team's goals. Team goals must be supportive of the PDT units' goals. PDT units' goals must be supportive of company's goals, and so forth – ensuring a constancy-of-purpose. This way everyone contributes its best toward a common set of consistent goals. Within a team, for example, everyone must understand the team's objectives, which could be to produce a high quality product on time and within the budget. The management role is to improve continuously the processes that work toward ensuring a better set of 'constancy-of-purpose' objectives. Management should reject compromise when decisions are detrimental to the company's goals, even though it may be supportive of teams or project's goals. Participants should accept compromise when it is permissible and is a better strategy overall (when everybody wins

– stockholders, employees, suppliers, customers, community, environment
– over the long term). Engineers work closely as teams, orchestrating their
special expertise, talent and experience, while retaining their individuality.
In the beginning this may not be easy for some, while for others it may
provide opportunities to have equal say in decision making and becoming
contributing partners in the growth of the company. In the constancy-of-
purpose-oriented management style, among other things, team training is
directed toward agreeing on a mission. This consists of goals, the role of
each individual, work-group, team, department, and management, processes
of getting things done including communication plan. Mission also includes
relationships among 7 Ts (talents, tasks, teams, time, techniques, technology,
and tools) (Prasad, 1996).

5. Key management skills in a COPM style

The best lay constancy-of-purpose-oriented plans and the most prodigious
efforts, however, will not prove effective without four key elements: team
commitment, convergence and collaborative thinking, team recognition, and
deep common understanding. As shown in Figure 3c, these are critical
elements that are considered part and parcel of a successful constancy-of-
purpose-oriented work force.

- The team member must follow a constancy-of-purpose project manage-
  ment style (managing the project in the context of its overall purpose and
  not just based on its short-term gains). As W. Edward Deming said in his
  book 'The New Economics,' setting a particular numerical goal accom-
  plishes nothing – only the method to achieve a common set of consistent
  goals is important (Deming, 1993). Clear and consistent goals provide
  'constancy-of-purpose.' Without a common set of consistent goals, there
  is no system. Each team and its members must contribute towards the
  success of the company mission or its purpose by participating in the
  methods – setting layout schedules, with all of its tasks and due dates,
  including resource requirements. The team leader is also responsible for
  administering the budget and maintaining the schedule. If the tasks are
  not completed on time, adjustments ought to be allowed in timing or in
  resources.
- Most departments have a natural tendency to make their departments
  look good to others – create false profits, even though it may be det-
  rimental to the overall corporate goals. The whole corporation will do
  even better if everyone works towards a common set of consistent goals
  irrespective of departments, they have allegiance to in the beginning.

This requires a change in thinking beyond the goals of one individual department or teams to those of the SBU's or the company's goals. The obligation of any supporting unit is not to sub-optimize its own goals (such as unit's profit potential or sales) without a clear and direct relationship to the company's overall goals. It must contribute its best towards the system goals. Aiming towards constancy-of-purpose results in everyone contributing to his or her best – working towards a common set of consistent goals.

- Many roles must be fulfilled by a 'constancy-of-purpose' team-based organization to make a team successful. Some must be carried out by team members, some by the team leaders, and the rest by outsiders, such as suppliers or vendors. Concurrent teams play a supporting role to help the personnel teams in decision making. Each member of a team functions as a contributor towards maintaining the constancy-of-purpose in goals setting. Team members must have a true peer-level relationship, with authoritative powers exercised only as an exception by the counsel, when no compromise or consensus can be achieved. During a project's life span, the number of team members may vary depending upon what stage the project is in at any point.

5.1. *Teams commitment*

All members of the project team should have an equally strong commitment to the 'constancy-of-purpose' goals. Project teams must be multi-disciplinary, self-directed, highly focused, and fully committed to the project from start to finish. Qualified vendors and suppliers must be included as project team members early in the development cycle. Product developers may form partnership with select suppliers that show the same commitment to quality and continuous improvement as embodied in the team-based concept. Organizations that are in highly competitive situation may develop strategic advantages from such partnership.

5.2. *Convergence and collaborative thinking*

This is an important feature of a constancy-of-purpose-oriented work-group. In the beginning stage, most teams possess a closed mind, 'don't want, don't ask' attitude, afraid of unknowns and often feel threatened. With time, members of each team develop an understanding of each other point of view. They begin to appreciate importance of their disciplinary contributions at various points along the way and their impact to the product goals' realization. The attitude sails through a series of changes.

5.2.1. *Design reviews*

Design reviews (made out of select cross-functional review teams) are an efficient method to perform the following:

(a) Monitor the progress of a project.
(b) Facilitate reporting and appraisal of results to management; and
(c) Keep the teams' interest in line with the common set of consistent project goals.

Design reviews promote a team oriented review strategy, which optimizes the team's collective talents in problem solving. A carefully timed and organized design review is not an engineering inspection, but rather a value-added process of team building and a first step towards convergence and collaborative thinking. During design review, it is important to stick with a standard review format and timing.

5.3. *Team recognition*

Recognition and reward are mechanisms used frequently by employers in one form or the other. However, these are often awarded to an individual, even though he or she may be part of a team. In team-based organization, team recognition carries more weight to entice the entire team to work together. Teams freely collaborate in setting the project's goals with the 'constancy-of-purpose' in mind, and meeting them on time and within budget. The reward for this change on the part of the team is quite promising to the company. Constancy-of-purpose-oriented management is expected to provide the maximum productivity gain and cost advantages.

5.4. *Deep common understanding*

Empowerment and rewards are useful for team motivation. Deep common understanding is useful for creating a highly charged employees and PDTs. Such a group of PDT members has a high level of confidence in each other and is able to quickly create an informal atmosphere of human networking. They communicate with each other and would be able to come up with a highly reliable plan in a short time. They form a pyramid of cooperating teams – the so-called 'Learning Organization.' It has three sides to it. This is shown in Figure 5. The first side contains a common set of consistent goals – from its corporate vision to the project goals, following the SBU's 'constancy-of-purpose' management plan. On the remaining two sides, the PDTs' skill sets corresponding to life-cycle management and work-group management are listed (see Figure 5).
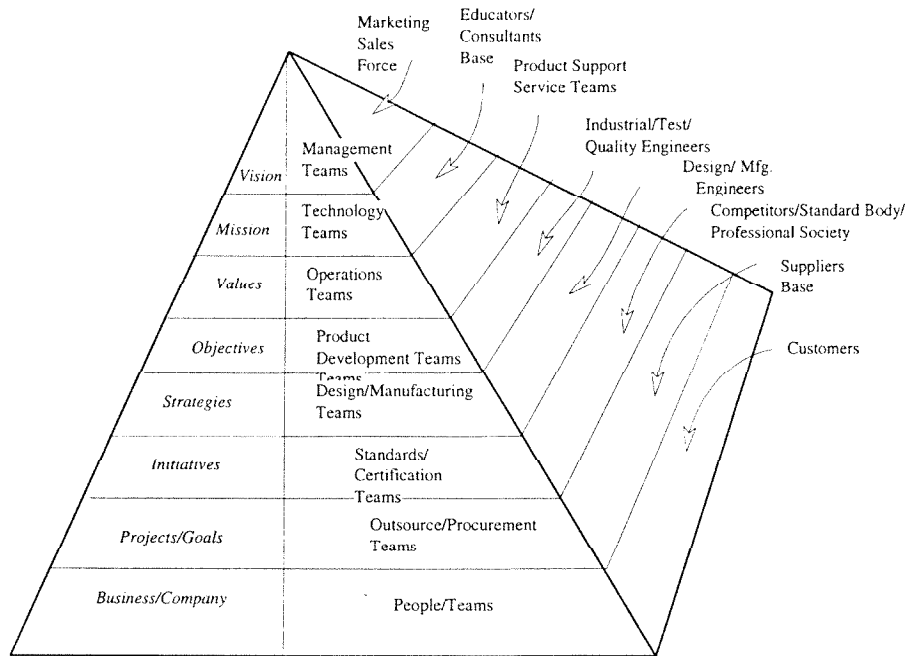
Figure 5. Pyramid of cooperating teams.

6. Concluding remarks

The paper presents a constancy-of-purpose management style for managing team-based programs and projects. Effective collaboration in a team-based organization requires that the various PDT members of the cooperative teams pyramid work as a unit with 'constancy of purpose' in mind. In this style of management, the concurrent work-groups or teams manage the project in the context of its overall purpose and not just based on its short-term gains or based on the needs of a single team. The paper, later, describes four key elements of this constancy-of-purpose management style, namely, convergence and collaborative thinking, empowerment, team recognition, and deep common understanding. It is hoped that the theory and conceptualization presented in this paper will provide a basis for future researchers to extend the ideas to other fields of interest and for comparing the effectiveness of the critical *management style* elements identified.

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