

There's No Place for Managers in a Quality Organization

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Introduction

Businesses and Government agencies, in looking for ways to cut costs and increase profitability have tried various approaches such as Total Quality Management (TQM), Business Process Reengineering (BPR), Participative Management, and Integrated Process Teams (IPT), with varying degrees of success and mostly failure. This paper:

- Identifies three major causes of these failures, namely quality, the structure of the organization, and middle managers.
- Presents an overview of a new organizational paradigm which functions without middle managers. This paradigm can also optimize systems development within the framework of the Department of Defense's (DoD) Integrated Product and Process Development (IPPD) approach (DoD, 1996).
- Presents some results achieved, and benefits of use of the new paradigm.

Root causes of the failures

The goals of a business organization are to provide a product or service needed by its customers and make the maximum amount of profit it can (bottom line). Businesses in looking for ways to cut costs and increase profitability have tried various approaches such as BPR, Participative Management, IPTs, with varying degrees of success and mostly failure (Deevy 1995, 4). There is also growing evidence that TQM's overall success rate is so low, that for most organizations, the effort was entirely wasted (Hawley, 1995). These failures, when analyzed appear to be symptoms of the following root causes: quality, the structure of the organization, and middle managers.

Quality

(Deming 1986, 139) wrote: *"Improvement of quality and productivity, to be successful in any company, must be a learning process, year by year, top management leading the whole company"*. Commitment to improvement is one of the few things that cannot be delegated. The failure of top

management to be perceived as being committed to quality is a prime reason for the failure of these initiatives. Now, there are a number of other problems with "Quality" including the following:

- **The 'quality gap'** - Quality is taught using the terminology of the "should be" with minimal instruction in bridging the gap between the "as-is" and "should-be" states.
- **Unmeasurable** - (Crosby 1979) defines quality as *"conformance to specifications"*. (Juran 1988, 11) defines quality as *"fitness for use"*. The International Organization of Standards (ISO) 8402:1994 definition is - *"the totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs"*. None of these definitions prove a useful measurement of Quality. In an interview in 1991, Curt Reimann, director of the Malcolm Baldrige National Quality Award (MBNQA) said that a meaningful definition quality is simply not possible (Hart et al., 4). And, without a meaningful way to measure quality, it is difficult to show top management how the benefits of improving quality affect the bottom line. For example, contractor A can build a product to specifications for \$500, and contractor B can build the identical product to exactly the same specifications for \$1000. Under the current definitions, the quality of the two identical products is the same yet the production costs are very different. No wonder (Crosby 1984, 5) wrote *"Management does not know the price of non-conformance [to quality]"*.
- **Process improvement** - Process improvement is generally depicted as *Plan Do Check Act* (PDCA) and drawn as a circle. The use of "cycle" and "circle" imply that the organization assumes the same state periodically which leads to *activity based thinking*. It may be true that the improvement IPT performs each action periodically. However, the organization is in a constant state of improvement. Hence, once an improvement is incorporated, the process is different. The texts on the subject generally do not mention the need for baselines and configuration control. Consequently, the results

tend to be chaotic in a large organization with several simultaneous improvement initiatives in operation. Another classic reason for the failure of process improvement initiatives is that the people involved are too busy working in the process.

- **ISO 9000** - A bureaucrat's dream; the process is sacrosanct. Follow it and all will be well. An ISO compliant process is no guarantee of quality, only repeatable results.

The structure of the organization

The current organization is configured in a hierarchical structure. The division of work between manager and worker within our current organizational structure is based on "Scientific Management" (Taylor 1911), and to compensate for defective products, we have further added quality as another area of endeavor. Thus our work is now divided into three streams (management, production/development and quality). Yet, these days, Taylor's:

- **Assumptions are no longer valid** - Taylor's paradigm was for an organization in which the workers did not want to work which corresponds to Theory X (McGregor 1960). Today, most organizations tend to be Theory Y and the workers want to get the job done.
- **Rules for the division of labor are not being followed** - Taylor reengineered an organization in which managers knew more about the work than the workers. He split the work into a partnership between brain and brawn. Managers planned and directed activities, workers did the work. Yet today, much of management has little idea of the technical aspects of the work and consequently little idea of the impact of their decisions.

There are structural defects within the organization including the:

- Ineffective use of promotions. A good technical person is promoted into a managerial position. Once the line in Figure 1 is crossed, there is no retreat, a scenario which tends to lead to the:
 - Loss of good technical people and the creation of poor managers (same person).
 - Impression that managers are more important than the workers who produce the revenue generating products.
- Development of jobs which compensate for the manager's lack of skills (e.g. facilitators).
- Development of work which crosses the three activity streams. Project management, TQM,

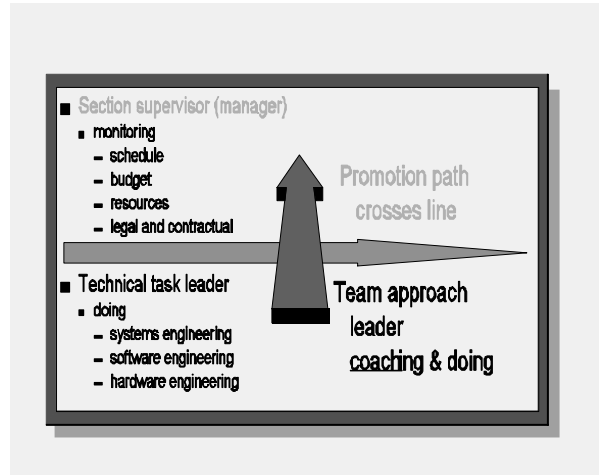


Figure 1 The Line of No-Return

BPR, IPT's, concurrent engineering and systems engineering seem to be attributes of the same function, namely *producing the product the customer wants* (Kasser, 1996).

Middle managers

The optimal management method is said to be Management By Walking Around (MBWA) (Peters and Austin, 1985). Yet (Deming 1986, 22) wrote "MBWA is hardly ever effective. The reason is that someone in management, walking around, has little idea about what questions to ask, and usually does not pause long enough at any spot to get the right answer". Juran as quoted by (Harrington, 1995, 198) stated that 80 to 85% of all organizational problems are caused by management. We spend a lot of organizational energy (money) mitigating the effect of poor management. This compensation for ineffective managers leads to excessive complexity within the organization including the creation of functional jobs such as systems engineers as described in (Kasser, 1996) and facilitators.

Even where top management may be perceived as having the commitment to change, and can "communicate the vision", and the people at lower levels in the organization are willing to try it, in many instances, middle management resist the change and the change fails. For example, in a survey of 1000 companies by Achieve International (Brecka 1994, 14), more than 33% of the companies reported sabotage or internal resistance to these initiatives. Most blamed middle managers for impeding quality (75%) and team efforts (70%). This resistance is because there seems to be nothing in it (the new system) for them. The organization's whole reward

Ninth Annual National Conference on Federal Quality, Wa and recognition system (RRS) must reinforce the behavior appropriate to the transition to the new organization (Harrington, 1995, 469). The failure to institute an appropriate RRS is a major cause of most of the failures in BPR and TQM.

The Need for a Paradigm Shift

Summarizing the research, the following factors point to a need for a paradigm shift:

- Excessive complexity is a symptom of an underlying problem within the foundation of the current paradigm.
- The many failures of the current adaptive approaches to improving our organizations.
- The report producing and information filtering functions of middle management have largely been replaced by technology (Rodgers et al. 1993).
- The adoption of project management and other sub-organizations which cross the boundaries of the three streams of work (e.g. IPTs and concurrent engineering). Our symbology uses boxes for a hierarchical organization structure and circles for a process. Truly a case of attempting to insert a square peg into a round hole.
- Management consulting has become a major growth industry grossing over \$7 billion each year (Deevy 1995, 25). Engineers are expected to know how to engineer, yet we don't expect managers to know how to manage.
- Middle managers don't seem to be adopting the recent spate of "new management" ideas. This is not surprising since it is nigh impossible for people to 'unlearn' what they know is the correct way to do something (Kuhn, 1970). The failure of BPR could have been predicted just by looking at the unfortunate choice of words on the cover of the (Hammer and Champy, 1993) book, i.e. *"Forget what you know"* and *"most of it is wrong"*.

The New Paradigm

(Harrington, 1995, 1), stated *"Stop worrying about quality, productivity, cost, and cycle time. Focus your energies on organizational performance improvement and all the rest will follow"*. The new paradigm, outlined in 2, in its development phases, has:

- Reduced the cost of work on various short duration projects by a factor of 10.

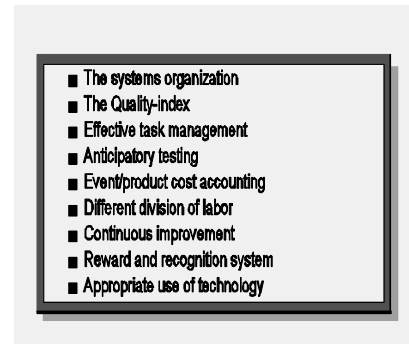


Figure 2 Elements of the New Paradigm

- Enabled the design and development of a network of 600 microprocessors, such that it was installed half way around the world and worked first time with only a single hardware discrepancy report.
- Already saved NASA's Goddard Space Flight Center \$1.5 million.

The Systems Organization

Consider the organization as two major systems, namely, a:

- **Production system** - which produces the product from which the organization makes its profits. Anything in this system is a direct charge.
- **Support system** - which provides the support to the production system. Anything in this system is on overhead. Note, one organization's support services are another's products.

The military structure has always mapped into the systems organization, i.e. aircraft and ships consist of weapons delivery (production) and support systems. The overall structure of the organization is flat and similar to a distributed computer network. Information and products flow between the work elements which can be shown in a process flow chart. Decisions are made at the appropriate level to maximize cohesion and minimize coupling between work elements. Each bubble in the chart may consist of:

- Both process and support elements analogous to hardware printed circuits.
- **Traditional organization elements** - managers and workers, as not everyone wants to be, or is ready to be, empowered.
- **Self directed teams** - empowered by the leadership of the organization.

The Quality-index

(Deming 1986, 29) wrote *"Quality comes not from inspection, but from improvement of the production process"*. He also wrote *"Defects are not free. Somebody makes them, and gets paid for making them"* (Deming 1986, 11). The product is produced by a process within an organizational environment.

As such, the process, product and organization represent three tightly coupled dimensions of quality and must not be considered independently (Kasser 1995). So, to use this concept, define a Quality-index along the lines of the MBNQA, where:

The Quality-index of an organization is a three dimensional measure of the:

- **Effectiveness of the production process.**
- **Degree of conformance of the product to its requirements.**
- **Effectiveness of the organization in which the process takes place.**

This use of the Quality-index means, for example:

- Anything that lowers the cost of 'producing the product within specifications' improves its "quality" (Kasser 1995).
- We can now talk to top management in terms of "cost reductions" which they understand (the customer's language), rather than "quality" which they generally don't.
- In the example above, the process dimension of the Quality-index of contractor A is at twice the value of contractor B.

Division of labor in the systems organization

The division of labor is between strategic and tactical as shown in Figure 3 and split as:

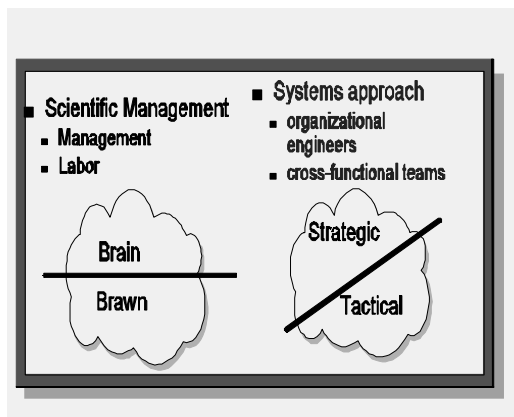


Figure 3 The Partition of Work

- **Strategic** - the strategic planning, coordinating and "communicating the vision" functions. This work is known as '*organizational engineering*' and tends to cross process element boundaries.
- **Tactical** - production work, measuring, self directing, tactical planning; the activities within a process element.

The difference between strategic and tactical depends on how the work is viewed. For example, an admiral-

of-the-fleet performs strategic functions, while each ship's captain performs tactical functions. Yet, within a ship, the captain performs strategic functions and the engine room performs tactical functions.

Event/product driven cost accounting

The work breakdown structure (WBS) allocates work elements and cost accounts as follows:

- **Work elements** to the task by linking them to complying with specific requirements.
- **Cost accounts** to the WBS elements on the basis of the products to be produced for specific events or milestones. In this way, the cost of:
 - the work performed to comply with a task requirement is recorded and can be used as a baseline to refine future cost estimates.
 - each specific product or event is known by the company (and customer, in a cost plus contract environment).

Effective task management and anticipatory testing

Work in the systems organization focuses on events, products and results not on activities. (Crosby, 1981) wrote "*prevention is planned anticipation*". The anticipatory testing approach combines risk management and prevention with testing on each of the three dimensions of the quality (Kasser, 1995), as well as the process improvement initiatives. As a result the work tends to be done the right way the first time so the cost of the process is reduced.

Organizational engineers use 'communicating the vision', Management by Exception, Management by Objectives (MBO), prevention of defects, and developing and using metrics to maximize the Quality-index to monitor and control the work. All tasks are visible in a network management tool. The description of the tasks in a process bubble map directly to the job descriptions of the workers in the task. Any task that isn't producing something is questionable. The people performing each task know their customers are in the next bubble.

Constant continuous improvement

In the new paradigm, process improvement:

- Is constant. The organization is in a state of **dynamic equilibrium**. As (Deming, 1986, 139) wrote "*Improvement of quality and productivity, to be successful in any company, must be a learning process, year by year, top management leading the whole company*".
- Is a process in itself and needs to be ISO 9000 compliant. Conceptually, upgrading a process is

no different from upgrading a product release. Both, upgrade a system and must be performed in an appropriate manner (change requests (improvement suggestions), impact assessments and configuration control). The changes are then implemented at specific milestones.

- Must be performed by a separate IPT of people working interdependently with the team who perform the process. The improvement IPT gets full disclosure and suggestions for improvement from the process team, then analyzes the information and suggestions from the system's perspective to determine the effect of the proposed improvement on all parts of the process. Promotion from process IPT to improvement IPT is a strategic path.

There are two types of improvements:- adaptive and innovative (Kirton, 1994). Adaptive improvements are more readily implemented than innovative ones since they improve the current paradigm. Innovative improvements tend to introduce a new paradigm, hence tend to be resisted. Adaptive improvements, however, also lead to the point of diminishing returns. This is the point where an innovative change is the only way to obtain any large degree of improvement as shown in Figure 4. These types of changes may be directly related to cost. Adaptive improvements reduce costs over a period of time, yet the rate of reduction slowly reaches the point of diminishing returns. Note that while innovative changes may be

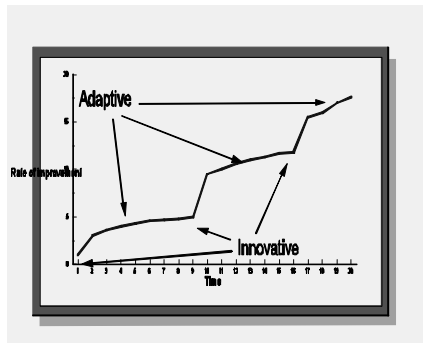


Figure 4 The Nature of Change

employed anywhere along the curve, failure to innovate once the cost reduction curve flattens out tends to result in an organization going out of business.

Summary

This paper summarized an analysis of the defects in our current organization situation and provided a brief overview of a new cost effective paradigm.

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