INSIDE CONTINUOUS IMPROVEMENT - A LITERATURE REVIEW

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ABSTRACT

This paper discusses the concept of continuous improvement (CI) by looking beyond what traditionally highlighted in literature concerning continuous improvement or Total Quality Management (TQM). The primary argument put forwarded in the discussion is that despite the undeniable positive results from CI practices, the way these activities are implemented, however, will lead to most programs becoming self-limiting. It needs to be asserted here that this paper is not intended to despise CI, rather, its purpose is limited only to provide a balance on the prevailing positive views toward CI.

Keywords: continuous improvement, control, learning, innovation.

1. INTRODUCTION

Increasing competition in the global market, rapid development of technology and increasing customer orientation are just a few examples of the challenges a company has to deal with nowadays in order to survive. During the last decade there has been a growing interest in the concept of continuous improvement (CI) as a means of coping with this upheaval and as away towards improving business performance. Deming (1986) adopted the concept of CI as his first quality principle by pointing out that constancy of purpose is achieved through plan-do-check-act (PDCA) cycles. Imai (1986) even argues that CI is part of Japanese culture, where it is known as *kaizen* – meaning improvement and defined as a "company-wide process of focused and sustained incremental improvement".

As a principle that is reflected through certain practices and a set of tools, CI distinguishes itself from other practices in which it has certain elements that characterize its implementation. This paper will discuss those elements in the purpose of disclosing some risks that may trap organizations that implement CI. In particular, the discussion will be focused on the "potential forces" inherent in CI that may inhibit organizations from being innovative, something that has become a major competitive advantage in today's competition. It is important to note that the term CI in this paper will be used interchangeably with the term TQM (Total Quality Management). Apparently, CI is not TQM, but many believe that CI is one of the core elements of TQM besides customer focus and teamwork (Dean and Bowen, 1994).

It also needs to be asserted that this paper is not intended to despise CI. Its purpose is limited only to provide a balance on the prevailing positive view toward CI by arguing that despite its undeniable advantages, CI inherently possesses several elements that may bring a danger for organizations implementing with ignorance of those elements.

2. INCREMENTAL

The emphasis on incremental change is central on the philosophy of process improvement developed by Imai (1986). He also made a clear distinction between *kaizen* (incremental improvement) and (radical) innovation. Not only Imai describes the distinction between *kaizen* and innovation, but also strongly suggests that the defeat of American firms in competing against their Japanese counterparts is due to the choice of this improvement approach. Amsden et. al. (1996) support this by concluding that CI strongly suggests organizations always look to improve everything with which they are associated, so the improvements the do make will generally be small and incremental, which are relatively easy to manage. The stress on incremental improvement could lead teams to work on un-ambitious goals and derive solutions which are not novel. In his ninth point, Harari (1997, p. 43) addressed the fallacy of TQM in relation with innovation that:

> "obsessing internally until one achieves a zero-defects "do-it-right-first-time" routine is a dangerous luxury that often slows down new breakthrough development in products and services.

Strategically, incremental improvement may allow business to catch up to its competitors, but it cannot achieve breakthrough performance that will permit it to leapfrog past them. Business culture that emphasizes catch-up, without consideration of the need for breakthrough, will be outdated (Fuchs, 1993).

3. CONTROL-ORIENTED APPROACH

Despite the emphasis on the term "improvement", CI is very much associated with control approach. In many parts of his "Kaizen" book, Imai (1986) discussed the link between *kaizen* (CI) and TQC (Total Quality Control). Sitkin et al. (1994) even strongly argue that the core focus of TQM, including on CI, meets quite precisely the requirements for a cybernetic control system, hence, cybernetic theories of control highlight the theoretical boundary conditions that are likely to apply to the total quality control (TQC) approach that is typical of today's TQM. Cybernetic theories or control, as suggested by Green and Welsh (1988, p, 289) involve a process in which a feedback loop is represented by using standards of performance, measuring system performance, comparing that performance with standards, feeding back information about unwanted variances in the system, and modifying the system. This concept basically is not that far different from PDCA cycle in CI. In essence, control and stability is the core of continuous improvement process (Jha et. al., 1996).

When discussing TQM from the theory of work design, Hackman and Wageman (1995) inferred that under TQM, much energy would be spent searching and identifying the "best" work practices, those that bring work under the greatest possible control.

4. STANDARDIZATION

As CI is closely linked to cybernetic control system, it must also be characterized by two primary elements of cybernetic system: standardization and repetition. As such, CI

has the need for a regulatory standard and the need for activities that are sufficiently routine to be well understood. Imai (1986) strongly suggests that CI requires standardization. He even proposes a combined approach between the improvement (PDCA) cycle and the standardization (SDCA) cycle[1]. Related to what Hackmand and Wageman (1995) said before, TQM applies standardization in order to lock the "best" work practices that have been identified before. Whilst, standardization is necessitated for conformance and error reduction, it could trap people to stick with what is workable and believe in "the best solution" as asserted by Kanter (1983, p. 70):

> Organizations with a formula that works well are doomed to replicate it, handling over their operations to people who control things so that there are no deviations from the formula.

Hackmand and Wageman (1995) support this argument in which standardization results in that employees may wind up with very little discretion about how they perform their tasks. Standardization therefore could inhibit innovation because it reduces ambiguity of task that is necessitated to enforce innovation because it will raise the fear of breaking the rules because it will bring punishment (Morgan, 1993). Innovation usually increases error rates before reducing them, hence, working against the edicts of standardization (Ahanotu, 1998).

5. REPETITION (ROUTINIZATION)

Suzaki (1993) asserts that CI changes are made through "ceaseless repetition". In TQM literatures, CI is commonly characterized by endless churning of PDCA cycle, as suggested by Deming (1986). In addition to the ultimate goal of PDCA cycle, which is improving the process, that learning cycle will result in two things. First, it will improve mastery (familiarity) of the process, how it really works. That is why TQM promotes what is called as "process owner". Second, it will establish and naturally formalize certain routines, regular and predictable patterns of activities that are made up of a sequence of actions (Grant, 1991).

Whilst there is a great advantage of having these results in which organization can operate this cycle continuously and smoothly, at the same time, it also potentially causes a danger in which organization will develop stickiness on repeated or established way and not to explore new way of doing things, as asserted by Morgan (1993, p. 124):

> "When it comes to thinking, rules are probably the last thing we need for our survival. Rules make us lazy in the way we think. They encourage us to accept the status quo. They stop us thinking outside the rules.

In relation to algorithmic tasks, where task behavior is governed by fixed and specific rules, innovation would be inhibited because the 'stickiness' on established and repeated rules will subsequently produce the Not Invented Here (NIH) syndrome (Tushman and Nadler, 1988, p. 293; Woodman et al., 1993). This is referred to as rigidity and relates to a certain behavioral pattern that is developed over time. As held by Morgan (1993), such rigidity will inhibit creativity which is the primary source of innovation. Similarly, Glynn

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[1] PDCA stands for Plan-Do-Check-Act, and SDCA stands for Standardize-Do-Check-Act. Further details can be found in Imai (1986; pp. 60-65)

(1996) suggests that novelty of problem affect the person's creativity in solving that problem. In situations where a problem is familiar, prior experience may lead to the direct retrieval of a prior solution – as in the case of routinized problem solving, means that if workers are allowed to deal only with routine operational problems, then it would be unlikely that they will be innovative. Katz (1988, in Tushman and Moore, 1988, p. 204) gives a strong conclusion in regards to the 'end result' of the standardized problem solving approach, as follows:

"As a result, there may develop over time increasing rigidity in one's problem solving activities – a kind of functional fixedness that reduces the individual's capacity for flexibility and openness to change. . . . Furthermore, as individuals continue to work by their well-established problem-solving strategies and procedures, the more committed they may become to such existing methods."

Rigidity, as asserted by Abernathy and Utterback (1985, p.28) will cause organization to lose its flexibility, becoming increasingly dependent on high-volume production to cover its fixed costs and increasingly vulnerable to changed demand and technical obsolescence.

6. FIRST-ORDER LEARNING

Finally, from Organizational Learning (OL) point of view, TQM or CI is viewed as promoting first order learning, as suggested by Argyris (1999, p.41)

"Most TQM activities are based upon the idea of single-loop learning. The emphasis is to find the actions that cause poor quality and reduce or eliminate them. This works because quality is increased. The problem is that it is self-limiting."

This argument can be supported by the following facts about TQM or CI. The popular quality improvement tools mentioned earlier which always accompany discussions on continuous improvement, usually emphasize analytical, structured and linear thinking, whilst innovation is more synthetical, unstructured and non-linear (Bookman, 1994). Incremental improvements tend to emphasize starting with factual information (left-brain thinking), whilst breakthrough and radical thinking both start with intuitive insights (right-brain thinking), a process which is then followed by factual verification (Miller, 1995). It is also the case that continuous improvement is more analytical, whilst innovation is more experimental, allowing trial and error due to uncertainty (Ahanotu, 1998). The problem solving method taught by TQM emphasizes the use of data, indeed, one of the most famous terms used in TQM literature is 'management by fact'. This term strongly promotes the idea of rational thinking supported by a set of data, tools, and techniques. The danger of too much emphasis on rational thinking, however, is that people will try to place creative and chaotic processes into systematic and rational sequences that may not be compatible with each other (Roffe, 1999). The emphasis on single-loop learning leads CI practices to focus on the existing system. As mentioned before, certain critics of TQM suggest that the focus on incremental improvement could well hinder people to consider more radical change. In this context, the failure to explore any radical change is caused by overemphasizing the improvement of existing system. For example, Lawler (1994) and Samaha (1996) suggest that the concept of continuous improvement is basically aimed at simplifying or streamlining a process and carrying it

out in a better or faster manner. Such an approach could be detrimental to breakthrough innovation that, in turn, leads companies to continually work upon, and improve, processes that are fundamentally flawed. Similarly, Ahanotu (1998) asserts that in practice the TQM approach results in a situation where the learning of production workers is typically constrained within a given pre-designed production regime. Consequently, this brings employees to focus on the details of the quality process instead of on new ideas that represent a substantial change from current functions and structural ways of working. The best that they can do, therefore, is improving the existing system incrementally. In regards to the learning process involved in TQM, Burdett (1994) provides the following conclusive statement:

> "A more subtle potential shortfall in TQM is the extent to which an ethos of continuous improvement impacts on organizational learning . . . A question that is framed in terms of "How can we improve this?" by implication moves those involved away from what may be a more insightful question, "Do we need to this at all?"

7. CONCLUSION

This paper has discussed a number of elements that inherent in CI concept and practices as well as the potential danger caused by the overemphasis on narrow-minded implementation of CI. It has been discussed from various angles how CI implementation could hinder or inhibit organizations from being innovative in a radical sense (for example, reengineering). Apparently, CI proponents have argued that CI should not be taken as the sole approach for companies to be successful in today's competition. Imai (1986) himself while criticizing the practice of Western companies that emphasize radical innovation than incremental improvement does not reject the need for such a great leap change or discontinuous innovation. He proposes the idea in which continuous incremental changes and dramatic and discontinuous changes can coexist and interrelate for more effective change processes in organizations. Similarly, Tushman and O'Reilly III (1996) suggest the concept of ambidextrous organizations, the ones that are able to implement both incremental and revolutionary change. Whilst that is not part of discussion in this paper, the author recommends the reader to look at this paper in order to obtain a broader perspective on organizational change and development. Finally, the importance to understand the different method of organizational change is indisputable since in today's business competition the only unchanging thing is a change itself.

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