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Is innovation the future of quality management?

Searching for signs of quality and innovation management merging

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Abstract

Purpose – Upcoming as well as mature industries are facing pressure as regards successfully managing operational excellence, and, at the same time, driving and managing innovation. Quality management concepts and practices' ability to tackle this challenge have been questioned. It has even been suggested that there is a need to provide and promote an updated/changed, and even re-branded, version of Total Quality Management, merging quality management (QM) and innovation management (IM). Can such a shift then actually be spotted? The purpose of this paper is to explore and see if there are any signs suggesting that QM and IM actually are about to merge.

Design/methodology/approach – The study is based on literature reviews, document studies and interviews.

Findings – The paper highlights three signs indicating that QM and IM indeed are approaching each other, and that it is a movement driven from both sectors, e.g., in the work with new ISO-standards and the Toyota Kata framework.

Originality/value – The indicated development has fundamental and extensive practical implications. It will for example have to be followed by a similar merging of the two fields in the educational system, and in the competences of future managers.

Keywords Quality management, Organizational Ambidexterity, Innovation management, ISO, Toyota Kata

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1. Introduction

Previous research has found that organizations which are to survive long term need to be adaptive and innovative in parallel with being efficient (Brown and Eisenhardt, 1995). Such an ability is commonly described as "Organizational Ambidexterity" which according to Tushman and O'Reilly (1996, p. 24) refers to "the ability to simultaneously pursue both incremental and discontinuous innovation". Looking forward, innovative as well as mature industries are expected to move toward more dynamic conditions, as stated by Steiber and

Alänge (2012). Organizations are likely to face more pressure for successfully managing operational excellence and continuous improvements, as well as continuous innovation – simultaneously.

How quality management (QM) fits into this upcoming management challenge is questioned. Previous research has, for example, often pointed at the risk that QM initiatives might impede firms' ability to innovate and quickly adapt to changes, and especially so in rapidly changing environments (Sitkin *et al.*, 1994; Benner and Tushman, 2002; Cole and Matsumiya, 2007, 2008). Historically, quality programs also appear to have been mostly related to activities of exploitation, as argued by Ramis-Pujol (2003). These activities are captured by the literature with concepts such as choice, production, efficiency, selection, implementation and execution. Innovation, on the other hand, is related to activities of exploration and then associated with concepts such as research, variation, experimentation, game, flexibility and discovery (March, 1991). Recently Eriksson *et al.* (2016) also concluded that ISO 9000 fails to cover the second most highly ranked quality-related challenge that organizations face today, which is "to make the organization agile and adaptable to rapid changes within the business environment".

However, researchers have also claimed that at least some QM practices are conducive to innovation (Antony, 2007; Kim *et al.*, 2012), and it has even been argued that some of the best practices of innovation management (IM) could be recognized as Total Quality Management (TQM) elements (Prajogo and Sohal, 2001). Fundamentally, it could also be claimed that QM and innovation are closely related and united in terms of being two basic strategies for increasing customer value, as elaborated by Ng (2009).

Given that there is a growing need for managing not only continuous improvements and operational excellence of the existing but also discontinuous or radical change and innovation, it becomes vital to examine if and how management practices and models are adapting, or not, to this need. Steiber and Alänge (2012) suggest, for example, that if continuous innovation is to become as important as continuous improvement for TQM companies, there is a need to provide and promote an updated/changed, and even re-branded, version of the TQM concept to keep it relevant – merging QM and IM. Such a shift would indeed be a fundamental and groundbreaking shift in the history of QM so far. Can such a shift then actually be spotted? Are there any signs of a merging of QM and IM to be observed in current practice or concepts/models? The purpose of this paper is to explore if there are any signs suggesting that QM and IM actually are about to merge.

2. The development of and discussions concerning the new ISO-standards: any signs of innovation management and quality management merging?

This section explores if there are any signs suggesting that QM and IM actually are about to merge to be spotted in the development and discussions concerning the new ISO-standards. The ISO-standards of relevance here are first the recently revised ISO 9000 standard family for QM systems that was released less than a year ago, and now is starting to be applied in organizations all over the world. Second, the other standard development of relevance is the global ISO-standard concerning IM system (the ISO 50500 family) that is being developed right now.

To explore signs in the ISO activities and processes, an interview was conducted with Magnus Karlsson PhD, Eur. Ing., Adjunct Professor at KTH Royal Institute of Technology in Stockholm, as well as director of New Business Development and Innovation at the company Ericsson. Magnus was considered to be in a unique position to contribute with insights concerning the approaching of QM and IM, given that he both took part in the

recent work with the new ISO 9000 standard family for QM systems and is the chairman of the Swedish Committee, which now is working with the new ISO standard for IM (www.sis.se/ledningssystem/sis-tk-532). The interview was conducted by telephone using open questions aiming to capture what has been discussed and decided in the two different ISO development processes and how that could have affected, or is perceived as likely to affect, the relationship between QM and IM. The most important insights from the interview were noted, word by word. Finally, the text was sent to Magnus for a second round of validation and an ability to complement or correct. As a result of the interview, two distinct signs of IM and QM approaching each other were identified as elaborated below.

2.1 Sign 1: Innovation management almost made it into the new quality management standard family ISO 9000

Magnus noted that the relationship between QM and IM actually was heavily debated in the technical Committee during the final work with the new revised ISO 9001 standard for QM systems. In the discussions, there was a strong argument for the need to get innovation into the new QM standard. Many agreed that to be relevant as a quality community, it is not enough to just keep on with continuous improvement and operational excellence. There is now clearly a need to bring in an innovation perspective into the QM systems. It was argued that quality is becoming more and more of a hygiene factor or "ticket to play", while other factors are what differentiates an organization, such as, for example, ability to innovate. So, the question as to whether an organization is likely to survive the next 10 years is not so much dependent upon its ability to manage quality as its ability to manage innovation as argued by McGrath (2013). There were hence strong arguments for including innovation and IM in the new ISO 9000 QM standard family.

However, there were also counter arguments that highlighted the fact that everything that is put into the new ISO9001:2015 will become a requirement, a compulsory commitment, and thereby affect all the certified organizations. To bring in innovation was then basically argued as too much of an expansion of the standard from a practical perspective. The question of including innovation was also discussed late in the process of developing the new QM standard.

A second counterargument concerned the very nature of QM vs IM. It was questioned if it is even possible for a QM system, with its characteristic paradigm, to also cover and "swallow" the IM paradigm? Or would a successful management of the two instead benefit from approaching them as two different systems? In this line of argument, it was argued that QM had already come to incorporate more and more of organization's inner life, and perhaps it would rather be wise to clarify the management of innovation as another, and in some aspects very different, subject than to broaden the scope of QM even more.

As a result, the recently released standard family for QM ISO 9000 came to exclude IM, and it was decided to develop a separate global standard for IM. However, the discussion itself is a clear sign of an increasing interest in, and articulated need for, merging QM and IM, in one way or another.

2.2 Sign 2: Innovation management are to be put on the same "Table" as quality management by the new innovation management standard

Magnus further noted that one of the most interesting aspects of the new global ISO standard for IM is that it will bring IM and QM to the same "Table". In the new standard, the IM system will be described using the same structure as used for the QM system. In some aspect, IM will be described in, and translated into, "QM language" using the High Level Structure (Annex SL). This will indeed provide new opportunities for the management of an

organization to start putting the two systems besides each other, and start to see more clearly how the organization's QM and IM actually complement, or even are in conflict with, each other. This will make it easier for management to start to prioritize more strategically between, and allocate resources to, the IM and QM systems. In sum, the upcoming new IM standard will increase the ability of organizations to increasingly comanage, and in some aspect merge, QM and IM. As a result, the new IM ISO standard will enable, and most likely contribute to, an increased merging of QM and IM in practice.

2.3 Why is this happening now?

According to the input from Magnus, IM has long been suffering, not least in the service and public sector, from not being approached professionally or systematically in many organizations. On the other side, QM has received a lot of spread, application and attention, given its strong paradigm, standards and systematics that have been successfully established in all types of organizations during several decades. Comparing the two fields, IM is just getting started as a distinct discipline of its own, as is the professionalizing of, for instance, dedicated innovation leaders in organizations in general. From a merging perspective, the now ongoing strengthening and development of the IM field, in some aspect "catching up on QM", will probably accelerate and enable new forms of, and more of, a comanagement and partial merging of innovation and QM in organizations during the years to come.

3. The current best practice of quality management in terms of the Toyota Kata framework: any signs of innovation management and quality management merging?

This section explores if there are any signs to be spotted suggesting that QM and IM actually are about to merge in the current best practice of QM. To explore such signs, the current best practice of QM, in terms of the concepts and practices of "Toyota Kata", has been explored from an IM perspective. The section is based on literature studies and the authors' collective experiences of practically applying the concepts and practices of Toyota Kata, as well as IM, in the role of consultants and researchers in multiple contexts and organizations in both private and public sector including both the manufacturing and service industries.

3.1 Sign 3: The current quality management best practice for continuous improvement (Toyota Kata) is approaching innovation management

QM is not static. On the contrary, it is a management concept that is continuously improved and innovated. This being the case, one of the most interesting and significant contributions to the field in recent years is the concepts and practice referred to as "Toyota Kata", providing insights of current best practice of QM. Since the best-selling book "Toyota Kata" was first published in 2009 (Rother, 2009), the practices of the Toyota Kata have also spread quickly among quality practitioners and consultants globally; see Kata websites and Kata conferences, e.g., Kata Summit (http://katasummit.com).

The research or exploration behind Toyota Kata was according to Rother (2014) driven and initiated by the question: "What are the unseen managerial routines and thinking that lie behind Toyota's success with continuous improvement and adaptation?"(Rother, 2014, p. 1). As a result of six years of studies, Rother came to a conclusion in terms of two "Toyota Katas". The first being the improvement kata – a repeated routine of establishing challenging target conditions, and then working with

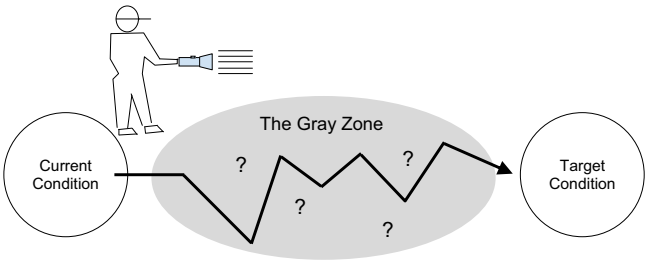
rapid iterations moving step by step through obstacles, and learning from the problems encountered. The second was the coaching kata – a pattern of teaching the improvement kata in a Master-Apprentice teaching approach. The main purpose of Toyota Kata is, according to Rother (2009), to teach and sustain continuous improvements. However, when looking at Toyota Kata with an IM perspective, the current QM best practice in terms of Toyota Kata actually appears to approach continuous improvement by an IM process. Going into more detail, Toyota Kata is more similar to models of iterative, creative and scientific processes than command-and-control managerial routines, as is also stated by Rother (2014). Looking closer at the process, Toyota Kata depict Toyota's pattern of thinking and behavior with a four-step model where the main activity of the organization is to perform iterative, rapid "experiments" or steps that probe into the system. It might be best captured in the flashlight analogy used by Rother (2009) to describe this activity:

> You have defined where you want to go (the target condition), but the way ahead between here and there is dark. You are holding a flashlight, but it only shines so far into the darkness (Figure 1). To see further and spot obstacles hidden in the dark you have to take a step forward. (Rother, 2009, pp. 132-133)

In sum, modern QM best practice for working with continuous improvement is indeed very much a practice of an iterative innovation processes, innovating the operations and processes of an organization. As put by Rother:

> There is no need for lengthy theoretical discussions or opinions about further activities or steps beyond that (the next step), because whenever one step is taken, the situation may be changed as a result [. . .]. For this reason, Toyota works toward a target condition in small, rapid steps, with learning and adjustments occurring along the way. This is equivalent of placing one foot in front of the other, one step at a time, and always adjusting to the present situation as necessary, and is quite different than working through the predefined steps of a plan or action-item list (Rother, 2009, p. 131).

This description is very much a description of an innovation process stressing the series of "Build-Test-Feedback-Revise" iterations or loops that generally are characteristic for innovation processes, and even more so for radical innovation; see Cooper (2008) and Unger and Eppinger (2011). It is also very strongly in tune with design thinking stressing that prototyping, where even failed prototypes can open up the way to success, or "build to learn" is the shorthand to innovation (Kelley, 2001). In sum, the modern best practice of QM is approaching IM. It is indeed far from the preconception that QM and process management are foremost about minimizing risk and variability. Toyota Kata puts learning in focus, as



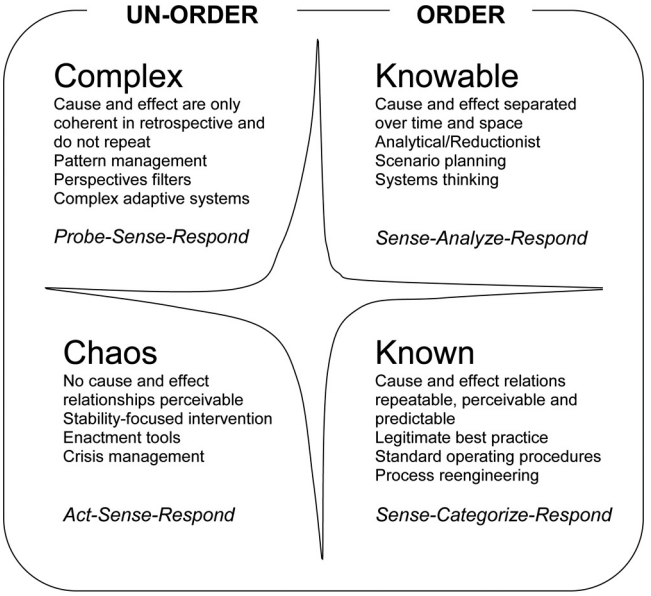
Source: Modified from Rother (2009, p.133)

Figure 1.
The flashlight analogy used to capture Toyota's way of working with continuous improvement

does innovation processes. This development and change of both mindset and practice within QM will definitely facilitate a further merging of, and the ability to comanage, the fields of QM and IM in the future.

3.2 Reflections: Why is this happening now?

Put in perspective, the reason for Toyota now working with quality development and management in accordance to what actually can be seen as an innovation process might be understood with the help of the Cynefin framework and the insight that the systems to be managed are increasingly complex, or even chaotic. The Cynefin framework, as seen in Figure 2, is based on theories of complex and chaotic systems (Kurtz and Snowden, 2003; Snowden, 2002; Snowden and Boone, 2007). It is a knowledge management sense-making framework that provides a typology distinguishing between structured and unstructured decision contexts. Basically, it suggests that the proper methods of working and decision-making are very different in "ordered" comparing to "un-ordered" systems. The stable and ordered domain to the right is the realm of classical economics, traditional operations research and system dynamics. Here, action and decisions can be successfully approached using a process of *Sense-Analyze/Categorize-Respond*. Against this are set the unstructured, complex and chaotic contexts seen in more dynamic and changing environments. In the complex domain, there are many interrelating influences, but order is emergent. It is a decision context order is not quantifiably predictable in advance, but cause and effect can be determined in retrospect. Here, action and decisions are successfully approached by a process of *Probe/Act-Sense-Respond*. The movement in modern QM toward the later process of action and decision-making could hence be related to the fact that the systems that QM



Source: From Kurtz and Snowden (2003)

Figure 2.
The Cynefin model

are to manage are increasingly complex and dynamic and thereby demand more of the *Probe/Act-Sense-Respond* processes.

4. Conclusions and discussion

The purpose of this paper has been to explore if there are any signs suggesting that QM and IM actually are about to merge. As a result of interviews as well as studies of documents and literature, three significant signs are highlighted suggesting an approaching, or even merging of the two. The three signs highlighted are:

(1) *Sign 1*: IM almost made it into the new QMt standard family ISO 9000.

(2) *Sign 2*: IM is now about to be put on the same "Table" as QM by the new IM standard.

(3) *Sign 3*: The current QM best practice for continuous improvement (Toyota Kata) is approaching IM.

As for validity of the results, all of the signs here highlighted are related to extensive trends and practices related to the two management areas, rather than being related to some occasional cases. In fact, there are, e.g., over 1 million companies and organizations in over 170 countries certified to ISO 9001 (www.iso.org/iso/home/standards/management-standards/iso_9000.htm). The practices and concepts of Toyota Kata also reach far beyond the Toyota Motor Company itself, being one of the most viral concepts of QM today.

Putting the results into perspective, the relationship between QM and IM appears to be about to reach a new level of mutual acknowledgement. Perhaps, this is due to the increasing attention given to innovation in general. A new level that tends to ignore the question as to whether QM or IM "is the thing", and rather acknowledges that both QM and IM will have a vital role to play in most organizations of the future, balanced in one way or the other. As asked for by Benner and Tushman (2015), such a development will hopefully also contribute to move beyond the false promise of universal best practices and programs that still persist in relation to TQM, ISO 9000 and Lean. Carefully understanding the organizational and industry contexts where various QM and IM practices and programs are relevant, or, conversely, the conditions under which they may have unexpected outcomes or even be harmful for organizations will for sure be an issue for ongoing research.

As the new ISO-standards and the spread of QM best practices in terms of Toyota Kata will open up for the opportunity to increasingly comanage and merge the question that comes to mind is: Who will be capable of managing that? The historical separation of the two fields of management, both in the educational system and in professional life, will then probably have to be questioned. As IM, by the new ISO-standard, soon will be described in, and translated into, "QM language". This will indeed provide new opportunities for the management of an organization to start putting the two systems alongside each other, and start to see more clearly how the organization's QM and IM actually complement, or even are in conflict with, each other. This will also make it possible for management to start prioritize more strategically between, and allocate resources to, the IM and QM systems. Such abilities demand however competence and professional roles that understand and can grasp the dynamics and nature of them both. The merging of practice and concepts of QM and IM will hence probably have to be followed also by a merging of QM and IM in the educational system and professions of the future. Connecting back to the classical duality of Organizational Ambidexterity (Brown and Eisenhardt, 1995; Tushman and O'Reilly, 1996), organizations will increasingly need professionals with more "Ambidextrous" competences.

Taking more of an internal QM perspective, the signs highlighted in this paper can be understood as hopeful and promising. This given the need for providing and promoting an updated/changed, and even re-branded, version of the TQM concept to keep it relevant – merging QM and IM, as recently argued by Steiber and Alänge (2012). The signs highlighted here indicate that such a shift actually can be spotted, and indeed, such a shift will potentially be one of the most fundamental and groundbreaking in the history of QM so far. The signs could also indicate that "new TQM approaches focusing on both waste reduction and learning, new knowledge creation, and innovation" are taking form as asked for and suggested by Dahlgaard-Park (2011, p. 512) when discussing the future potential and recovery of TQM in the western world.

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