

# PLACING QUALITY MANAGEMENT PRINCIPLES INTO THE FUTURE CONTEXT: WHAT'S NEW? WHERE NEXT?

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## Abstract

This research is about to predict of social movement and business trends in the future, as well as outlining on how current Quality Management principles will affected by this trends. In order to achieve this, the research focuses on two issues, namely; an overview of how today's, global issues and social trends (i.e. social networks) will continue into the future and a discussion of how current Quality Management principles will be affected by these trends. In addition, the researchers have expanded the view of business trends to include the predicted future business trends, which the researcher has categorised as 'future context'. Consequently, sixteen drivers are established as future context review. Further, the potential impact of the corresponding future context on the corresponding current Quality Management principles are being map in the matrix. In which five Quality Management principles are tested in this study. Additionally, this research reveals the transition dynamic of future context, which reflects the predicted movement of future changes that may impact on the current Quality Management principles as they are today.

**Keywords:** *Future Context, Future Business Trends, Web 2.0, Quality Management*

## 1.0 Introduction

It is becoming clear that distance is no longer an obstacle to the accession of information. The business environment becomes fuzzy with unclear interrelations and an overlap between the player and the roles. Increasing globalisation (C.K. Prahalad, 1998; C.K. Prahalad & Krishnan, 2008), proprietary and intellectual properties (Ulhøi, 2004; Lau et al., 2012), legal and contract (Cannon & Perreault, 1999; Drake & Drake, 1988), customer orientation (Dick & Basu, 1994; Oliver, 1999; Tsai, 2013), and innovation (Betz, 1993; Rogers, 1995; Drejer, 1997; Ettl, 2000; Khilji et al., 2006; Christoph Z., Raphael A. & Lorenzo M., 2010; Brown, 2013) are among the driving factors of the current business agenda. On the other hand, the world is changing so fast with new trends emerging.

This idea is in line with Hamel (2007, p. 147) where in his book *The Future of Management*, he insists that embracing new principles is essential for future management. This also aligns with Malone (2004) who claims that the practice of future work (i.e. networked organisations) must be built from principles. As a result, this paper is focused on the principles of Quality Management on how it may develop and continue into the future. Quality principles has been selected due to the fact that quality management field has been studied for more than 100 years dating back to the early 1900s when Fredrick W. Taylor known as the father of Scientific Management, stressed the important of quality inspection (Garvin, 1998, p. 5; Foster, 2001, p. 44). So this mean, quality management itself is relatively a mature field, which is much familiar to most people and easily to comprehend into this study context. Thus, this paper specifically aims to examine the importance of the present and predicted future social and global trends. In order to achieve this, the researcher will focus on two issues:-

1. An overview of how today's, global issues and social trends (i.e. social networks) will continue into the future.
2. A discussion of how current Quality Management principles will be affected by these trends.

Further, this paper answers the potential of social innovation, Web 2.0 and Open Source movement and its affect in the future. As such, this paper aim is to analyse, organise and structure knowledge from an academic standpoint and offer potential prediction for future research. The structure of this paper is as follows. Section Two briefly explain the method of this study. Section Three discusses a view of relevant literature on social innovation and business environmental over time. Then, Section Four focuses on the potential impact of the corresponding 'future context' on the corresponding current quality management principles. Consequently, sixteen drivers are established as future context review. In which five Quality Management principles are adopted in the context of this study. Finally, Section Five concludes with a description of an agenda for future research in the future.

## **2.0 Method of study**

Generally, the nature of the research methods can be divided into two perspectives, which are: (1) Qualitative research methods, and (2) Quantitative research methods. Accordingly, qualitative methods are the practical purposes in the ways of finding out what people do, know, think, and feel by observing, interviewing, and analysing documents (Patton, 2002), and understanding people from their own frames of reference and experiencing reality as they experience it (Taylor & Bogdan, 1998).

The purpose of the study is to gain the understanding on how Quality Management will develop into the future. In order to achieve this understanding, this research has been designed in the qualitative approach, as most of the data in this research is in the form of qualitative version. This enables the researcher to interpret meaning, make sense of data, and eventually produce new ideas and concepts to the body of Quality Management field.

In saying so, the researchers have used Matrix Table/Outcome Matrix in order to make prediction in identifying the potential impact of the corresponding future context on the corresponding principles of Quality Management. The author believes that it is much easier for the reader to understand and follow the Outcome Matrix, as it is very straight forward method, yet it fit the purpose (i.e. useful and dynamic for illustrating the future event). As such, the purpose and the usefulness of the Matrix Table is that by means of simplification it provides clear and reasonably stable points of orientation onto which those who are exploring something else in the field can hold, not spending too much effort on understanding all the underlying complexities but rather focusing on their area of primary interest. Therefore, it is appropriate to study each prediction of these principles by looking at the mapping, as each principle is then discussed in more detail in terms of future characteristics (see **Table 3** in page 7).

Thus, from the literature, nine quality management principles are identified in this study, which is consistent with Malcolm Baldrige Model and Business Excellent Model for European Foundation Quality Management (Hakes, 1999; Bank 2000; ASQ, 2002; Dahlgard, Kristensen, & Kanji, 2002) as they are:

1. Continuous Quality Improvement
2. Conformance to Standard
3. Management Understanding
4. Customer Orientation
5. Quality Leadership
6. Quality Involvement

7. Quality Supplier Relationship
8. Process Management
9. System Management

Table 1 as follows briefly describes the Quality Management principles.

**Table 1:** Description of Quality Management principles

<b>Principles</b>	<b>Descriptions</b>
Continuous Quality Improvement	Continuous quality improvement is the key to long-term success and high performance. Successful managers recognise that processes must be reviewed and improved continuously to ensure that their organisation stays competitive.
Conformance to Standard	The state of meeting or exceeding the requirements of specifications, accepted practices, prescribed rules and regulations.
Management Understanding	Management understanding is about people in management and what management perceives under the name of quality management.
Customer Orientation	Customer orientation is about how an organisation determines the requirement, expectation, and preferences of customers and markets. It also deals with how an organisation builds relationships with customers and determines the key factors that lead to customer acquisition, satisfaction, retention and to business expansion.
Quality Leadership	Leadership is about how leader address values, directions, and performance expectation as well as their focus on customers and other stakeholders, empowerment, innovation and learning.
Quality Involvement	The practice of involving employees in decision pertaining to processes, usually within their work units. Such decision may include suggestion for improving the process, planning, setting objectives, and tracking performance.
Quality Supplier Relationship	Supplier relationship is about how organisation work closely with their suppliers in which to ensure that both the organisation and the supplier are better able to achieve success
Process Management	Every operational activity is perceived as a process in Quality Management. Organisation need to manage all their activities as a process.
System Management	Processes are interrelated and that, in addition to being managed individually. They must be managed within an overall system.

However, for the purpose of this paper, only five quality principles are tested - the outcomes of the analysis process. The reason why the author only tested five main principles of quality management not less or more because the researcher believes that FOUR or less is far too few. SIX and more, tends to be too much and may create an uneasy feeling to the reader as well as considering the limitation for the publication itself. So, FIVE is the ideal. Hence, the researcher also believes that these principles will have the greatest impact on the future of Quality Management principles. Similarly, Hamel noted that “*embracing new principles are essential for future management*” (Hamel, 2007, p. 147) and future work (i.e. networked organisation) is building *from principle to practise* (Malone, 2004).

### 3.0 Future Contexts

There are several literature studies which predict the future context (C.K. Prahalad, 1998; Malone, 2004; Hamel, 2007; Priestley & Samaddar, 2007; Salina & Salina, 2007; C.K. Prahalad & Krishnan, 2008; Elisabeth et al., 2013). Thus, the renew of literature on future trends identified sixteen (16) drivers which were established as future context. From the analysis of literature, **Table 2** briefly describes the transition dynamics of future context, which reflects the predicted movement of future changes. See also (C.K. Prahalad, 1998; Malone, 2004; Hamel, 2007; Hamid, 2008, 2012). The focus is on the transition (e.g. the effect of the transition) of the evolving trends from present to the future. Further, the following **Table 3** illustrates how the predicted future changes shown in **Table 2** may impact on the current Quality Management principles as they are today.

**Table 2:** Predicted changes in business and social environment

Dynamic Transition	Descriptions	References
Web 1.0 to Web 2.0	This transition is from a passive web based technology to a participative social networking web. Web 2.0 provides the platform for participation, collaboration and creativity allowing more people to share their ideas and in more ways.	(Gray et al., 2008; Hamel, 2007; Hendler & Golbeck, 2008; Mason & Rennie, 2007; Needleman, 2007; Shing-Han Li, David C. Yen, Wen-Hui Lu, Tsun-Lin Lin, 2012)
Ideas and actions originating from the network rather than internally	The transition is where the ideas and actions are not solely built up within the organisation but across the network as well.	(Bard & Soderqvist, 2002; Hamel, 2007; Chaudhry, 2013)
Central Regulation to Self-Regulation	This transition is from a wide span of control to self-managed, self-controlled, self-organised processes and decision making where the individual is given more freedom in performing his/her task.	(Bititci, Garengo, Dorfler, & Nudurupati, 2008; Prahalad & Krishnan, 2008; Norman, 2012; London, 2013).
Contract to Trust	This transition is from formal or legal procedures to relationships based on trust. Trust becomes the main driver for every player to contribute and share their thoughts for relational improvement.	(Acaccia, Kopacsi, Kovacs, Michelini, & Razzoli, 2007; Crosno, Nygaard, & Dahlstrom, 2007; Hamel, 2007; Jahansoozi, 2006; Malone, 2004; Norman, 2012)
Legal Regulation to Moral Regulation	The transition is where the relationship is no longer bound solely by procedures and regulation and where there is a greater emphasis on morality. People prefer to make morally correct choices and actions (i.e. doing the ‘right thing’).	(Bititci, Garengo, Dorfler, & Nudurupati, 2008; Hamel, 2007; Malone, 2004; Uhløi, 2004; Dmitrieva & Lyutikova, 2013)
Increasing Transparency	This transition is from closed to open intellectual properties. The concept of transparency is linked to openness and is described as a required condition for rebuilding trust and commitment in	(Acaccia, Kopacsi, Kovacs, Michelini, & Razzoli, 2007; Bessire, 2005; Jahansoozi, 2006; Malone, 2004; Prahalad & Krishnan, 2008; Uhløi,

	relationships. The higher the level of openness and sharing, the greater the transparency achieved.	2004; Dietmar, Andreas & Alexander, 2013).
Proprietary to Open Source	This transition is from the principle of closed source based on a profit motive to the principle of open source based on a non-profit motive. The transition line is where the rights of ownership are waived and the public are allowed to share and given access.	(Hamel, 2007; Krogh, 2003; Muir, 2005; Ulhøi, 2004; von Hippel & von Krogh, 2003; Heron et al., 2013).
Copyright to Copyleft	This transition is from legal rights protection to the waiving of certain public rights. A particular example of Copyleft is the General Public Licence.	(de Laat, 2005; Ulhøi, 2004; Rajala, Westerlund & Möller, 2012).
Increasing Emphasis on Innovation	The transition line is on the emphasis of innovation in networking where innovation comes in the form of open source innovation as the result of across the network participation and collaboration.	(Boudreau & Lakhani, 2009; Machado & Manaus, 2007; Malone, 2004; Prahalad & Krishnan, 2008; Ulhøi, 2004; Hossain, 2013)
Bureaucracy to Netocracy	This transition is from hierarchical, procedural and rigid structures to flat, loose and flexible structures. Netocracy in the context of social governing reflects the idea of moving from an industrial society where social values are money driven to a humanitarian society which is knowledge driven.	(Bard & Soderqvist, 2002; Malone, 2004; Sillion, 2012)
Clear Organisational Boundaries to Fuzzy Organisational Boundaries	This transition line is from formal and clear organisational boundaries to loose and fuzzy organisational boundaries. This will allow businesses to become more responsive and enhance their ability to change.	(Bititci et al., 2008; Malone, 2004; Aslani & Aslani, 2012)
Increasing Emphasis on Community Opinion	The transition line reflects the idea of increasing the emphasis on community opinion with the objective of gaining peer recognition, reputation and community prestige.	(Ulhøi, 2004; CECP, 2010)
Increasing Emphasis on Continuous Learning	The transition line reflects the idea of increasing the emphasis on learning opportunities and enhancing knowledge literacy mainly through the network. The fastest way for learning is through conversation, blogs and web.	(Ulhøi, 2004; Institute, 2010)
Increasing Emphasis on Corporate Social and Environmental Responsibility	The transition line suggests that businesses go beyond money making via commercial activities and make a commitment to the well-being of the community. e.g. ISO 26000 (Social Responsibility).	(Baron, 2008; Castka & Balzarova, 2008; Falck & Heblich, 2007; Husted & Allen, 2007; O'Connor & Meister, 2008; Robins, 2005; Yoon, Giirhan-Canli, & Schwarz, 2006; CECP, 2010)
Loyal Customers to Picky/Curious Customers	The transition line is where customers have become more educated especially the younger generation and so have become highly selective and curious in choosing products or services. Make your customers and employees want you.	(Bititci et al., 2008; Chang, Hung, & Ho, 2007; Demoulina & Ziddab, 2007; Gray, 2014)
Increasing Pace of Change	The transition line reflects the pull of ideas for improving and rectifying problems more quickly, as the result of breeding ideas and solutions mainly through the network.	(Bititci et al., 2008; Hamel, 2007; Prahalad & Krishnan, 2008; CECP, 2010)

Source: (Hamid, 2012)

**Table 3: Matrix of drivers of future context and quality management principles**

Principles	(1) Web 1.0 to Web 2.0	(2) Ideas & Actions originating from the network rather than Internally	(3) Central regulation to self-regulation	(4) Contract to trust	(5) Legal regulation to moral regulation	(6) Increasing transparency	(7) Proprietary to Open Source	(8) Copyright to Copyleft	(9) Increasing emphasis on innovation	(10) Bureaucracy to netocracy	(11) Clear organisation to fuzzy organisation boundaries	(12) Increasing emphasis on community opinion	(13) Increasing emphasis on continuous learning	(14) Increasing emphasis on corporate social and environmental responsibility	(15) Loyal customer to picky/curious customers	(16) Increasing pace of change
Continuous Quality Improvement	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Quality Involvement	X	X	X	-	X	-	X	-	X	-	-	X	X	-	-	X
Quality Supplier Relationships	X	X	-	X	X	X	X	X	X	X	X	X	X	X	-	X
Process Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
System Management	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X

(X) Identifies the potential impact of the corresponding future context on the corresponding current Quality Management principles

#### 4.0 The potential impact of the corresponding future context on the corresponding principles of quality management

Table 3 presents the matrix and each principle is discussed thereafter with regards to the drivers. It needs to be clear that the **Table 3** is an author's opinion, which is informed by the literature (categorised into the boxes). However, the reality is not as clear cut as it is. Therefore, they should not be taken as definitive. What is more important is that the reader sees the big picture and gains an understanding of how the outcome of placing quality management in the future context is to highlight the principles of quality management that need to be revised and where necessary, revised, incrementally or radically as appropriate. Rather than worrying about the allocations. As different authors/researchers may look from different perspective and may likely placing/crossing differently, the table is indicative.

#### 4.1 Principle 1: Continuous Quality Improvement

It could be anticipated that the next continuous quality improvement will rely heavily on the future context of (see Table 3):

- Web 1.0 to Web 2.0
- Ideas and actions originating from the network rather than Internally
- Central regulation to self-regulation
- Contract to trust
- Legal regulation to moral regulation
- Increasing transparency
- Proprietary to Open Source
- Copyright to Copyleft
- Increasing emphasis on innovation
- Bureaucracy to netocracy
- Clear organisation to fuzzy organisation boundaries
- Increasing emphasis on community opinion
- Increasing emphasis on continuous learning
- Increasing emphasis on corporate social and environmental responsibility
- Loyal customer to picky/curious customers
- Increasing pace of change

The next continuous quality improvement could potentially incorporate network-wide continuous improvement, which has the following characteristics:

- Habitual
- Self managed
- Transparent
- Open source
- Participative
- Collaborative
- Trust
- Originated across network
- Community opinion
- Continuous learning
- Moral regulation
- Corporate Social and Environmental

In the future, continuous quality improvement could potentially occur across the network (Hamel, 2007; Malone, 2004; Salina & Salina, 2007), where Web 2.0 could provide the platform for participation, collaboration and creativity, and allow more people to share ideas and information in a greater variety of ways (Hamel, 2007; Mason & Rennie, 2007; Needleman, 2007; Gray et al., 2008; Daniel et al., 2013). Ideally, the more ideas that are shared, the more opportunity they have to grow and bear fruit.

In saying that, the researcher suggests that the next stage of continuous quality improvement could include '**Participative and Collaborative Improvement**'. Participative improvement in this context is a reflection of the members in a virtual organisation or practise group, who participate and communicate with each other via blogs and organisational websites (Hamel, 2007; Grant, 2008; Greaves & Mika, 2008; Gray et al., 2008; Shin, 2008; Harinarayana & Raju, 2010;

Ribiere & Tuggle, 2010; Bloggers, 2014). With the collaboration among agencies and publics, it may promote a helpful resource with broader improvement of information sharing, technology and law enforcement communities. Initially, problems, ideas, quality solutions etc are the issues that need to be solved across this network (Ribiere & Tuggle, 2010; Vujovic & Ulhøi, 2008). The synergy of this network leads to collaborative improvements where particular ideas are put into action and create competitive advantage among firms (Shin, 2008; Greaves & Mika, 2008; Insight, 2013). For example, members from the practice community share their comments, reviews and feedbacks on quality improvement with one another. One of the events occurring at present is 'Open Source Innovation' (Boudreau & Lakhani, 2009; Eisenmann, Parker, & Alstynne, 2008; Ribiere & Tuggle, 2010; Ulhøi, 2004; Vujovic & Ulhøi, 2008; Wynarczyk, 2013), where the organisation invites outsiders to comment on their suggested design improvements. Thereby, continuous quality improvement could originate not only from the internal organisation (for example, through a suggestion scheme, like Genba Kaizen) but also across the network.

Further, such participative and collaborative improvement could occur in the context of relational trust (Berger, 2007; Crosno, Nygaard, & Dahlstrom, 2007; Smyth & Edkins, 2007). For example, a well-known free, open content, community-built encyclopaedia with thousands of articles – Wikipedia - is based on the idea that users can add an entry and edit the published information. To a certain degree, this open system reflects the level of trust that is pivotal within the relationship, as there is no contract to bind it. Relational trust not only effect on individual but also our personal and collective physical safety. With high level of trust in an organization, it acts as a performance multiplier increasing positive interactions, productivity and safety while decreasing timeline and costs as well.

Another example is the eBay community, where transactions between sellers and buyers are based on mutual trust. When the potential buyer wins the bid, he/she is obliged to pay for the item, once the method of payment has been agreed. Once the payment has been made, there is a promise that the item will to be sent to the buyer. Furthermore, eBay promotes the idea that the user is a contributor. Rather than central regulation, eBay use self-regulation (i.e. are self-managed). eBay allows its users to publish a review, leave comments and participate in the reputation evaluation that ranks both sellers and buyers. Inevitably, good comments will help build a good profile, which reflects trustworthiness and increases the seller's reputation. These two driving forces - trust and self-regulation - will potentially improve quality management for service-based companies in the virtual world. It can be also argued that the idea of continuous quality improvement will no longer be bound by legal contracts. What matters now are transparency and the resulting increase in morality, as people are predisposed to make choices for the higher good (morality) including making improvements. Ideally, as transparency increases, there will be more trust.

*“Transparency is a required condition for rebuilding trust and commitment in the relationship. The concept of transparency is linked to openness and is described as being both a relational characteristic as well as an environmental condition for organizational processes. ...Transparency was a critical condition for rebuilding trust” (Jahansoozi, 2006, p. 954).*

Further, continuous quality improvement, in an open source context, creates more opportunities for developing and exploring new innovative ideas (Rajala, Westerlund & Möller, 2012). The open source movement brings the ideas of participation, collaboration and creativity to our social structure. This waives the orthodox idea of proprietary and copyright and gives way to the new domain of copyleft. Ulhoi (2004) claims that the open source movement grew out of the principle of closed source (for example, the protection of intellectual rights and private investment was motivated by profit) - the latter is based on the commonly owned goods, as goods based on non-profit motives (Ulhøi, 2004). Similarly with (Rajala, Westerlund & Möller, 2012) claims results of open innovation will build on the collective design and production of goods and knowledge.



Contrary to the closed-source innovation model, the problem of non-contributors or free riding is not a concern for open source innovators, since their personal gains are considerably higher than those of free riders (von Hippel & von Krogh, 2003). Free riders, it seems fair to assume, are unlikely either to acquire social recognition/status or experience any significant learning curve effect.

Psychological motives are based largely on the premises that intrinsic motivating factors exist which allow the participants to achieve a degree of personal satisfaction. If the concept 'the best idea to win' is within the network, then people will be motivated more by peer recognition and community prestige (reputation). This means that the continuous quality improvement movement is placing a greater emphasis on community opinion. However, some contributors have looked for external rewards by stressing the importance of peer recognition (communities of practice) (Johnson, 2002). He argues that such rewards can later be exported to the outside and translated into traditional monetary rewards.

As such, learning opportunities have been proposed as another important driving force (Lakhani & von Hippel, 2003) where learning by answering questions from users is a motivating factor for open source software developers. Continuous learning opportunities simultaneously provide a process of development for contributors and improvement for participants. This movement has brought what the researcher has called an increasing emphasis on continuous learning. Continuous learning does not have clear beginning and end but it is a lifelong process learning and difficult to measure.

Borrowing the definition from Ulhoi (2004) which states that "*an innovation refers to any new or significantly improved change resulting from research and development, whether improving existing insights and/or knowledge, or improving the functionality, performance or other value to the user, and/or the exploitation of entrepreneurial opportunities*", the new improvement in quality management in the open source environment will also foster innovation. This network-based movement (Web 2.0 and open source) will reshape thinking on innovation, which is no longer a linear process, starting with invention and ending with market penetration for commercialisation. Web 2.0 allows users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community. This contrasts with 1.0 websites where users are limited to the passive viewing of content that was created for them. Examples of Web 2.0 include social networking sites, YouTube, wikis, video sharing sites, blogs, Friendster, Myspace, Flickr, web applications, mashups, folksonomies, and so on. Now participation and collaboration are integral to innovation, which means that incremental innovation grows naturally out of the participation and collaboration required as part of networking.

It is suggested that with the evolution of Web 2.0, open source and social networking, customers have become more educated, especially those of the younger generation, and have become highly selective in choosing products. The continuous improvement via networking involves more customers, and the innovation of open source gives them the opportunity to satisfy their curiosity and find out more about new products whilst providing suggestions and comments to manufacturers to better meet their needs in the future. Through advanced internet technology, internet users not only retrieve information and read but opportunist to share and share their opinion as well as interact with other contributors and users of the page. Hence, internet users have become more of a participant rather than just a viewer or a reader.

The increase of corporate, social and environmental responsibility obliges the business sector to play a sensible yet not solely profit-orientated role (Baron, 2008; Cochran, 2007; Falck & Heblich, 2007; Heslin & Ochoa, 2008; Husted & Allen, 2007; Weber, 2008; Yoon, Giirhan-Canli, & Schwarz, 2006). This includes social and environmentally driven actions, where the business sector has been expected to go beyond its money-making and

commercial activities to commit to the well-being of the community, thereby making the world a better place (Robins, 2005; Roblek et al., 2013). This means that at any continuous improvement has to be aligned with social and environmental concerns. Castka and Balzarova (2008) insist that the new ISO 26000 act as operating society and environment in responsible way should be closely aligned (ISO, 2012) with ISO 14000 complement on environmental management (ISO, 2012) are requires organisations to develop their management systems around their social responsibility aspects and impacts.

On the other hand, barriers to information and knowledge are falling fast; which means that people in the network can access information quickly to make improvements. Blogs are a good example of this. The improvement via networking provides more cost efficiency, as the cost of networking is relatively cheap or could even be 'zero cost' compared to other mediums, such as telephone lines, consultancies, and other methods of communication (Corney et al., 2010; Pramadari, 2007; Ulhøi, 2004; Vujovic & Ulhøi, 2008; Roblek et al., 2013). In short, this reflects that there is evidence of some action having taken place in the networks as the result of communication (i.e. participation and collaboration). New methods of communication (e.g. blog, wiki and forum) can greatly lower the cost of exchanging information and of providing the people with information. It is easy, fast and cheap to experiment.

As a result of all the above mentioned, the improvement will be more persistent and resilient with more ways of doing things, as the options continuously evolve (i.e. increase pace of change). Thus, architectures that are open, flat, malleable and non-hierarchical, make it possible for everyone to have a voice, and ensures that the tools of creativity are widely distributed (Hamel, 2007; Luo et al., 2009). Therefore, the speed of change and response can be faster as everyone learns and participates in quality improvement. This suggests that based on the analysis, continuous quality improvement in the future will be network-based improvement where there will be more open innovation, participation and collaboration. Further, the continuous improvement will be self-organising/self-organised, as people and knowledge will be shared freely amongst the network partners.

## 4.2 Principle 2: Quality Involvement

The future contexts that may affect the principle of quality involvement are (See Table 3):-

- |   |  |
|---|--|
| • Web 1.0 to Web 2.0  | • Proprietary to Open Source                 |
| • Ideas and actions originating from the network rather than Internally | • Increasing emphasis on innovation          |
| • Central regulation to self-regulation                                 | • Increasing emphasis on community opinion   |
| • Legal regulation to moral regulation                                  | • Increasing emphasis on continuous learning |
|   | • Increasing pace of change                  |

It is foresee that the future principle of involvement would be based on:

- Virtual involvement.
- More dynamic members changing in sharing ideas, experience and knowledge.

In general, involvement in Quality Management includes employees at all levels of the organisation who can fully participate and employ all their skills to make the organisation successful. In the future, the researcher suggests that involvement in Quality Management will develop across the network and include sub-contractors, customers and others. It is no longer just based internally within the organisation, but throughout the network. Therefore, the next quality involvement could include '**virtual involvement**'.

As former employees' involvement is within the organisational context, the new transition could be across the network and connect with a wide range of people. Web 2.0 can play a part by providing the platform, such as blogs as a medium for this virtual involvement. For example, virtual involvement could involve connecting internal employees to external employees in another branch in a different part of the world (for example from Motorola in Penang, Malaysia, to Motorola in India). This reflects that involvement comes both internally and from beyond the boundaries of an organisation, with more dynamic members sharing ideas, experience and knowledge.

It is fair to say that the involvement itself is the foundation for open source. The involvement in the context of open source innovation (open sharing for open source community) is more holistic, which involves the employees, suppliers and customers. Therefore, there is a greater dynamic for members to change through their sharing of ideas, experience and knowledge. It is anticipated that this will be the next trend in Quality Management with ideas to increase the emphasis on innovation and improvement for quality.

It is also believed that the future context of involvement will not take place through force or demands from employers, but rather through willingness for it to become the norm. It is based on morality and employees participating in an ethical manner, in order to increase their own knowledge, and for the greater benefit of the organisation. Of course, more involvement provides more learning opportunities and also greatly enhances the knowledge literacy of participants. Based on Chatterjee, examined the credibility of recommendations received through new virtual environment (Arenas-Gaitan et al., 2013)

Thus, this moves the idea from employees as cogs in a machine, offshored to the lowest bidder, to creative, empowered team members. Employees shift from a confined/narrow job description to providing services/roles for an evolving portfolio of initiatives, which can be more proactive, instead of simply reactive to the superior. This shift will increase voluntary commitments (as opposed to forced assignments) and encourage more efficient group time utilisation via collaborative spaces. In short, this embracing of values generates self-guidance, self-policing, and peer responsibility for keeping one another aligned with the core set of principles, reducing the need for rules and thus helping people feel autonomous. Rather than feeling forced into conformity, employees feel that they are wilful actors making their own choices based on principles they can support. It is good for self-enhancement through a boost in self-esteem that is both personal and collective.

As such, the involvement of employees can be inspired through the movement of self-regulation where employees build up self-organising teams for quality improvement. In saying that, the researcher believes that self-regulation is fundamental to the success of the self-organising team. Where self-regulation can be inserted into the involvement principle, it will then help to fast track the pace of change and response to future solutions. In addition, **virtual involvement** can develop and increase community prestige. For example, growing academic communities (the IAMOT community and EUROMA community), where the future quality group of practice can learn from other virtual communities or groups of practice, and adapt to enhance their own performance and prestige.

In short, it can summarise that the future principle of quality involvement would be based on virtual involvement with participation, people-centered, employee engagement, collaborative team and self-control essentially being the next agenda. This will result in the following outcomes:

- The involvement comes both internally and beyond the boundaries of organisation. More dynamic members sharing ideas, experience and knowledge.
- This leads to involvement in the context of open source innovation, which is more holistic, involving employees, suppliers and customers.

- This moves the idea from employees as cogs in a machine, offshored to the lowest bidder, to creative, empowered team members.
- Employees shift from a confined/narrow job description to providing services/roles for an evolving portfolio of initiatives, which can be more proactive, instead of simply reactive to the superior.
- This shift will increase voluntary commitments (as opposed to forced assignments) and encourage more efficient group time utilisation via collaborative spaces.
- The embracing of the values generates self-guidance, self-policing, and peer responsibility for keeping one another aligned with the core set of principles, reducing the need for rules and thus helping people feel autonomous. Rather than feeling forced into conformity, employees feel that they are wilful actors making their own choices based on principles they can support.
- Increase self-enhancement through a boost in self-esteem that is both personal and collective.

### 4.3 Principle 3: Quality Supplier Relationship

The future contexts that may affect the quality supplier relationship are (See Table 3):-

- |   |  |
|---|--|
| • Web 1.0 to Web 2.0  | • Bureaucracy to netocracy   |
| • Ideas and actions originating from the network rather than Internally | • Clear organisation to fuzzy organisation boundaries                      |
| • Central regulation to self-regulation                                 | • Increasing emphasis on community opinion                                 |
| • Contract to trust   | • Increasing emphasis on continuous learning                               |
| • Legal regulation to moral regulation                                  | • Increasing emphasis on corporate social and environmental responsibility |
| • Increasing transparency   | • Loyal customer to picky/curious customers                                |
| • Proprietary to Open Source  | • Increasing pace of change  |
| • Copyright to Copyleft   |  |
| • Increasing emphasis on innovation                                     |  |

The next generation of supplier relationships could be based on **supplier involvement in open source improvement activities throughout the network.**

It is a belief that the principle of involvement would constitute the foundation for the next supplier relationship principle. The relationship is shifting from a supplier relationship to **supplier involvement in open source improvement activities throughout the network.** This may happen as Web 2.0 and open source, specifically open source innovation, provide the platform for suppliers to be more actively involved in the company's activities, such as giving comments and suggestions about product design and materials for new product development, particularly in the early stages.

The knowledge transfer medium is the communication mean between the knowledge source and recipient. Ideally, this provides direct two-way communication between the supplier and producers to improve and increase their innovation of products or services provided through the network. Formerly, the issues in supplier relationships are about make or buy (outsourcing) decisions, but now the relationship is shifting to open source innovation, where the pivotal idea is for the supplier to be more involved in the company's activities. To a certain extent, supplier/partnerships are competing and complementary (coopetition) with producers and each other at the same time.

In addition, this movement brings in the element of trust and transparency that is needed to enhance relationships. Such relationships include causal contact for information purpose, organized exchange of information and experience, involving in planning and operation of projects, pilot use of an innovation, joint use of equipment or laboratories, joint R&D projects, research contracts (Bellantuono et al., 2013). As the supplier becomes well informed about the materials, customer specification, quality work instruction etc, this may lead to better supplier relationships. As supplier involvement becomes the norm, the two-way relationship happens regularly and is not just a one-off meeting. Crucially, miscommunication and misinterpretation can be reduced. In line with these ideas, Pralahad and Krishnan (2008, p. 183) put forward the view that future supplier relations will involve facilitating collaboration across the firm and its partners and thus identifying new opportunities for process innovation and customer value.

Ideally, this will increase the pace of change and response between the producers and suppliers. For example, if the customer requests change in relation to product specification, the changes can be expedited (quickly). As a result, this relationship creates learning opportunities and also enhances knowledge literacy and skills between the producers and suppliers. Therefore, it is fair to say that, in the future, the principle of a quality supplier relationship would be based on collaboration in supplier relationship/collaborative networks, where suppliers and customers integrate their business model while competing and complementing each other. This makes it possible with the use of ICT platforms; i.e. Web 2.0, which shifts the ideas and actions originating from networks, netocracy-based and fuzzy organisation. In relation, there will be more need to establish trust, transparency and copyleft, moral regulation, and open source innovation. Other drivers will also come into play, such as increasing the emphasis on communities of practice, and continuing the focus on corporate social and environmental responsibility.

In short, in the future, the principle of quality supplier relationship would be based on collaboration in supplier relationship/collaborative networks, where suppliers and customers integrate their business model while competing and complementing each other. In relation, there will be more need to establish trust, transparency and open source innovation. This will result with the following outcomes:

- The relationship is shifting from supplier relationships to supplier involvement (supplier partnering) in open source improvement activities throughout the network.
- Supplier/partnerships are competing and complementary (coopetition) with producers and each other at the same time.
- Open source innovation provides the platform for suppliers to be more actively involved in the company's activities.
- Interconnection is accomplished easily with other systems from within the firm and vendors. This may lead to better supplier relationships, as supplier involvement becomes the norm and the two-way relationship happens regularly and is not just a one-off meeting. Crucially miscommunication and misinterpretation can be reduced.
- Future supplier relations will involve facilitating collaboration across the firm and its partners and thus identifying new opportunities for process innovation and customer value (Pralahad & Krishnan, 2008, p. 183).

#### 4.4 Principle 4: Process Management

The future contexts that may affect the principle of process management are (See Table 3):-

- Web 1.0 to Web 2.0
- Ideas and actions originating from the network rather than Internally
- Central regulation to self-regulation
- Contract to trust
- Legal regulation to moral regulation
- Increasing transparency
- Proprietary to Open Source
- Copyright to Copyleft
- Increasing emphasis on innovation
- Bureaucracy to netocracy
- Clear organisation to fuzzy organisation boundaries
- Increasing emphasis on community opinion
- Increasing emphasis on continuous learning
- Increasing emphasis on corporate social and environmental responsibility
- Loyal customer to picky/curious customers
- Increasing pace of change

The future principle of process management would be based on:

- Processes extend beyond organisational boundaries.
- Extended processes are managed as an integrated system across network.

In general, every operational activity is perceived as a process in Quality Management. The researcher proposes that the future context of process management in Quality Management is highly influenced by the developing movement of the networking era. The researcher suggests that this future principle of process management can be referred to as **'Processes extend beyond organisational boundaries where extended processes are managed as an integrated system across network'**.

Ideally, such thinking consists in the idea that every single quality process is managed throughout an integrated system (for example, a production system), where the process of improvement can come from across the network. For example, the development of Web 2.0 has given opportunities for process management, not just to build up internally but to be built across the network as well, as Web 2.0 provides the platform for personal blogs and the evolving open source community, and other group practices. Also, through networks, this brings a shift towards netocracy and fuzzy organisational boundaries in the principle of process management.

Ideally, this can also increase innovation through access to the larger pool of innovators across the network. This means that the processes extend beyond organisational boundaries and where managing external (outside) processes become the major challenge. Other drivers may also come into play, such as the increasing emphasis on customers to be part of the process management, along with concerns of corporate social and environmental responsibility. Towards innovation process management, it can penetrate market orientation based upon the awareness of and attention to signals emanating from the environment (Rajala, Westerlund & Möller, 2012).

As such, improved process management across the network would focus on process improvement, where the free rider or imitation would not be the concern (being more transparent, from closed to open intellectual properties). Further, improvements in the processes are geared towards sharing the benefit of the goods with the public (copyleft), instead of the former copyright approach.

This ambitious idea does well in the environment in that it moves from a focus on legal aspects to moral considerations. Moral in this context means that people are willing to do and share things for the beneficial good. This is in line with the idiom, 'Doing the right things' right' and consists of the willingness to perform tasks without being instructed, and where trust becomes the main driver for every player to contribute and share their thoughts on the quality process.

Process management in the context of self-regulation means that each quality activity is a process that can be self-organised by the quality members. Inevitably, every person can take part in process improvement, as the process improvement obtains solutions from the greater pool of sources, which may also include the expert across the network. For example, DuPont's R&D staff, who are trained in Six Sigma, help to improve processes by removing cost from supply chains, attacking slow-moving inventory, and streamlining innovation processes across their operation (Chowdhry, 2010).

In general, this leads to an increased success in the implementation of new processes and a much-reduced degree of failure, as more people can gel together. This provides a better learning opportunity, and improvements in the degree of information being shared to enhance knowledge. Eventually, every new idea that improves the process may contribute to knowledge literacy. Significantly, this may help to speed up the pace of change and the response to problems, and provide future solutions for managing quality processes.

In the networking community, they may select the best idea to improve the process. Then, if the idea is proven, the originator of that particular idea may get the recognition from his/her peers, consequently improving his profile and reputation. Viewing the process from a psychological perspective, this enhances individual satisfaction. Therefore, the future principle of process management would be based on processes extending beyond organisational boundaries where extended processes are managed as an integrated system across the networks. This will result in the following outcomes:

- Managing external (outside) processes are the major challenge, as the processes extend beyond organisational boundaries where extended processes are managed as an integrated system across the networks.
- There will be more self-regulation, where each quality activity is a process that can be self-organised by the quality members. Inevitably, every person can take part in the process improvement, meaning it obtains solutions from the greater pool of sources, which may also include the expert across the network. For example, DuPont's R&D staff who are trained in Six Sigma help to improve processes by removing cost from supply chains, attacking slow-moving inventory, and streamlining innovation processes across their operation (Chowdhry, 2010).
- An increased success in implementation of new processes and a much-reduced rate of failure, as more people can gel together. This provides a better learning opportunity, and much improved information being shared to enhance knowledge. Eventually, every new idea that improves the process may contribute to knowledge literacy. Significantly, this may help to speed up the pace of change and the response to problems and provide future solutions for managing quality processes.

## 4.5 Principle 5: System Management

The future contexts that may affect the principle of system management are (See Table 3):-

- Web 1.0 to Web 2.0
- Ideas and actions originating from the network rather than Internally
- Central regulation to self-regulation
- Contract to trust
- Legal regulation to moral regulation
- Increasing transparency
- Proprietary to Open Source
- Copyright to Copyleft
- Increasing emphasis on innovation
- Bureaucracy to netocracy
- Clear organisation to fuzzy organisation boundaries
- Increasing emphasis on community opinion
- Increasing emphasis on continuous learning
- Increasing emphasis on corporate social and environmental responsibility
- Loyal customer to picky/curious customers
- Increasing pace of change

The future principle of system management would be based on:

- Understanding complex causalities, including people, across the network extended processes.

Formerly, in the early era, system management refers to understanding isolated cause and effects in product quality. Now, in a system view, quality management looks at system management as a whole (i.e. quality system management in an organisation). This can be perceived as understanding complex causalities, including human factors, in that particular system. The researcher proposes that, in the future, the principle of system management may be shifting to a better **understanding of complex causalities, including people, across the network extended processes.**

In general, processes create the structure of the system, where processes as a whole are interrelated and generate the system. Therefore, the researcher considers that the processes are managed as an integrated system, so the principle of process management becomes the foundation for future changes of system management. Putting the principle of system management into the future context, it is a belief that system management as a whole becomes much more complex as the interrelated processes (e.g. internal and external processes) are embedded in the system, which extend beyond the internal boundaries of the organisation. For example in IT system management now shift to combination of cloud, mobile and social dynamics which are more dynamic and simpler system management (Rodriguez, 2011).

In short, the future principle of system management would be based on complex causalities, including people and across network extended processes. This will result with the following outcomes:

- Processes are managed as an integrated system, so the principle of process management is the foundation for future changes of system management.
- System management as a whole becomes much more complex as the interrelated processes (e.g. internal and external processes) are embedded in the system, which extend beyond the internal boundaries of the organisation.
- System management in the future may be shifting to better understanding complex causalities, including people, across the network extended processes.



## 5.0 Conclusions

In conclusion, the pattern of future may look like the new structure of business is heading to network-based organisation where the main driving force that may foster this move are lie on Web 2.0, open source movement and innovation. It is beliefs that the Web 2.0 will act as a platform to support the Open Source development where open sharing and copyleft are the essence of this movement.

In addition, Web 2.0 and Open Source promote and support social to become more innovative which the researcher called as 'Social Innovation'. Significantly, this Social Innovation would be based on the premises of:-

- self-regulation
- self-organisation
- self-management
- collaboration
- contribution
- participation

Apparently, this movement of networking based (Web 2.0 and open source) will reshape the new thinking of innovation, it is not solely a linear process, which starts from invention and ends with the market penetration for commercialisation, a former thinking of innovation. Now it is more profound to the participative and collaborative improvement of innovation, which means the incremental emphasis of innovation comes from this participative and collaborative improvement of people as the result of networking. People in the network will be the main driver of the innovation. Although at the moment, it seems that people focus is building around people competencies, for example is the emphasising training and development to build people competency in performing daily job. But in the future, people focus may link more on trust, moral and being transparent are the key drivers that may shape the network movement.

This movement also underlines that the future characteristics may consist of self-management, trust, transparent, open source, participative, collaborative, ideas and actions originating across network, and corporate social and environmental responsibility would be the driving factors in supporting the improvement. Hence, it is clear that the future would be based on netocracy, networks wide, open source and innovation. The impact that this future context may have on quality management principles have been discussed.

Overall, all of these mentioned principles are moving towards network-based operation. This eventually leads to the point where networking is emerging as a future business model that may have a significant impact on the future of quality management field, as this prediction is consistent with a stream of literature that foresees the future of organisations lying in networking (Malone, 2004; Hamel, 2007; Salina & Salina, 2007; Shing-Han Li, David C. Yen, Wen-Hui Lu, Tsun-Lin Lin, 2012).

Further, it is concluded that the changes in the future is also depend upon the principles of today. Consequently, current principles are also would be affected by future social and global trends. Ironically, it is fair to say that some of today principles might be not working for tomorrow, which these principles need to be reviewed and where necessary revised, incrementally or radically as appropriate. Therefore, next agenda of research lies on the breakthrough of new principles is the key for the future.

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