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FROM QUALITY GURUS AND TQM TO ISO 9001:2015: A REVIEW OF SEVERAL QUALITY PATHS

Abstract: A revision of several paths for the Quality journey is presented: from Quality Gurus and Total Quality Management (TQM) models to the ISO 9000 International Standards Series. Since ISO 9001:2008 is now in the revision process to the expected ISO 9001:2015 version, an analysis is made of he proposed changes and the underlying reasons and the impacts foreseen on the more than 1.3 Million certified organizations.
This revision should be a step towards TQM and reflect the changes of an increasingly complex, demanding and dynamic environment, while assuring that complying organizations are able to provide conformity products and services that satisfy their customers. Major benefits are expected such as less emphasis on documentation and new/reinforced approaches: consideration of Organizational Context and (relevant) Stakeholders, Risk Based thinking and Knowledge Management.
Comments and recommendations are presented for organizations wishing to implement or update their Quality Systems accordingly to ISO 9001:2015.

Keywords: Total Quality Management, TQM, Quality Management Standards, Management Systems, ISO 9001 revision, Business Excellence Models

1. Introduction

This paper attempts to review several quality paths including the Quality Gurus and Total Quality Management (TQM) approaches, the Business Excellence Models and the ISO 9000 International Standards series, ending with an analysis and considerations of the expected outcomes of the ISO 9001:2015 revision process. This process will be relevant for the more than 1, 3 Millions certified organizations and the many Quality Professionals like Managers, Engineers, Auditors, Consultants, Trainers and Professors, connected to this International Standard. Since this revision is not completed there is yet no relevant literature on the process itself and its expected outcomes. However, the author believes due to the active involvement in this revision process, it is time to compare the different Quality Approaches and share what is known and what we still do not know about the ISO 9001:2015 revision at the level of ISO Technical Committees and National Standard Organizations. This might ignite some new theoretical studies and also be of considerable value to the ISO 9001 certified

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organizations.

According to Dahlgaard-Park (2008) there has been an evolution on Quality starting with inspection, moving to Statistical Process Control, Quality Assurance and finally the Business Excellence Models. This perspective sees Quality Management as a management philosophy, that has evolved from a narrow and mechanic perspective known has Statistical Quality Control to a broader and holistic one, known as TQM and Business Excellence.

Starting with a Literature review of the Quality Gurus and TQM approaches, the EFQM Business Excellence Model is introduced followed by an overview of the ISO 9001 International Standard (Chapter 2). Chapter 3 and Chapter 4 outline the ISO 9001:2015 revision process and the major expected differences between the present ISO 9001:2008 International Standard and the future ISO 9001:2015 revision.

The papers ends with the proposed conclusions (Chapter 5), including the feedback received so far from the ISO 9001 community, some advices to the ISO 9001:2008 certified organizations and finally some analogies found during this research between Quality Management and Organizational Theory fields.

2. Literature Review

2.1. Quality Gurus/TQM

The Total Quality Management (TQM) movement can be traced back to the 1980s powered by major Quality Gurus like Deming (1986), Juran (1979), Crosby (1979), Feigenbaum (1983), who was the first to use the term and also made the point of the need for Top Management involvement, Ishikawa (1986) and Taguchi (1986). All of these Gurus had major contributions to the TQM Movement although more recognized by practitioners than the academia and surprisingly not making a lot of citations of each other work. To go even beyond, we could say that the

movement started in the US more as Quality Control (in the 1950´s) went back to Japan and come back to the US strengthened as a management philosophy: Total Quality Management (TQM).

Deming (1986) with its proposed 14 points, come up with the PDCA (Plan – Do – Check – Act, original from Shewhartz, 1931) who was one of the pioneers on identifiable and fortuity causes and use of statistical methods for quality improvement and stressed the need for Top Management involvement and constancy of purpose;

Juran (1979), also made the point on the need for Top Management involvement and developed the Quality Trilogy (Planning, Control and Improvement), made familiar the use of the Pareto Technique and of the Quality Costs Measurement.

To continue with the mainstream of US authors, Crosby (1979) also deserves a few words. He come up with the concept of Quality is Free by doing it Right First Time and conforming to Standards. He also raised the need for Cost of Quality measurement and Top Management involvement.

Going now to Asia, let´s start with Ishikawa (1986) that made major contributions for the Cause and Effect Diagram use and preached for the use of Quality Control at all levels of the organization and the notion of Internal Customer.

Finally but not least important, Taguchi (1986) is responsible for the Loss Function Concept, the Signal to Noise Ratio and the Orthogonal Design of Experiments methods, in addition to the importance of robust designs.

The Quality Gurus had major initial success mainly with Top Management by pointing out the steps they should take for their organizations success.

But can we say today that the academic world supports TQM as a scientific and valid approach or is TQM mainly supported by the Gurus principles and practitioners?

According to Powell (1995) 'TQM is an

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integrated management philosophy and set of practices that emphasizes, among other things, continuous improvement and meeting customers' requirements. Powel also found support for the hypotheses that TQM could be a strategic resource that generates economic value and provides the firm with sustainable competitive advantage (Powell, 1995).

However, even though a majority of academicians generally agreed that there is no consensus on the definition of TQM; Dahlgaard-Park *et al.*, (2001) made a literature survey that pointed out so some underlying, implicit agreements concerning the definition, scope and the core principles and concepts of TQM:

1) Strong Management Commitment/Leadership/strategically based.
2) Continuous Improvement.
3) Focus on Customers/Customer-driven organization.
4) Total Involvement/Total Commitment/Total Responsibilities.
5) Actions based on Facts/Scientific Approach.
6) Focus on Processes.
7) Focus on employees/Teamwork/Motivation/Empowerment.
8) Focus on Learning & Innovation/Training and Education.
9) Building Partnership between Suppliers, Customers, and Society.
10) Systematic Approach/ Building a TQM culture.

More recently Dahlgaard-Park, (2011) stated that TQM since the beginning of this century, shows some signs of losing its attractiveness in the industrialized parts of the world and instead new terms like Business Excellence, Six Sigma and Lean seem to have overtaken the position of TQM even though the contents of these new terms are within the framework of TQM and can be traced back to the beginning of the TQM movement (e.g. the PDCA cycle).

In overall, we would say that there is still a lack of studies analyzing TQM as a driver of strategic choices and sustainable business results. Or either the Top Managers, believe in the Gurus and are willing to take their time to achieve transformation and get results or it will be hard to obtain sustainable improvements. Additionally some academicians do not regard TQM as a major Business Theory like, for example, Industry Analysis Theory (Porter, 1980), Resourced Based View Theory (Barney, 2001) or Stakeholder Theory (Freeman, 1984).

2.2. Business Excellence Models

Another possible path on the Quality journey is the use of Business Excellence Models. The most recognized Business Excellence Models are the Deming Prize (JUSE established in 1951 in Japan). The EFQM model has been realized by a relatively small number of Top Managers and aim toward Top Management with the key message that Business Excellence is the key for sustainable organizational success.

The EFQM Model is now with the 2013 version. EFQM states that more than 30,000 Organizations are using the EFQM Excellence Model and have evolved towards a stronger Stakeholder and Sustainability and Agility approaches while emphasizing benchmarking and the need for change and adaptability for sustainable success (www.efqm.org): "It is not the strongest of the species that survives, nor the most intelligent…But the one that is the most adaptable to change".

Since the EFQM model is the more actual of these models we will use it to illustrate this pillar of the Quality movement. EFQM (www.efqm.org) defines Excellent Organizations "as the ones that achieve and sustain outstanding levels of performance that meet or exceed the expectations of all their stakeholders" The EFQM Model© is based on the following elements:

- The Fundamental Concepts of Excellence that define the

underlying principles that form the foundation for achieving sustainable excellence in any organization.

- The Model Criteria, based on Enablers and Results, that define the underlying principles that form the foundation for achieving sustainable excellence in any organization.
- And the Radar that is a tool for driving systematic improvement in all areas of the organization.

The Model aims to assess organizational performance, to identify strengths and improvement areas by integrating existing tools, procedures and processes, introducing a new way of thinking on the organization and identifying which actions drive results.

### 2.3. ISO 9000 series of International Standards

Last but not least we have come to the third Big Pillar of today's Quality Movement: The ISO 9000 series of International Standards. These standards started to be published by ISO© (www.iso.org) back in 1987 as a key tool to allow for the growing internationalization of business and the need for common quality management system standards. Its success lead to the birth (or at least the significative growth) of professions like "Quality Manager", "Quality Auditor" and "Quality Consultant" and the standards were more targeted on middle managers. ISO always tried to stress that "output matters" but some (or many?) look into ISO 9001 and the certification of the Quality Management System probably more due to external reasons than a real and effective business improvement model that in fact can be (Levine and Toffel, 2010).

Although ISO 9001 International Standard cannot be considered as a TQM or a Business Excellence Model it does indeed incorporate many of the principles of these models and can be considered as a step towards that direction (Martinez-Costa *et al.*, 2009). There are common dimensions between ISO 9001 International Standards and TQM (e.g., process management), however companies that implemented and certified their ISO 9001:2000 Management Systems would still fall far short of implementing a comprehensive TQM system (Martinez-Costa *et al.*, 2009). But we should remark that after the 2000 revision, the 2008 version has already being issued and it is exactly one of the aims of the future ISO 9001:2015 to close even further this gap between ISO and TQM. The basic core principles of TQM are still present and alive and the future ISO 9001:2015 International Standard should be a step towards TQM.

As per Figure One, ISO 9001:2008 International Standard has achieved great international visibility with more than 1 Million Organizations with ISO 9001 certified Management Systems (MS) all over the world.

ISO 9001 International Standards can be an excellent start to TQM, if it is interpreted in a way that encourages the company to begin the process of continual improvement and aligns its entire people toward that goal.
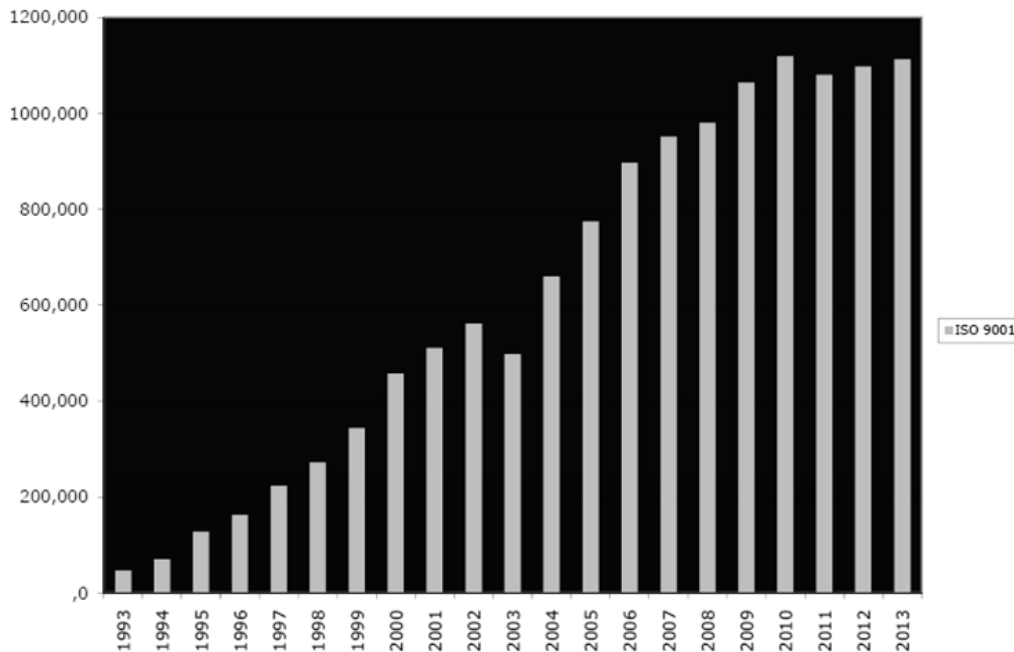
Figure 1. ISO 9001 Certified Organizations Survey Trends

Scientific studies (Boiral, 2012), have linked the success in the implementation of QMS ISO 9001 to the Organization motivations (most significant results when the motivations are internal rather than external) and to the way the standard is interpreted and implemented. Also the studies of Levine and Toffel (2010, Harvard Business School) concluded, by analyzing 1000 organizations of which 500 with QMS implemented and certified and 500 without QMS implemented and certified, the first presented a set of indicators significantly more favorable than the others: 9% higher sales volume and consequent additional profits; more employment (10%) and better wages (7%) due to higher sales volumes and profitability, and in combination with ISO 14001 less waste and incidents (these effects are more pronounced in small organizations). But there are sources of concern: in a survey of 375 Portuguese ISO 9001 certified organizations (Fonseca, 2012) only 38.4% acknowledge using Basic Quality Tools, 21.6% Advanced Quality Tools and 8.3% Total Quality Programs, Six Sigma or Lean

Six Sigma. How can the other more than 50% improve customer satisfaction by delivering quality products through controlled and innovative processes?

3. The ISO 9001 International standard revision process

ISO has a Directive governing the publication of standards (to be reviewed every 5 years). Sometimes the review confirms there is no change but are not the majority of the cases.

The ISO 9001:2008 revision process started by ISO/Technical Committee (ISO/TC) 176) aims to assure that the future ISO 9001:2015 International Standard reflects the changes of an increasingly complex, demanding and dynamic environment and remains stable for the next 10 years. The requirements should be clearly understandable and adequate to provide assurance that organizations by complying with them are able to provide conformity products and services that satisfy their customers. ISO TC 176 has the

following structure: Subcommittee 1 (SC1) Terms and Definitions), SC2 (Quality Systems with Working Group 23 (WG 23) Implementation Guidance and WG24 Revision of ISO 9001) and SC3 (Supporting Technologies). At the beginning of this process (October 2011) ISO conducted a web survey with approximately 12,000 answers, with the following main conclusions:

- 64% of the respondents wanted enhancement (7,918 responses) to ISO 9001:2008.
- The Top 5 Concepts were: Resource Management, Voice of Customer, Measures, Knowledge Management and Risk Management.
- In addition there were free text comments which concerned the following five main issues: Top management involvement, Risk assessment, Business continuity / planning, Inclusion of finance, Resources / competence / work environment.

Where are we now?

- Nov 2014: DIS has been approved.
- April 2015: Publication of FDIS.
- Sept 2015: Publication of ISO 9001:2015

In response to the proliferation of different MS Standards the core elements have been standardized by the "Annex SL" (or "High Level Text" as it is sometimes referred to) and it follows, the Plan Do Check Act (Clauses 6, 8, 9 and 10):

- Clause 4 = The organization's business environment and MS scope.
- Clause 5 = Leadership and organizational structure.
- Clause 6 = (PLAN) Planning.
- Clause 7 = Support processes and capability.
- Clause 8 = (DO) Operational processes.
- Clause 9 = (CHECK) Performance

evaluation.
- Clause 10 = (ACT) Improvement.

Although ISO 9001:2015 is not yet at FDIS (Final Draft International Standard), there are some familiar elements have been omitted (e.g., Quality Manual is no longer a specific requirement, the new requirement for "documented information" gives greater freedom on how this is implemented) and some ideas have been reinforced or introduced by the Subcommittees and Working Groups of ISO/ TC 176:

More emphasis on process approach and less on documentation.

1) After considerable discussion Products and Services were chosen versus Goods and Services, requiring further update of terminology.
2) Risk Based thinking was introduced giving additional credibility to ISO 9001 within Business and Top Management by adding some systematic evaluation of potential and actual issues with the aim of making processes more robust and capable.
3) Organizational context should be considered and Interested Parties concept was also introduced but with the precaution we are referring to relevant parties that must have some actual or potential impact on the quality of products and services.
4) Concepts like Change Control and Strategic Direction will be reinforced on the future ISO 9001:2015 standard, trying to further approach and embed ISO 9001 and Business Management.

4. Detailed comparison of ISO 9001:2008 and ISO/DIS 9001:2015 versions

4.1. Quality Management Principles

ISO TC 176 proposed to review the Quality

Management Principles (QMP) accordingly to the following scheme (Table One):

Table 1. Proposed Changes in Quality Management Principles for ISO/DIS 9001:2015

ISO 9000:2005/ISO 9001:2008	Proposed ISO 9001:2015
1. Customer Focus	1. Customer Focus
2. Leadership	2. Leadership
3. Involvement of People	3. Engagement of People
4. Process Approach	4. Process Approach
5. System Approach to Management	5. Improvement
6. Continual Improvement	6. Evidence-based Decision Making
7. Factual Approach to Decision Making	7. Relationship Management
8. Mutually Beneficial Supplier Relationships	

(Source: 2014, ISO /TC 176/SC 2/WG 24/N 112)

- **Systems Approach:** The QMP have been reduced from 8 to 7; the one which was omitted is "Systems Approach". This is, in the author opinion, largely because of the failure of TC 176 to communicate clearly on the differences between Systems Approach and Process Approach, so the QMP committee decided to amalgamate "systems" and "process" under the new principle "Process Approach" which refers to "managing inter-related processes". A system is the management of inter-related processes so, although Systems Approach" is not a principle, the new principle is more powerful as it redefines Process Approach as the processes and their inter-relationships. Systems Approach is there in the new QMP and more clearly expressed.
- There are still some issues to solve (e.g. how to translate outputs, and outcomes in Portuguese and Spanish, output a result of a process, but outcome?).

4.2. Omitted elements

Based on the comments of National Standards Bodies (available through www.iso.org) there is evidence that many people have commented that familiar elements have been omitted during this revision process. Some of these are:

- Quality Manual: No longer a title specific requirement but one can have one. The new requirement for "documented information" gives greater freedom on how this is implemented.
- Management Representative: it is no more a specific title but management is required to appoint somebody with the Management Representative's roles so the situation looks quite similar.
- Preventive Action: The change from "preventive action" to "risk and opportunity" (Cl. 6 Planning for the quality management system) is an example of a change to the way management think and of the issues of governance.
- Systems Approach: The Quality Management Principles (QMP) have been reduced from 8 to 7; the one which was omitted is "Systems Approach". Systems and processes have been incorporated under the new principle "Process Approach" which refers to "managing inter-related processes". A system is the

management of inter-related processes so, although Systems Approach" is not a principle, the new principle is more powerful as it redefines Process Approach as the processes and their inter-relationships. Systems Approach is there in the new QMP and more clearly expressed.

- Continual Improvement: Clause 10 is titled "Improvement" but clause 10.3 is titled "continual improvement, as there are several types of improvement e.g., breakthrough and continuous improvement.

4.3. New ideas introduced on the standard

In order to respond to the proposed outcomes of the challenges of the ISO 9001 revision based on ISO Directives and on the aims of ISO/TC 176 to assure the future ISO 9001:2015 International Standard reflects the changes of the environment and remains stable for the next 10 years, the following new ideas have been included by ISO/TC 176 Working Groups in charge of the revision process (www.iso.org):

- Risk Based thinking: As already noted, this adds management credibility to the standard. But "risk experts" should note that this is not ISO 31000 but more a way of thinking that replaces preventive action and seeks to add some systematic evaluation of potential and actual issues with the aim of making processes more robust and capable.
- Interested Parties: this has been added to clause 4.2 but with the precaution that it is "relevant interested parties". To be relevant, the interested party must have some actual or potential impact on the quality of the goods and services.
- Change Control: This was included in the previous version of the

standard but had now been highlighted as, in practice, many systems fail because of incomplete (or lack of) change management. This is now included in three places of the standard.

- Strategic Direction: This requirement has been added to Management Review to try to meld the business and quality systems, but will auditors be ready for this?
- Knowledge Management: Several examples of companies where their Quality Management Systems (QMS) scope no longer matched the expertise available, e.g. situations were due to the economic crisis older staffs in organizations have taken early retirement and, in many cases, this has created a crisis of knowledge management.
- Leadership: "Top Management" is still there but Leadership doesn't quite align with the principles (where leadership is at all levels). Possibly the right wording would be "everything" and "everywhere".

4.3. Comparing ISO 9001:2008 versus proposed ISO/DIS 9001:2015

The web site of ISO/TC 176/SC 2/WG 24/N 112 has detailed tables comparing the present ISO 9001:2008 International Standard versus the proposed ISO/DIS 9001:2015. In addition, SC2 will develop a guidance document, ISO TS 9002:2015, to be available when ISO 9001:2015 is published. Let's notice that the clauses in Section 4 require the organization to determine the issues and requirements that can impact the planning of the quality management system and can be used as input for its development as presented in Figure Two.

ISO/DIS 9011:2015 also proposes a processes model showing the links with the clauses of the international standard (see Figure Three).
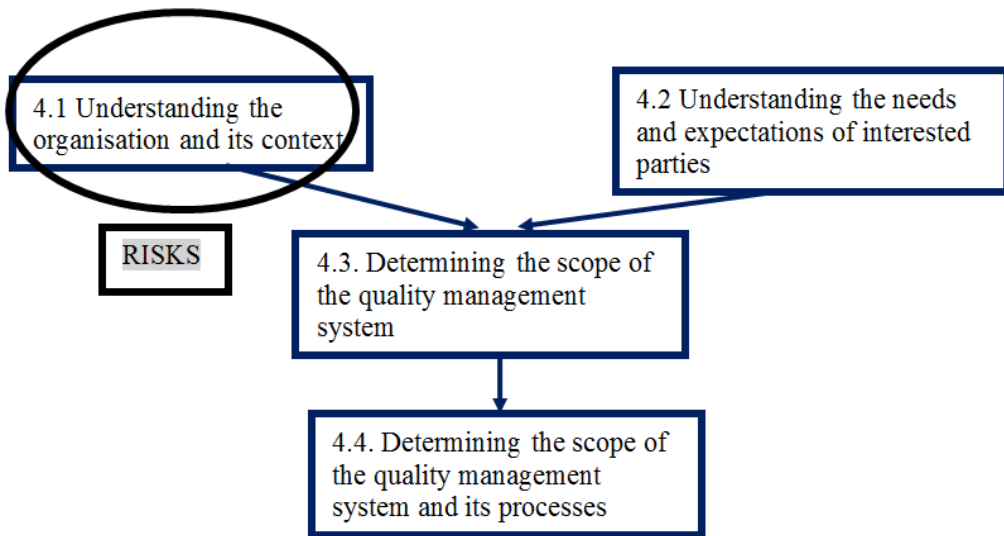
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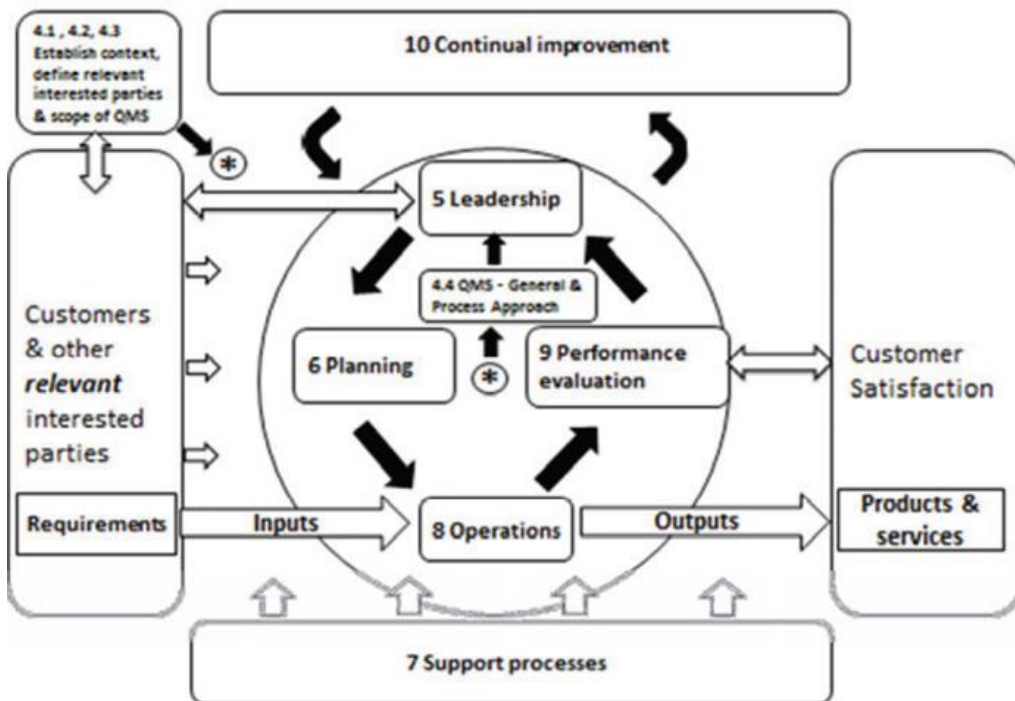**Figure 2.** Risk Based approach

Figure 3. ISO 9001:2015 proposed links -Process Approach (source: ISO)

There are however, some issues still open like sector guidance (possible way to address concerns from Automotive Sector?) or application for "one-off" projects (updated ISO 10006?).

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5. Conclusions

Based on what we know, the author believes we should not be concerned that ISO 9001:2015 will be a major source of problems for the more than 1 Million certified organizations and the many Quality Professionals and Scholars that work with it. It will have major benefits for Quality Management Systems with less emphasis on documentation and new/reinforced approaches like consideration of organizational Context and (relevant) Stakeholders, Risk Based thinking and Knowledge Management and should be a step towards TQM. The author thinks one of the major changes will be that organizations have to be clearer about what they say they are going to offer and the main question is how far ISO/TC 176 can go without alienating the "traditional" user.

According to ISO the following will be the major changes in terminology *between 9001:2008 and the proposed ISO/DIS 9001:2015 (source: 2014, ISO /TC 176/SC 2/WG 24/N 112)*:

- From products to Products and Services.
- Exclusions not used anymore.
- Documented records will change to documented information.
- Work environment will be Environment for the operation of process.
- Purchased product will change to externally provided products and services.
- And Supplier will now be External provider.

There will be time for users to make any adjustments necessary to their quality management system – a three-year transition period has already been agreed with ISO/CASCO and the IAF, after publication of the new version, during which certifications to ISO 9001:2008 will continue to be recognized.

5.1. And what about the feedback from ISO 9001 community?

The ISO 9001 community has been very active, either through the National Standards Bodies or by other more informal means like the web, to comment on this revision process:

- Some like very much the "Annex SL" approach, but other do not.
- Some concerns that some requirements are being soft grading (e.g., Design & Development and Calibration).
- Concerns about "auditability" of some requirements (The author agrees this might be a major challenge for Consultants and for Certification Bodies Auditors).
- Some want more prescriptive requirements (e.g., Automotive Sector).
- Introduction of the concept of "Relevant Interested parties" and "Risk Based Approach" is a new reality.
- Elimination of usual terminology and requirements like "Preventive action"; "Management Representative", "Quality Manual" still not liked by all.

5.2. And last but not least, what should organizations do now?

The author recommends organizations to take into consideration the following suggestions:

- Stay tuned to what's happening with the revision to ISO 9001.
- Get familiar with the concepts of "Risk-based thinking" and "Relevant interested parties".
- Look into www.iso.org, since periodic updates will be made available by ISO/TC176/SC2/WG23.
- Study ISO 9001:2015 DIS version

(available through ISO web site) and start working on understanding and incorporating the changes. DIS will be followed by FDIS (Final Draft Standard) and finally IS (international Standard).

- Is the organization pleased with the present Quality Management System? Is it really a lean process based system? Does it integrates and supports the business well?

Depending on the answer, some organizations should consider the expected ISO 9001:2015 as a great opportunity to review and reignite theirs systems. If the system is working well, maybe just adjust it to the new ISO 9001:2015 changes.

And as many times happens when processes changes occurs some people will say this was a lost opportunity to move to new heights of performance and provide a fresh new ISO 9001 that addresses new technology and advances in quality thinking, while others will say ISO has gone too far and could alienate a significant part of the more than 1 Million certified organizations.

It is true that some representative e.g. from automotive industry think the revision is light. It should incorporate tools like Quality Function Deployment, Failure Mode and Effects Analysis, Statistical Process Control, Measurement System Analysis, Advanced Quality Planning Process and so on. As an example of the opposition versus some of the proposed changes on ISO 9001:2015, let´s quote some of IATF comments on document ISO/TC 176/SC 2/n 1206 dated 6 May 2014. IATF "The International Automotive Task Force is a group of automotive manufacturers and their respective trade associations, formed to provide improved quality products to automotive customers worldwide and which members include the following vehicle manufacturers: BMW Group, Chrysler Group, Daimler AG, Fiat Group Automobile, Ford Motor Company, General Motors Company), PSA Peugeot Citroen, Renault SA, Volkswagen AG and

the vehicle manufacturers respective trade associations - AIAG (U.S.), ANFIA (Italy), FIEV (France), SMMT (U.K.) and VDA (Germany). "IATF disagrees with the decision to raise the generic level of ISO 9001 where it results in the reduction of requirements".

Accordingly to IATF "ISO 9001 needs to be more prescriptive not more generic to bring value to the organization. In the effort to achieve the goal of making the standard adaptable to every type and size of industry, and to eliminate the needs for "exclusions" of specific requirements, the document has become diluted and unusable compared to what was already working". In the same line of thought, IATF argues that "when the document will be released in 2015, it will be likely viewed as not usable by users including specifiers and regulators ".

Also some other users are, for example, concerned on how to address risks and opportunities with Top Management.

But, as stated before and based on the previous analysis, ISO 9001:2015 should have major benefits for Quality Management Systems with less emphasis on documentation and new/reinforced approaches like consideration of organizational Context and (relevant) Stakeholders, Risk Based thinking and Knowledge Management.

In the author opinion the main ISO 9001 revision goals have been achieved; a more Performance related standard, more friendly to sectors like Services and Small and Medium Enterprises and not static but rather Risk Based. And as stated by Professor H. Lee from Stanford (2004), some years ago, but still very much valid today, organizations must be Agile (detect and respond), Adaptable (innovative and resilient) and Aligned (constancy of purposes and values, transparent, authentic, responsible and working forward long term mutual beneficial Stakeholders relationships).

5.3. One final and last comment that might be useful for organization to choose the right model

Let´s finish this article going back to the Quality journey and the three different pillars of Quality presented in Chapter 1. Many similarities can be noticed between the discussions of what models are best for an organization, with some discussions going on in the subject of Organizational Theory.

According to Scott (2003) organizations are conceived as social structures created by individuals to support the collaborative pursuit of specified goals, or in other words, organizations are groups whose members coordinate their behavior in order to accomplish shared goals or to put out a product.

There are a considerable number of organizational theories and we can try to match some with each one of the Quality Pillars (McFarland and Gomez, 2013). This analogy between QM and Organizational Theory approaches might be useful as choice criteria for the most suitable QM approach for a particular organization:

- Quality Gurus/TQM approach is quite similar to Neo-institutional theory, were organizations try to fit in a field of conformity to cultural norms to insure survival and to reduce ambiguity. Legitimacy is a key "resource", and it can come at the expense of organizational efficiency. Professionals carry the cultural recipes and give them authority in translations to the organizational context.

- Business Excellence is more related with Organizational Learning and Organizational Culture: Acknowledges routines, but focuses on practices and the effort to continually adapt, remember, and improve upon their returns to outcomes via internal communities of practice and external outreach through networks of practice (organization demonstrates intelligence). It also relates to Organizational Ecology were the environment constantly changes and Firms vary and compete, and then some are environmentally selected and reproduced until the niche reaches carrying capacity.

- ISO 9001 users rely a lot on Bureaucratic models and Organizational Culture. In Bureaucratic Models the problem is divided and coordinated by activating organizational actors who have special capacities plus standard operating procedures (SOP's) for parts of the problem, conducting sequential attention to objectives through localized searches until problems resolved). Action is guided by available routines. Within Organizational Culture actors seek expression and fulfillment of identity, and organizational culture is the medium for it. Through ritual expression, members either align with or against the organization's mission and identity. But with ISO 9001:2015 it will have to be much closer to TQM and Business Excellence as of today.

As a final comment, there is no single best for all Quality and Organizational Model. It depends on the environment, on the industry, on the stakeholders and relationships, on the culture and the capabilities of the organization. Each organization should decide (and meddle) the best fit and that is in fact one of the main objective of the future ISO 9001:2015.

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