TOTAL QUALITY MANAGEMENT, ISO STANDARDS AND EXCELLENCE MODELS – A COMPARATIVE ANALYSIS

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ABSTRACT: When the term "quality" is mentioned in a conversation or a commercial advertisement it usually evokes positive connotations. Nevertheless, everyone's perception of "quality" is unique regardless of the fact that the term as such is defined in ISO 9000:2015. Chronologically, the ISO 9000 series of standards are the progression of total quality management. And yet, for perfectionists and really devoted quality managers, a certified quality management system is only a starting point on a much longer or even endless journey towards overall excellence. The present paper aims to pinpoint the similarities and the major differences between total quality management, ISO 9000 series of standards, and excellence models.

KEY WORDS: Total Quality Management, TQM, ISO 9000 series of standards, EFQM excellence model, Malcolm Baldridge Excellence Framework.

1. INTRODUCTION

The history of Total Quality Management (TQM) can be traced back to the beginning of the management science in the 1920s [3]. Deming's lectures during the 1950s in Japan are considered as the origin of TQM, whereas the book "Total Quality Control" by Feigenbaum has established the mindset behind out present-day understanding of TQM. Technically and practically, the TQM philosophy and specific toolbox are derived by thought leaders and practitioners on both sides of the Pacific Ocean- the USA and Japan. TQM's popularity peaked in the 1980s which resulted into its more in-depth scientific research in the 1990s. This development almost merged with the efforts to standardize TQM by several national and international standards bodies, such as BSI, ISO, etc.

The ISO 9000 series of standards for quality management systems have been around since the mid-1980s. They have built on the foundations laid out by TQM by achieving global consensus on quality requirements and providing guidelines on how to implement them into the operations of an organization.
The most recent editions of the ISO 9000 series of standards are:

- ISO 9000 containing the seven quality management principles, the relevant terminology and approved definitions [4];
- ISO 9001 with requirements which shall be implemented within the scope of the quality management system [5];
- ISO / TS 9002 providing guidelines on how to implement the requirements of ISO 9001 [6]; and

- ISO 9004 for those organizations that are aiming higher than a certified system [7].

In fact, this standard is the closest approximation to an excellence model.
The EFQM excellence model has been established by the European Foundation for Quality Management and first published in 1992. It has been updated in 2012, reviewed in 2019, and more recently- published as the new EFQM model in 2021 [11].

2. DISCUSSION

The comparative analysis is based on pairs of comparisons of the principles behind TQM, ISO 9000, and EFQM.

2.1. TQM principles

The dawn of TQM has started a tidal wave across the world. The global quality community has long awaited a well-organized methodology of how to achieve higher quality. Well known TQM tools such as the histograms, the Pareto charts, flowcharts, scatter diagrams, and others would be pointless unless they seek to achieve a higher purpose. The affirmation of the ultimate quality goal can be summarized in the 8 Total Quality Management principles:

1) Customer-focused;
2) Total employee involvement;
3) Process-centered;
4) Integrated system;
5) Strategic and systematic approach;
6) Continual improvement;
7) Fact-based decision making;
8) Communications.

The moto "The customer is always right" stands at the top position of all TQM principles [8]. Another popular phrase "Quality is Everybody's Business" is the symbol behind the second TQM principle. It comes to mean that it is not only the job of the quality manager, the quality inspector of the quality control person to achieve the desired quality. Everyone should be aware of their role in the organization and how they can contribute to product conformity and customer satisfaction. The third principle signifies that everything we do is not an isolated activity, but a process that transforms inputs (raw materials and information) into outputs. The fourth TQM principle urges TQM practitioners to perceive the processes in the organization as interrelated and interacting nodes of a network. The fifth principle looks at the processes from the perspective of their contribution to achieving the strategic direction of the organization- its vision, mission and goals. The sixth TQM principle can be considered as the key differentiator between ordinary organizations and high-quality ones- the perpetual strive for perfection shall be nourished and maintained in order to achieve sustained success. Principle # 7 states that unless proven facts and data are available to decision-makers the organizational progress would be questionable. The final TQM principle means that good communication can be an important factor that guarantees a successful project, or if incomplete- to cause a mediocre performance or even a failure.
These 8 TQM principles are the foundation of an organizational quality culture which in turn is the basis of application of various TQM tools. The success of TQM initiatives can be demonstrated by application for quality awards such as the Malcolm Baldridge National Quality Award, the Deming Award, the JM Juran Award, the "Bosei - Striving for the Stars" and other recognized awards for quality [1], [2].

2.2. ISO 9000 quality management principles

If the chronological development of TQM and ISO 9000 based quality management systems is taken into consideration, then the ISO 9000 quality management principles will seem as natural progression of the TQM principles presented above.
Just like TQM, ISO 9000:2005 also lists 8 quality management principles in its Clause 0.2. Table 1 below presents a comparison between the quality management principles in TQM, ISO 9000- edition 2005 and 2015.
It is quite expected that Principle #1 for all of the compared systems remains "Customer focus". In contrast with TQM where "Total employee involvement" is at second position, the ISO 9000 standards give priority to

leadership over the involvement of people. This is caused by the higher expectations towards the top management of an organization. True leaders must inspire their colleagues, provide a clear vision for the road ahead, ensure the necessary resources and align all of this with the organization's strategic direction.

The third quality management principle in both editions of ISO 9000 of 2005 and of 2015 also has an important change in wording and meaning. People must not only be involved in their routine job-related activities, but also be engaged with improving their own performance to the overall benefit of the organization. This should allow people to compare and align their personal goals to the strategy, policy and quality objectives of the company. Just like the principle "Customer focus", the process approach is one of the bases on every modern quality management system.

The two TQM principles "Integrated system" and "Strategic and systematic approach" that have merged into "System approach to management" in ISO 9000:2005 seem to have disappeared when the original 8 quality management principles have been reduced by one in ISO 9000:2015. This misalignment is easy to be explained when reading the statement of this principle in ISO 9000:2015: "Consistent and predictable results are achieved more effectively and efficiently when activities are understood and managed as *interrelated processes that function as a coherent system*."

Yet another important difference between the most recent and the previous editions of ISO 9000 is that the latest standard not only lists the quality management principles, but in addition to their statement, provides:

- a rationale why they are important for the organization;
- key benefits that can be used to promote the use of a quality management system;
- actions that can be taken to turn the quality management principles into reality [10].

Table 1. Quality Management Principles

Total Quality Management	ISO 9000: 2005	ISO 9000: 20015
Customer-focused	Customer focus	Customer focus
Total employee involvement	Leadership	Leadership
Process-centered	Involvement of people	Engagement of people
Integrated system	Process approach	Process approach
Strategic and systematic approach	System approach to management	
Continual improvement	Continual improvement	Improvement
Fact-based decision making	Factual approach to decision making	Evidence-based decision making
Communications	Mutually beneficial supplier relationships	Relationship management

"Continual improvement" is modified to "Improvement" but this is not by chance. In fact, continual improvement is the final Clause in ISO 9001:2015. The change is introduced in order to make way for breakthrough improvements and innovations along with traditional, step by step, Kaizen improvements. The focus on facts when making decisions is further stressed by requiring evidence as proof for the facts.

Similarly, from the previous statement "Mutually beneficial supplier relationships" the current wording is "Relationship management". The increased and expanded focus not only on suppliers, but also on other interested parties such as investors, worker unions, shareholders and others has resulted in

a modified title of is quality management principle. And again, the word "suppliers" still remains in the statement of this principle: "For sustained success, an organization manages its relationships with interested parties, such as *suppliers*."

2.3. The EFQM model

The latest EFQM model is published in 2021. It is meant to reflect the recent trends in quality, management, technology, and culture. Its focus has also shifted from assessment and recognition towards providing a roadmap towards excellence. The basic model is complemented by the EFQM lens series for specific topics such as: education, net zero carbon emissions, circular economy, UN sustainable development goals (SDGs), innovation, and disruption.

The logic behind the EFQM model, just like the logic of the ISO 9000:2015 quality management principles, follows the so called "Golden circle" of questions: *Why?*, *How?*, and *What?*

The answers to these questions result in the three main elements of the EFQM model- Direction, Execution, and Results.

The *Direction* consists of two criteria:

1) Purpose, Vision and Strategy;
2) Organizational Culture and Leadership.

As such, it is most closely related to the quality management principle #2 "Leadership".

The *Execution* has three criteria:

1) Engaging Stakeholders, such as customers, people, business and governing stakeholders, society, partners and suppliers;
2) Creating Sustainable Value;
3) Driving Performance and Transformation.

The first criterion is related to quality management principles #1, #3 and #7, and the third criterion is similar to quality management principle #6.

Additional 2 criteria are established for *Results*:

1) Stakeholder Perceptions;
2) Strategic and Operational Performance.

It might seem like the quality management principles "Process approach" (#4) and "Improvement" (#5) are missing. This is definitely not true because the overall idea of the EFQM excellence model is to establish a process for improving the overall performance and value created by the organization.

3. CONCLUSION

The road to achieving higher levels of quality is long and uneven. Some organizations choose to follow the teachings and practices of quality gurus like Deming, Juran, Feigenbaum and Ishikawa. Other organizations develop, implement and improve quality management systems based on the ISO 9000 series of standards. More and more organizations invest their quality improvement efforts in following excellence models.

The authors propose that the principles of ISO 9000:2015 that stem from the TQM principles are used as a starting point to better understand the benefits of quality management systems. The next step would be to get ISO 9001:2015 certified, possibly by using the guidelines of ISO/TS 9002:2016. For more mature organizations, ISO 9004:2018 can be used as a roadmap with specific milestones for continual improvement. Other quality awards and excellence criteria are to be applied in order to objectively justify the high levels of achievement in the field of quality. The new EFQM model is a respected tool to showcase the achieved higher levels of performance.

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