

How Quality Management supports Sustainable Development?

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ABSTRACT

In the following paper an attempt to present the role of quality management in enterprises following sustainable development strategy was taken. Methods striving for quality (defined in their broadest meaning) are the basic catalyzer for changes which enable identification of new opportunities and definition of alternative actions to be taken. They focus on the best practices and means leading to improvement in the areas jeopardizing economic, environmental and social infrastructure.

Keywords: Sustainable Development, Quality Management System, Stakeholders, Integration

INTRODUCTION

Analysis of changing management paradigms from workshop through mass production, customer orientation and mass customization to the current mass collaboration idea leads to the conclusion that the main cause for them is striving for increased competitiveness of enterprises in dynamic conditions reflecting critical changes in the market. And even though today because of increasing non-linearity (and complexity), and discontinuity as well as pace of changes, forecasting is almost impossible, we still can try to forecast directions of changes, which is simply identification of mega-trends that are likely to appear in the future.

The term “mega-trends” was coined and popularized by John Naisbitt in 1982. He defined (Naisbitt, 1997) mega-trends as broad processes embracing the world, having socio-economic or structural character and influencing a unit and shaping its future. Broader definition was introduced by (Frost and Sullivan, 2011) as they defined mega-trends as “global, solid and macroeconomic development forces which influence business, economy, society, culture and private life and by that defining our future world and its growing pace of changes”.

Research on mega-trends refers to thinking about future with application of so-called “oriented forecasting”. The perspective enables building scenarios and provides managers with guidelines which can be used in decision-making processes concerning future development and investments. Analysis of mega-trends from time perspective leads to understanding external challenges which are unavoidable for a given region or market and have global consequences and results. The external challenges are to influence functioning of enterprises and decision-making. The model similar to the well-known model of product’s life-cycle by (Rozen et al, 2012) can be used for their analysis, with application of its characteristic stages including:

- stage 1 - Definition, which is convergence of trends connected, leading to creation of mega-trend

- stage 2 – Growth, which is fast manifestation of mega-trend and spreading its influence on business, industry and lifestyle.
- stage 3 – Domination, the stage refers to the results of mega-trend and its influence on all the areas of social and economic life.
- stage 4 – Decrease, which is a period in which mega-trend is so common it is treated as a normal thing.

The scope of the hereby paper results in necessity to characterize two mega-trends: sustainable development and pro-quality actions. Analysis of the literature leads to the conclusion that “sustainable development” mega-trend is in its growth stage, so it will shape trends and enforce changes in methods of conducting research and building competitive edge of companies. The second mega-trend mentioned is now in its decrease stage, so it is taken as something “normal” from company’s point of view. Its role is then supportive (Figure 1).

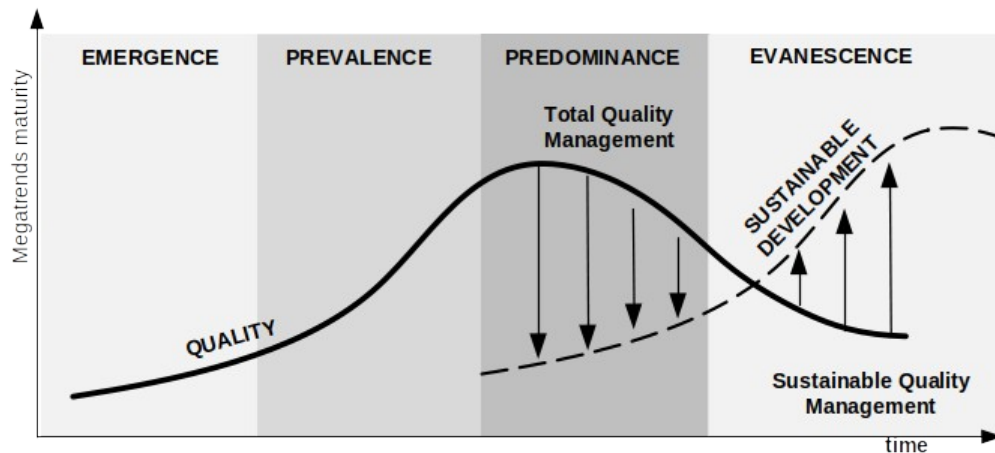


Figure 1 Life cycle of a mega trend „Quality” and “Sustainable development” (Jasiulewicz-Kaczmarek, 2013a)

The question arises: how actions focused on quality support striving for sustainable development?

SUSTAINABLE DEVELOPMENT

Sustainable development is a very wide idea and it has numerous interpretations (Clifton, 2009). The term “sustainable development” was used for the first time in the Brundtland report developed by World Commission on Environment and Development, also called Brundtland Commission, in 1987. There, it was defined as a process aiming for development aspirations of contemporary generation meeting, and in the same enabling meeting these aspirations by the future generations as well. Thus sustainable development is about reaching a balance between economic, social, and environmental goals, as well as people’s participation in the planning process in order to gain their input and support (Sneddon et al, 2006) (Figure 2).

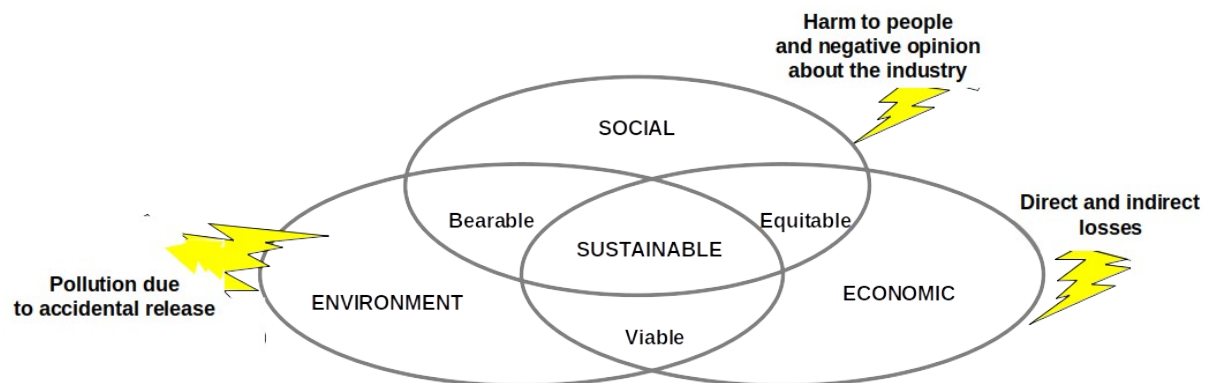


Figure 2. Three constituent parts of sustainable development (Vaidogas and Juocevičius, 2008)

For many years the term “sustainable” was mostly connected to ecological issues and problems analyzed were usually damages to natural environment caused by civilization. Today, companies striving for sustainable development are the result of more utilitarian and anthropocentric rationales such as protection of environment and surviving.

The concept of sustainability is becoming more operational at the company level, whereas earlier, the concept was primarily discussed at national and international level. For a company sustainable development means adoption of such business strategy and such actions that contribute to satisfying present needs of company and interested parties, as well as simultaneous protection, maintenance and strengthening of human and environmental potential which will be needed in the future (Sidorczuk-Pietraszko, 2007). A broad interpretation of sustainability at the company level has many factors, including:

- impact on the environment.
- health and safety of employees, visitors and the surrounding community.
- corporate citizenship.
- quality and efficiency of products and processes - not only to increase profitability but also to reduce consumption of raw materials and energy.
- design of new machines, equipment and systems.
- research into the use of different types of fuel and energy, materials handling, heating and cooling processes, the storage and pumping of liquids and gases, and environmental controls.
- research into the use of different types of raw and transformed materials.
- specification, selection, installation, management and maintenance of factory production and machinery.

Since sustainable development is becoming an increasingly popular concept, there is a growing need to ensure the possibility of its implementation. To operationalize the economy-environment-social triad, the manager should integrate the following initiatives as one (Figure 3):

- total quality of product and process,
- environmental protection,
- total process safety.

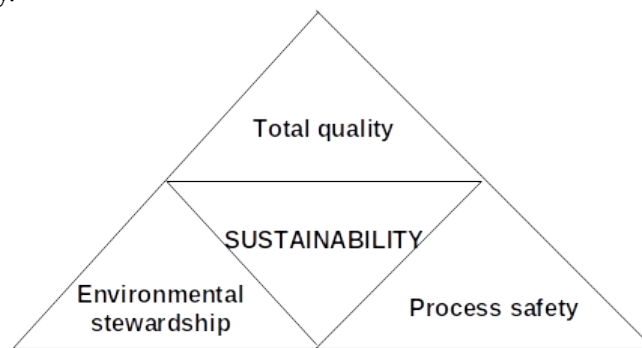


Figure 3. Components of Sustainable operations (Ferrer, 2008)

The way to help companies improve their economical, environmental and social performance is by:

- minimizing production of waste – less waste generated and increased waste re-usage or recycle (Golinska and Kawa, 2011; Dostatni et al, 2013),
- using resources such as materials, water and energy efficiency,
- avoiding or at least improving management of metalworking fluids, lubricating oils and hydraulics oils (Szafranski, 2011),
- improving environmental, health and safety performance (Lind and Nenonen, 2008;Górny, 2011; Sadłowska-Wrzesińska, 2013),
- adopting lean manufacturing and other sustainable engineering techniques (Jayal et al 2010; Jasiulewicz-Kaczmarek, 2013b)
- improving working conditions (Hamrol et al, 2011; Mazur, 2013),
- using best practice in the process of producing and maintaining movement (Rui et al. 2009; Jasiulewicz-Kaczmarek and Drożyner, 2011; Narayan, 2012)
- training all employees about sustainable practices (Misztal and Butlewski, 2012).

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Corporate sustainability in the dynamic complexity of the twenty-first century economy means that businesses need to, through developing and sustaining relationships with key stakeholders, establish a corporate culture “consistent with the concept of sustainable development”. To achieve this, (Welford, 1995) identifies the “six shifts”: from objects to relationships; from parts to the whole; from domination to partnership; from structures to processes; from individualism to integration; and from growth to sustainability.

Hence, sustainable development can be defined as capability of an enterprise to adjust to changes in business environment to catch currently best performance methods and to achieve and maintain predefined level of competitiveness. It is not revolutionary approach, however it proves capability to use and improve competences, activities and values, which states for building future, without discrimination of previous achievements but with their help as a strong basis for future success

QUALITY MANAGEMENT

Evolution in approach to actions towards quality

Quality is a relative term as it depends on culture, ethics, civilization, it refers to time, place and is multi-dimensional. Many ways of defining and interpreting quality term in utilitarian sense refers to the level of noticing and range of problems it contains in a company. According to L. Wasilewski (1998) „if for any reasons we have to define the term quality, we have to adjust it to the level of system development in a company”. As their quality system is developing, companies change main dimensions of quality definition and measures they use. Such evolutionary character of the term quality can be found in scientific works of (Dale et al, 2000; Hellsten and Klefsjö, 2000; Lagrosen and Lagrosen, 2005).

D. A. Lubin and D. C. Esty (2010), defined actions undertaken in companies to achieve quality as one of megatrends in management. Development of management ideas can be presented in the form a life cycle as in the scheme (Figure. 1). In the first stage of this mega trend development, quality was mostly connected with products and the focus was on inspection of some critical characteristics of final products referred to predefined requirements – specifications. Along with economic development and production scale growth inspection costs have been growing and did not give the results expected by the owners. It was noted that by inspection it is impossible to provide an appropriate level of quality. The scope of activities charged to the quality started to extend the processes of production. This stage of development and the perception of quality in the company in the literature is called quality control. In actions for quality employees were included in the production, drew attention to the skills of workers supervised by them formally established requirements and standards for their implementation. Feedback was created between the result of control and production line. Based on the results of checks production process was modified so as to obtain products that meet the specifications. As in the run-up, the producers did not have much difficulty in disposing of the products, and therefore did not have to take into account customer feedback. Therefore, during this period primarily refined receiver subsystems and supply the current and final product inspection, not paying attention to the information coming from the market. The next step is the development of quality assurance. It was characterized by a gradual moving away from a narrow perception of quality, treated as compliance with the requirements and technical standards for the quality, expected by the users of the products. During this period there was a significant change of views on the concept of quality and its place in the management of the company. The essence was to build a quality system, which purpose was aimed at preventing non-conformity, and managers started to be involved in system functioning. Although management involvement was limited, the first declarations for the management of enterprises in the form of so called quality policies, systems and internal evaluation of compliance between declarative and actual commitments, covering all areas of the company appeared. The fourth stage, therefore, can be described as quality management, where quality has become a strategic issue and its scope extended to the quality of the organization and the quality of the relationship with the environment of an organization (customers, suppliers, competitors, the public in general). Managers began to look for new methods and tools to support collaboration between departments, taking into account information from the market and improve manufacturing processes (Mazur and Gołaś, 2010).

The discussion on the future and the role of quality management in the enterprise is ongoing for almost ten years. In the literature we can find two views. The first of these relates to the concept of Total Quality Management (TQM). This paradigm states that the responsibility for quality lies not in one department or one person (the representative of the management), but the whole organization needs to take responsibility for quality and take it as a common value.

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The second trend is related to the evolution of the semantic, which speaks of "excellence" and not a "quality". The idea of quality has become insufficient for the development of enterprises, many companies benefits from the awards and excellence models and uses them as guidelines. Hence, the term "quality" becomes insufficient for companies' development, and many of them focuses on awards and excellence models taking them as directives or guidelines. Both trends despite of differences have some common elements. They both introduce the next term important for identification of the role of quality management in a company. The term mentioned is "transactivity" (Foster and Jonker, 2007). It originates from the basic connection of organization and its broader sociological context and consequently is the key relation between the idea of quality management and more and more important aspect of social corporate responsibility. It is also an attempt to draw attention of managers to necessity to react to needs and expectations of more and more various groups of stakeholders, providing in the same time value for shareholders.

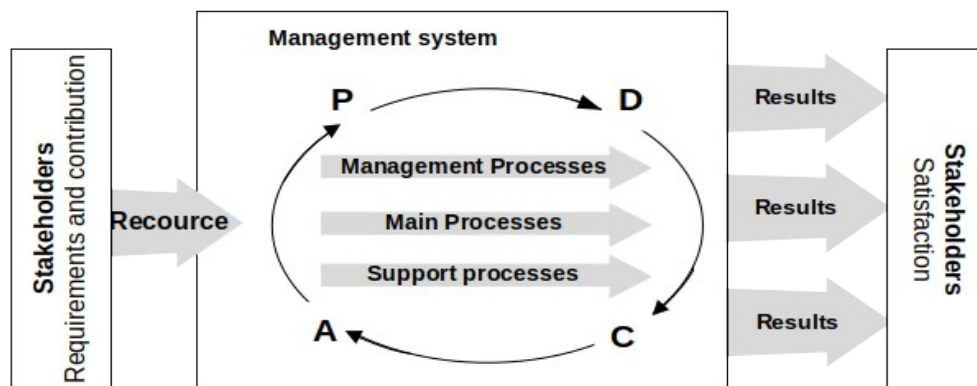
Customers and stakeholders in organization

In ISO 9000:2006 standard customers are defined as „an organization or a person who receives a product". Hence, there are internal and external customers. Though the standard gives some further explanation for the definition its range is quite narrow. A broader definition was suggested by J. Juran (1988) who defined customer as "anyone who is affected by the product or by the process used to produce the product".

While according to Ishikawa (1985) customer is simply the process that follows („the next process is your customer").

The above definitions indicate a diverse range of conceptual, from a narrow set out in ISO 9000:2006 to a wide proposed by Juran, where the customer can also be a local community, the environment, and even future generations . This broad definition of "client" is close to the notion of "stakeholder". The term is often used in the sense of those who have a "stake" in the organization. The most famous, but the most general definition of stakeholders was presented by E. Freeman in 1984. According to Freeman (1984): "a stakeholder is any person or group that "can affect or is affected by the achievement of the organization 's objectives". This definition has been the subject of discussion and deliberations in literature (Clarkson, 1994; Donaldson and Preston, 1995; Freeman, 2002; McVea and Freeman, 2005). In the final model of excellence Malcolm Baldrige National Quality Award (MBNQA) 2011-12 (NIST, 2012) the term "stakeholders" refers to all groups that are or may be affected by the activities of the organization and its success. The key stakeholders in the organization are, among others: customers, employees, partners, associates, shareholders, donors, providers, payers, regulators, policy makers, trade unions, local community .

The EFQM Excellence Model 2010 (2010), defines stakeholders as: "a person , group, or organization that has direct or indirect ownership or interest in the organization because it can affect or be affected by the organization or its influence." This approach is close to the definition of Freeman. In addition, in the EFQM model , a division of the interior and external stakeholders was made. Examples of external stakeholders are the owners (shareholders), customers, suppliers, partners, government agencies and representatives of the community or society, while examples of internal stakeholders are people or groups of people. Taking into account the above considerations, stakeholders can be defined as a person, group of persons or organizations that contribute and put requirements, and thus affect the organization, expecting the results - satisfaction that will satisfy their requirements are, therefore, under the influence of the organization (see Figure. 4)



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Figure 4. Relations between organization and stakeholders

According to the International Organization for Standardization, the organizations depend on their customers and therefore, should understand their current and future needs, they will meet these requirements, while taking care to exceed customer expectations. On the other hand, emphasizes that "the success of an organization is based on meeting current and future needs and expectations of current and potential customers and end users, and the consideration of other stakeholders" (ISO 9004:2009). Now, expectations of stakeholders do not refer only to the direct transaction between the parties, but also to participation in the debate on social and environmental problems, and proactive thinking about the effects of business in society.

This growing concern for the public is a part of the change in thinking about quality. In this new way of thinking about quality should go back to the definition of the client by Crosby and to the old TQM definitions contained in ISO 8402:1992 as a starting point to define the next dimension of quality. This new dimension of quality must support businesses through the challenges of the next mega trend of "sustainable development". Binding part of the old with the new and the new with the old is the concept of stakeholders and the organizations responsibility for its impact on society.

Integration of requirements and expectations of stakeholders

Over a half-century ago, quality pioneers Edwards Deming and Joseph Juran encouraged organizations to ask better questions about corporate challenges and enabled companies to redesign systems for improvement. They started with a systems approach and then grounded quality in practical analytical tools to foster product, service, and organizational improvements. Today's sustainable development frameworks encourage businesses to ask better questions about impacts to stakeholders, society, and the environment, and they seek to develop the tools and measures needed to demonstrate improvements.

In recognition of these challenges, a number of management systems (MS) have emerged to help managers systematically address an organization's key stakeholder requirements (Misztal, 2009). After the introduction, in 1987, the ISO 9000 series of standards for quality assurance, other standards were developed for environmental management (ISO 14001), health and safety (OHSAS 18001) and corporate social responsibility (ISO 26000). It's just a few examples. It is obvious that the new standards will continue to appear, and those that have already been issued, are and will be subject to periodic updates. Organizations are therefore face difficult decision of which or which of the standards to enter and how to enter to meet the needs and expectations of stakeholders and effectively implement the integrated management of the organization. Integrated management "means understanding and effective targeting every aspect of the organization so that the requirements (needs and expectations) all parties were satisfactorily met within the available financial resources, organizational and technical" (Poskrobko, 2007).

In practice, the concept of integrated pro-quality management is often referred to the integration of formal management systems and building integrated management system. Miller (2003) defines an integrated management system as "one, clearly defined, documented and consistent system that enables efficient and simultaneous management of multiple aspects , by establishing and implementing a uniform policy and the resulting targets for these aspects". British Standards Institution (BSI, 2000), in the guide on the integration of management systems , sets out an integrated management system as "a combination of processes, procedures and practices utilized in the organization to implement its policies, which may be more effective in achieving the objectives of the policy approach than by separate systems". Integration in this document is understood as the ability to connect systems used in the company and specified in separate norms and standards .

Thus, if the policy of the organization is focused on meeting the requirements of its stakeholders it is the only way for organizations to design and implement an integrated management system. The purpose of this system will be maintaining competitiveness and ensuring sustainable development through optimal management requirements of stakeholders and equitable balance their needs and expectations (Figure 5).

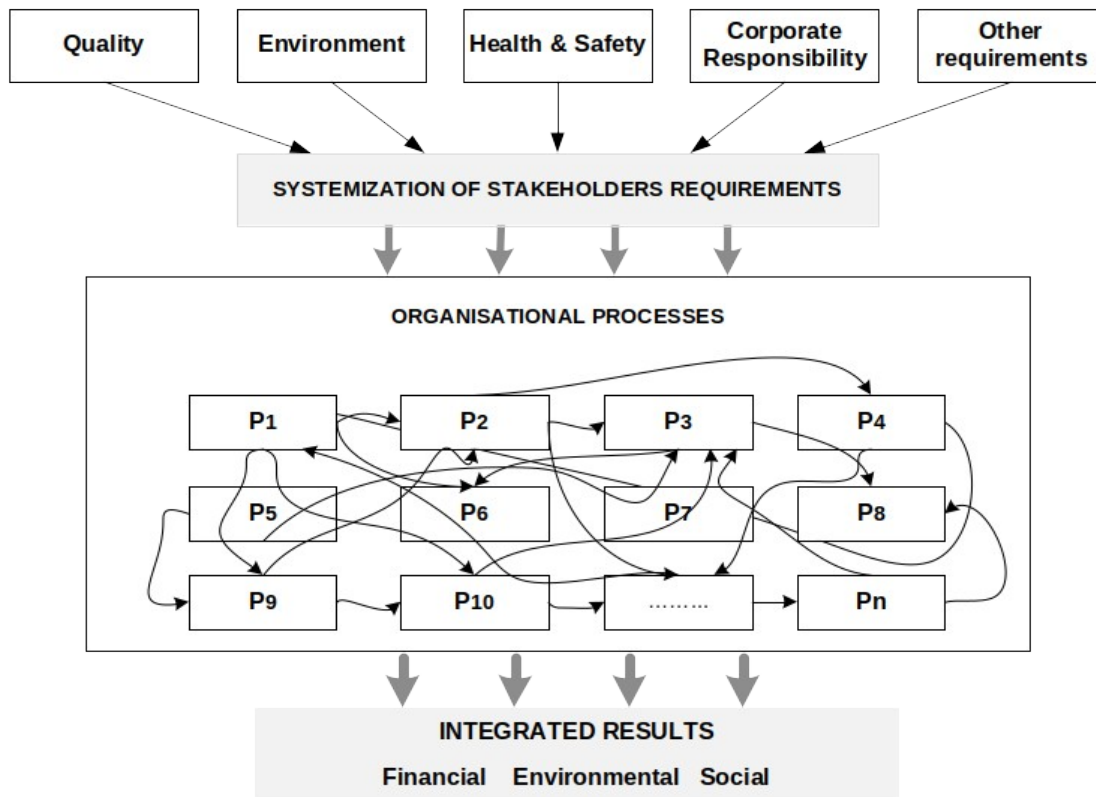


Figure 5. Systemization and integration of stakeholders requirements

Analyzing the requirements and guidelines contained in the formal management standards and content stored in the proposals of new releases such as ISO 9001 and ISO 14001 (eg, a new edition of ISO 9001 is planned in 2015) can formulate general principles that should be taken into account when building an integrated system management aiming at meeting the challenges arising from the context in which the organization operates (market impacts, economic, social and environmental). These include:

- orientation to stakeholders;
- systemic approach;
- process approach;
- focus on the risks and opportunities;
- targeted improvement.

CONCLUSIONS

Analysis of both mega-trends, sustainable development and quality (Jasiulewicz-Kaczmarek, 2013), leads to the conclusion that they much in common:

- both have gone through a historical and conceptual progression from passive reactivity to proactive, strategic integration;
- both impact satisfaction, well-being and safety of customers, employees and other stakeholders
- both are based on a core set of values, such as “create zero waste,” “make external costs visible,” and “drive out fear” between management and employees. Like quality, sustainable development also has a strong focus on people - not just in terms of customer satisfaction, but related to the quality of working life and employee satisfaction;
- both impact, and are impacted by, every function in the organization. Just as a customer’s perception of quality is affected by everything including product design and development, manufacturing, logistics, interactions with

marketing, sales, customer service and more, so too is sustainability impacted by every function within the organization.

- both are based on continuous improvement towards a performance ideal: a company will never reach perfection in either quality or sustainability, and it is also never “done,” but rather always striving to improve towards the goal of perfection;
- both, if done well, help drive significant financial and strategic benefits to the organization in the form of scrap and rework reduction, cost reductions, increased profitability, improved reputation and customer loyalty. Done poorly or insufficiently, however, both can lead to waste, increased costs, lost customers, degraded company reputation, and other adverse business impacts
- in both, senior management holds complete responsibility. The majority of quality problems are the fault of poor management rather than poor workmanship. Likewise, corporate sustainability success is directly related to CEO commitment. Value creation is driven through executive buy-in and execution throughout the organization. Similar to chief quality officers, the chief sustainability officer must lead an effort to institutionalize this new thinking and processes into the company.

I think that there are three main ways in which experience in quality management and knowledge in the area can support enterprises in realization of the challenges emerging from sustainable development realization. They are the following:

- *knowledge and experience in applying methods such as.*
- *experience in managing key process and*
- *knowledge and experience in implementation of organizational and cultural changes.*

However support seems not to be enough. It is necessary to define activities in the area of quality management which need to be taken not to exist for managers only as „something obvious and normal“ (fourth stage of a lifecycle), but also as the source of inspiration in creating value for stakeholders and support in solving potential and existing problems. What can sustainable development teach quality? In which direction quality management systems should develop? Taking the fact that quality standards according to ISO 9000 and branch specific standards are extremely popular within companies into consideration, necessity to update and improve them is obvious. Increasing standards and making them more detailed should refer to: including „risk based thinking“ to activities and processes of a company and better alignment with business management processes which means taking context of corporate operations into consideration.

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