

## **Quality – a Factor behind the Economy Globalization Process**

### **Abstract**

*The article discusses motivations that stimulate firms and countries to make efforts toward building a knowledge-based economy, i.e. the most competitive type of economy. The need to implement the TQM concept is indicated, which concept allows to attain high quality through technical, technological and organizational innovations. Quality determines firms' competitive advantage in the global market. It both arises from the globalization processes in economy and creates them. Attention is paid to the chances of broader TQM environment in Poland, to the need to think in knowledge terms and to act effectively by absorbing and multiplying the emerging new quality being a prerequisite for Polish firms' taking part in the global economy.*

### **Introduction**

The 21<sup>st</sup> century that J. Juran announced as the age of quality and the quality globalization process are becoming a fact.

Most economists believe that the globalization of economy polarizes the world and leads to the liquidation of peripheral regions. This phase in economic evolution brings serious implications for both national economies and individual firms. It is primarily driven by the huge resource of knowledge that suddenly appeared over the last decade. It is estimated that between 1996 and 1999 computers and the Internet alone generated as much new information as the world had already produced during the entire history of humankind (Straszak, Owsinski 2004, p. 14). According to Moore's law, the pace of IT development will keep accelerating, and hence the whole world will have access to

information technologies with an unpredictable capacity for processing data, information and knowledge. This will be the technological base for continued expansion of the knowledge-based economy that will make the globalization processes even more intense (Lall 2004, p. 190).

Operation in the new circumstances faces growing demands in the area of competitiveness. If we accept a broad interpretation of the term 'information' (Castells 1985), then informativeness becomes a typical feature of the stream of modern technological innovations (progressing microelectronics allows to process and generate information; telecommunications enables increasingly faster and cheaper transmission of information characterized by growing complexity of feedbacks; modern media disseminate information in a more and more decentralized and individualized manner; information encoded in software meant for process execution becomes applicable in automation; genetic engineering decodes the information systems of living organisms and works on their programming).

Information has always been an important element of the market game. The Internet has eliminated the asymmetry of information and today the biggest threat for the global order is the weakness of the states. Restoration of the social order is a must for the globalization processes to develop (Fukuyama 2000). Today state's strength lies in its ability to participate in solving problems of its citizens who comprise the civic society and entrepreneurs. The state and the market are still necessary, but such that co-operate with the society on a participatory basis. Innovation and creating the best quality are conducive to economic development and they take place in both the social space and the global market (Bendyk 2006, p. 34).

Innovations improve processes, but they also demand all actions to show high quality. Because today, as it has never been so far, everything depends on everything. Omnipresent quality in firm's operations, processes, structures, organization, management and culture determines organization's competitive advantage and the chances of competing successfully in the global market. It is firms that play the main role in processes that shape globalization. Being profit-oriented, they are the most interested in taking their capital across the borders of the domestic economies. If they were unable to that, the globalization processes would never appear in many countries. Such outward-going actions are additionally supported by technological changes, by governments' policies and by various international organizations.

The use of modern knowledge and information eliminates distances and capital does not have any permanent headquarters; it is virtual. The world resembles complicated openwork fabric (Friedman 2001, p. 508).

As an EU member, Poland is carrying out a socio-economic program aligned with the Lisbon Strategy, because the European economy aspires to become the most competitive economy in the world, i.e. one based on knowledge, by the year 2010. Poland has to work harder, because her GDP per capita represents 40% of average GDP per capita in the Community before 1 May 2004. Whether this disproportion will be eliminated largely depends on the implementation of 5 Sectoral Operational Programmes within the National Development Plan (NDP) for the years 2004–2006, that is:

- Improvement of the Competitiveness of Enterprises,
- Human Resource Development,
- Integrated Regional Operational Programme,
- Restructuring and Modernization of the Food Sector,
- Development of Rural Areas.

The programmes are complementary and dependent on each other. Their implementation hinges not only on the aforementioned innovations, but also on the high quality of innovations. A favourable circumstance is that the NDP is mainly financed by the EU Funds, then by Poland's national budget and, quite symbolically, by firms.

NDP implementation is monitored by the Community' administration. The EU Funds can demand resources allocated to the execution of NDP goals, priorities, measures and some selected tasks to be repaid, if the performance is found defective.

It has become a modern requirement to emphasise high quality starting from a product design to its dissemination and this approach gives firms and national economies an unquestionable competitive advantage. Because of that, international quality standards are being developed. TQM implementation in firms and national economies offers measurable profits. Results of both theoretical and empirical studies show a positive correlation between the quality of firm's operations and the possibility of its growth in the domestic and global markets. An offensive state's policy supporting "selected winners" (with substantial growth prospects) combined with the implementation of a partnership-based management concept TQM makes such organizations more competitive in the globalizing economy (Dołęgowski 2002).

## 1. Quality status in firm's strategy

Quality management is an important element in the strategy of every firm. Within a strategy, the TQM concept is characterised by a time dimension, measurable effects, joint effort concentrated on the achievement of goals and coherent decision-making system. Its implementation is justified by international integration characterized by customer's markets, quality systems complying with international standards, as well as individual adjustment and constant modernization of the quality systems. Because business organizations are open systems, their disregard for changes in their environment is a path leading to nowhere. **A firm has to strive for better and better cooperation with the environment and for engaging it in the organization's quality-creating processes.** TQM is one way of modelling relationships with the environment.

„TQM being summarised as entire organization's efforts aimed at its constant improvement in order to produce maximum effects is commonly recognized – among the concepts of modern management of organization's growth – as one of the most effective solutions for refining processes, products and organizations” (Lewandowska 2001, p. 20).

In other words, all organization is engaged in the firm improvement process. The process takes place owing to a pro-quality policy, whose paramount objective is meeting the needs of external customers (buyers, suppliers) and internal customers (personnel at all levels, including the managerial staff and partners).

Implementation of TQM affects all aspects of organization's activity. The effects of the process should be a reward for cultivating the pro-active stance. The benefits it helps attain can be summarised as:

- orientation to international markets,
- increased sales with the resulting stabilised cash-flows,
- minimized control costs of the production process,
- lower final products' control costs,
- no costs of complaints,
- innovative processes and information,
- reduced total costs,
- better functioning in the natural environment.

The benefits result from the high quality of the basic TQM components as defined by the European Foundation for Quality Management:

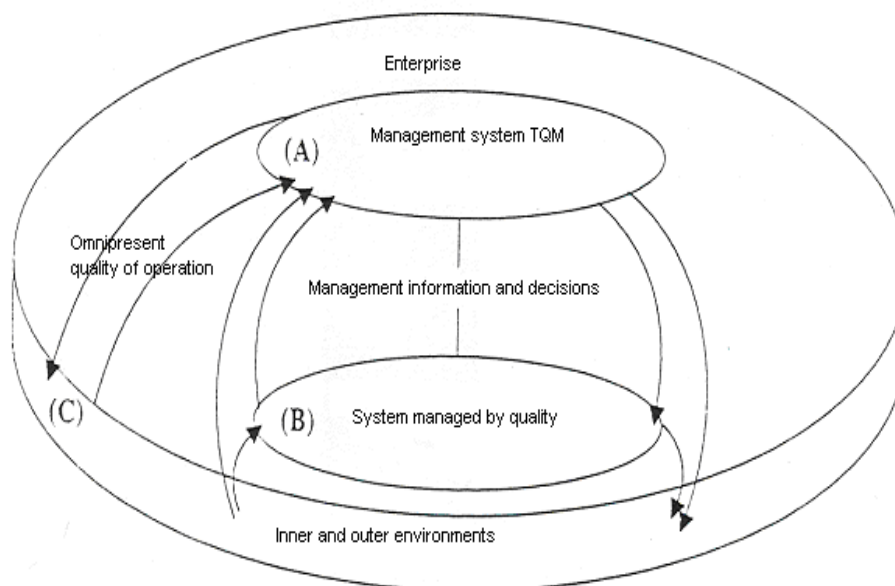
- leadership,

- HRM policy and strategy,
- satisfaction of customers and employees,
- influence on the society,
- measures and actions,
- financial results of firm's operations.

Concepts developed by authors of the TQM philosophy (W.E. Deming, J.M. Juran, A.V. Feigenbaum, P.B. Crosby, D.A. Darwin, W.E. Conway, F. Caplan and others) are similar with respect to its key issues.

Results of theoretical and empirical analyses prove that TQM is not perceived as a goal an organization works towards, but a manner of in which a given organization functions. It is illustrated by Chart 1.

**Chart 1. Organization's TQM**



Source: developed by the author.

The above chart is a graphic representation of a management system in company **(B)**, its immediate interacting environment **(C)** and the management subsystem (TQM) that creates growth through total quality **(A)**. High quality present in all aspects of organization's activities is rightly equated with

the culture of operation that underpins firm's system of values and its strategy. **TQM's main purpose is constant improvement** translating into a ceaseless process of striving for the best effects in all areas of firm's activity.

Within the process of constant quality improvement two different, yet complementary approaches can be distinguished – Western and Japanese (Modliński 2002, pp. 16–17).

**The Western approach** emphasizes two components of the management function, i.e. maintaining the status quo and improvement of the existing situation through innovation. Both components involve costs, but their amounts are different. The components are evaluated using the quality assurance costs to the cash flow ratio and the results are then used to formulate a pro-quality policy. This management style is characterised by assessment based exclusively on firm's final results.

On the other hand, the **Japanese approach** fills the gap between maintaining the status quo and innovating. In this meaning, the Japanese philosophy of quality management is described by the word *kaizen* (Jazdon 2002, p. 118). *Kaizen* means constant improvement, streamlining and upgrading that relate to all changes being introduced. *Kaizen* affects the organization of all processes and affects every person engaged in the programming, producing and distributing processes. All the staff including the management engages themselves in analyses supporting daily improvement and alteration of the status quo by small ascending steps. The introduction of innovations must be supported by *kaizen* as well. Because *kaizen*, unlike the classic western approach to innovation, puts special stress on the role of the human factor (Wawak 2002, p. 111). The use of *kaizen* makes high competitiveness expected from quality, productivity, costs, etc., come true. This was the experience of Japanese companies such as Toyota, Honda, Sony and others. High quality of products, good working conditions and minimal costs, with growing profits, can be achieved when all the stakeholders (owners, managers, designers, workers, suppliers, etc.) understand their unquestionable importance for the utilization of other factors and areas of firm's functioning, and ultimately for the organization's market success. The process is about common participation, training and motivation, target setting, imprinting quality in human minds and behaviour, knowing the motivations for introducing high quality processes, organizational structures and about providing the external and internal customers with the desired value added that determines firm's market value and its attractiveness in the domestic and international markets.

## 2. The applied quality management techniques

TQM implementation requires knowledge of the quality management techniques that are needed to monitor and diagnose the designing, manufacturing and control processes, and of other operations occurring throughout product life cycle. Without reliable and complete information, no effective measures can be launched to improve quality on a constant and systematic base.

There are many popular quality management tools, such as Ishikawa diagram, Pareto-Lorenz analysis, Shewhart control charts, checksheets, histograms, variables correlation graphs. Depending on firm's specificity, the most popular are the first three techniques and checksheets are applied more rarely.

**Ishikawa diagram** helps identify causes of phenomena, including errors, problems and irregularities occurring in processes taking place in a business organization. It reveals relationships between processes and the implications they produce. The procedure – varying to meet a special need or a problem investigated in an enterprise – can be summarised as follows:

- identification of the primary causes related to the production factors and directly influencing a process and its outcome,
- identification of the secondary and tertiary causes connected with the primary ones and constituting their extension, which allows a full diagnosis of problems in the investigated process underlying a given phenomenon.

Despite its many advantages, such as the ease of cause identification, clarity, transparency, comprehensiveness of information, the Ishikawa diagram does not enable fast problem solving. Other techniques, however, can be of assistance here (e.g. „brain storming”).

**The Pareto-Lorenz analysis** concentrates on these few causes that determine the major defects. This analysis is used to construct the hierarchy of causes by their importance. For this purpose, the 20/80 principle is employed (in the 19<sup>th</sup> c. an Italian economist Vilfredo Pareto observed the regularity that 80% of material resources were held by around 20% of population). It works equally well in the case of product quality. The same regularity can be found in other fields and it can be applied to nature, technology and various human activities (Hamrol, Mantura 1998, p. 212). On this basis – following a control procedure – we can identify several most important causes of product defects, find the frequency of their occurrence and then draw a so-called Lorenz curve representing cumulation of individual defects' shares in their total number. The results usually show that causes of the major defects account for around

80% of all defects. Individual defects may have different importance depending on the criteria applied. The same procedure can be run for defects classified according to their point of origin, by costs or other criteria.

The Pareto-Lorenz analysis is a relatively effective tool helping improve pro-quality processes, as it provides information enabling elimination of negative phenomena with the highest frequency and/or those that are the most burdensome for the costs.

**Shewhart control charts** are used partly to control variability and partly to identify and control the causes that make variability grow (Dahlgaard, Kristensen 2001, p. 101). The charts have been named after Walter Andrew Shewhart, an American statistician who developed a procedure for improving work processes and efficiency (Bonstingl 2002, p. 16). He came up with a graphic method of representing the variability. He created a three-stage model of a cyclic process for continuous improvement of production quality. His works immensely contributed to the development of quality management concepts and methods. Shewhart control chart is a system of coordinates  $x$  and  $y$ . Axis  $x$ , horizontal, measures time and axis  $y$ , vertical, represents the controlled process. If the process goes beyond the upper or lower control limit, then it is recognized to fall „outside statistical control”. It then becomes necessary to adjust the system, so to bring the process back within the limits (Bonstingl 2002, p. 66). A tool helping find the causes can be the Pareto-Lorenz analysis.

**Checksheets** help obtain structured information about a process or/and a product. Some standard operations are bottlenecks in the execution of a process (product). For normalized conditions to be met, a sheet with control questions and confirmations signed by the executor of necessary operations has to be developed. The sheet should provide information about the outcomes of individual process stages, causes of possible defects and then about all checked products.

Whether one or several complementary quality management techniques are applied concurrently depends on firm's profile, its strategy and aspirations. The above techniques and other tools helping identify defects and improve quality are used to generate or maintain a process, organization, product, etc. at a level conforming to international standards.

Based on the TQM concept, the International Organization for Standardization (ISO) has developed:

- **standards of the ISO 9000:2000 series**, containing requirements, guidelines and recommendations on the quality management systems;
- **ISO–14000 series**, dealing with the environmental management system;



- ISO–18000 series, defining areas within the management of safety and hygiene at work;
- **ISO–19000 series**, providing standards for quality systems audits, qualification of auditors, management of audit programmes.

TQM is a philosophy that falls outside any norms, unguided by any rigid principles. However, an ISO certificate awarded to a firm means that the organization complies with prescribed international standards and abides by their rules. ISO standards are instrumental in implementing TQM; they help attain better quality, increase customer's satisfaction and firm's value. Benefits connected with the implementation of ISO standards are unquestionable, and they range from holding an ISO certificate that the Polish firms mainly treat as an argument in transactions with external and internal customers, i.e. a marketing tool, to the introduction of a complete TQM system. Without meeting the ISO standards, entering the relatively long path leading to the full implementation of TQM is out of the question. Every firm should calculate its profits and losses associated with the introduction of a quality management system. Even though in the near future the ISO certificate may stop contributing to firm's competitive advantage, the non-possession of this document may make a firm leave the market. Therefore, from producer's viewpoint the possession of an ISO certificate will be a **necessity**, that is a **price** to be paid in order to maintain or to build firm's image and to consolidate its market position. In addition, a firm should also meet requirements required by two other systems: environmental management system (Konarzewska–Gubała 2004, p. 363) and the management of safety and hygiene at work. Modern times require the image of a safe employer.

Beside standards prescribed in ISO 9000:2000 series, ISO 14000 series or 18000 and 19000 series, some industries (such as the food industry, automotive industry, telecommunications, aviation industry or NATO suppliers) are subject to additional standards. However, most of the industries base their operations on ISO 9001 (Konarzewska-Gubała 2004, p. 333).

Application for a certificate confirming that a quality system involving a product, process, safety and hygiene at work or environmental management complies with the ISO standards involves costs. However, if the quality acquisition costs are not incurred, then they should be treated as wasted potential benefits that could be derived from firm's operation satisfying for their customers. Therefore, implementation of TQM allows to produce invariably profitable effects. Empirical evidence indicates that sales and profits are larger, when quality is high, costs lower and productivity improved, which allows to reinvest the profits, to expand the firm and to increase its value. Implementation of TQM does not offer immediate benefits. In practice, firms sometimes enjoy

only some of the internal or external benefits. The actual outcome depends on many factors. There can also appear benefits specific to a given type of business activity that are not commonly derived.

It has to be firmly stressed that high quality is just a chance of success, it does not guarantee it. Therefore, firms should be aware that their operations need to take into account a global and not local point of view. It becomes vital to realize that global relationships are expanding.

Generally, **in the age of competition only those firms can succeed that perceive quality as their main goal.** Quality determines firm's growth and it is equated with the culture of firm's operation. But the prerequisite is a TQM-friendly environment must be in place; its elements can be found in Chart 2.

**Chart 2. TQM environment**

organization of customers contributing to quality	monitoring of the satisfaction level	adequate management styles	delegation of managerial powers
firm's motivation systems	<b>FULL SATISFACTION of customers and firm's employees</b>		minimized control
style of good quality work	engagement of all personnel	stressing vision and the role of leadership through commitment	constant improvement of all production factors
social determinants			introduction of innovations

Source: developed by the author.

To implement TQM as a philosophy underlying quality management a special environment has to be organized. This process is a prerequisite for being able to fulfil one of the most effective concepts of managing firm's growth.

### **3. TQM elements in Polish firms**

Polish firms usually content themselves with the home market, but even that market is becoming more and more demanding, because of domestic and international competitors. Quality determines whether an organization will participate in the Polish market, not to mention the global market. For that

reason, the introduction of TQM to Polish firms and application of its methods, techniques, knowledge, culture and lessons learnt should be popularised and implemented.

Polish firms' openness to foreign markets should help improve quality across the entire system creating and promoting of the chain of values embedded in a product. According to empirical research, it is possible to reduce the costs of low quality by as much as 50%, if their causes are analysed, the quality management system is appropriately adjusted and the recommended level of the changes' effectiveness is maintained. Polish firms have many advantages that allow to produce best quality products, such as high-skilled workforce, growth potential, the ability to generate financial resources and relatively low production costs. They create conditions for cultivating competence, being the basis of excellence.

A national economy usually grows due to a combination of the effects of actions undertaken by individual firms and investors. Quite frequently, it is a synergic effect produced by the implementation of many complementary management concepts of firm's growth, including TQM. Elements of environment indicated in Chart 2 are essential for attaining high quality. Another factor that helps firms gain the quality-related competitive advantage is attractive regional environment and economic base built by the national and international sectors in the country, primarily those that can prospectively increase their shares in the global market. **High quality is not possible without high technologies.**

Poland's chances of participating in the global economy are determined by her implementation of a national innovation system and joining the process, in which R&D results are transferred to business projects.

So far, the results of actions Poland has undertaken in that area are unsatisfactory; the share of high-tech products in the Polish industry's sales is only 3%.

The potential of Poland's R&D base can be used in high-technology fields, knowledge-technologies, such as biotechnology, electronics, teleinformatics, and nanotechnology. Large-scale cooperation between the R&D sector and firms does not exist. Its intensification could help establish modern industrial centres of knowledge. This is a very important determinant of the firms and national economy's domestic and international competitiveness based on high-tech and high quality products. High quality can be attained, when the **TQM philosophy is implemented according to so-called Deming loop – PDCA (plan, do, check, act)**. This sequence of actions has a dynamic character and ensures constant improvement, which is necessary to stay active now and in the future.

The transition of an economy to a new development stage, i.e. a knowledge-based economy, makes it face harder requirements concerning **quality treated as an important element of competitiveness**. Competitiveness is only possible in economies that are capable of introducing information technologies on a large scale. The measures of country's development are the health of its population, the quality of nutrition, the level of education, working conditions, employment, consumption, savings, transport, housing, recreation, social insurance, quality of the environment, respect for human rights, etc. It is extremely difficult to handle the challenges at a decent level, particularly because in the world structure divided into four types of regions, i.e. the core, semiperipherals, peripherals and the external area Poland has been located in the semiperipherals (a region that endeavours, with a different degree of success, to imitate the core being the engine of all innovation) (Wallerstein 2004, Fukuyama 2004<sup>1</sup>).

The growth of the Polish economy will hinge on today's realization of the Sectoral Operational Programme „Increasing Competitiveness of the Polish Economy 2004–2006”.

Never before future has depended so strongly on the present. Managers in firms and country governments have to think universally, i.e. in terms of knowledge, and act effectively. **To be competitive, that is to become a member of the international community, one has to be very consistent in absorbing, multiplying and creating new quality** (Skrzypek 2005, p. 124) representing a paradigm of firms' competitive advantages in the economy globalization process.

## Findings

- **Firms need radical restructuring**. Otherwise, they will not be able to adjust themselves to the requirements of „a new economy”, give up the possibility of contributing to its shape and, which is even worse, they will accept their peripheral position or cease to exist;
- The new environment in which Polish firms function requires comprehensive conversion of the existing management system toward a system that would support their competitiveness in the domestic market, as well as aspirations to

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<sup>1</sup> Opinions on the condition of the world economy expressed in the work by Wallerstein correspond with the perception of threats arising from innovations and produced by biotechnology that can change human nature and exert an overwhelming influence on the modelling of an economic system, in which will is becoming important (Fukuyama 2004).

operate in the global market. One of the necessary effects of the efforts should be **high quality that determines firms and products' reputation**;

- **Quality** should become synonymous with the full satisfaction of all participants of economic life at every level;
- **Concern for the common climate supporting quality operations** should characterise firms' leaders, workers, customers, local authorities; also implementation of complementary management concepts in all aspects of firm's activity allows the effect of synergy;
- **Economic, legal and social circumstances** enable the introduction of various management systems based on ISO standards;
- **Audits** – internal audits, annual external audits, recertification procedures conducted every 2 or 3 years should be viewed as tool verifying firm's competitiveness that ensures shares in the domestic and global markets;
- **Innovations** – technical, technological and organizational – that are benefits derived from knowledge should be made a realized and essential factor that allows to attain **international quality standards**;
- **Countries and firms introducing TQM concepts should never give up the process of improving all potentials in their activity**;
- **A quality certificate** should be recognized by firms and decision-makers in economic life as synonymous with high quality, which would bring enhanced competitiveness and economic growth;
- **Total quality management** is usually a continuation of the ISO standards implemented in line with the effective international standards dealing with processes, organization, products, environmental protection, safety and hygiene at work, as well as audit procedures;
- **The TQM environment** should support international transfers of high technologies and knowledge technology;
- Documented results of empirical research prove that **high quality is profits and not costs**;
- **Quality means that 100% of internal and external customers' expectations are satisfied**;
- A firm and its environment should be a **community of interests** and it is appropriate to generate long-term benefits for the community's members; such benefits are attainable when competitive advantages are held and the global market is participated in;
- E. Deming – an authority in the field of quality theory and practice stated that in the near future two types of firms would be discussed – those that are **active**

owing to their implementation of the TQM principles and those that went bankrupt for not doing so;

- **Quality should be commonly perceived as an immanent property of a management system.** The development of firms and a country depends on economic growth, environmental protection, citizens' activity, e-base, knowledge accessible to all the society and the use of science in order to support the development. These factors determine high quality, which provides competitive advantages in international markets and ultimately in the global market;
- **Use of quality** as a vehicle for a firm and country's participation in the global economy should not be limited to creating special abilities that ensure short-term competitive position, but it should tend to **create and develop resources offering a strategic competitive advantage.**

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