

Article

The Level of Maturity of Quality Management Systems in Poland—Results of Empirical Research

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Abstract: This paper examines the problem of measuring the maturity of quality management systems. The main scope of the study is to measure the level of maturity of quality management systems in organizations with an implemented quality management system compliant with the requirements of ISO 9001 in Poland; however, this paper also investigates which factors influence the level of maturity. An analysis of the maturity level of the quality management system in the surveyed organizations showed that the highest level of maturity occurs in those areas and activities that directly result from the requirements of the ISO 9001 standard and direct market pressure, and this level of maturity must be implemented. This can be included in case areas such as customer orientation, process approach, or evidence-based decision-making. However, a lower level of maturity is observed in the case of “soft” aspects of quality management related to leadership and human resource management. The problems are also related to the implementation of corporate social responsibility (CSR). In this respect, the surveyed organizations show numerous shortcomings which lead to low assessments of their level of maturity, for example, in ensuring openness and ethical behavior in contact with the public. The following hypothesis was formulated for the research objective: H1—control variables, such as the size of the organization (H1a), time of existence of the enterprise (H1b), business profile (H1c), market position (H1d), financial condition (H1e), and ratio of management to the normalization processes (H1f), affect the level of maturity of an enterprise’s quality management system.

Keywords: maturity; maturity level; quality management systems; ISO 9001; maturity measurement; continuous development; quality management

1. Introduction

Quality management systems have evolved from a systems approach to management sciences. The systems approach concentrates on analyzing the organization as a system of interrelated elements. This approach is derived from cybernetics and mathematical modeling methods. According to Bertalanffi, who was the creator of the general theory of systems, it is a system with interrelated parts.

Organizations that have an implemented and certified quality management system, compliant with the requirements of the PN-EN ISO 9001:2015 standard, should continuously improve it. Improvement from the perspective of the standardization of quality management systems is defined as part of quality management, aimed at increasing the ability to meet quality requirements. Requirements can refer to any issue, such as effectiveness, efficiency, or traceability.

Furthermore, the measurement of enterprise activity is important from a sustainable organization perspective. Corporate sustainability is a concept in which key areas include long-term focus, considering stakeholders’ needs, and addressing the “triple bottom line” [1]. Several concepts have been developed within sustainable development, such as corporate social responsibility (CSR), corporate social performance, and environmental management. These concepts provide an approach

to support business sustainability in the long term [2,3]. Sustainability performance can be also defined as the performance of a company in all dimensions and for all drivers of corporate sustainability [4,5].

Nowadays, it has been suggested that business excellence models and maturity models have the potential to support corporate sustainability by the integration of sustainable development criteria into traditional business maturity models [6]. The concept of sustainability is closely connected with that of maturity. From a sustainability perspective, it is important to measure many aspects of sustainability. One way to do this is to measure the maturity of an organization using a model based on the quality management system maturity measure concept.

An assessment of the maturity level of the organization is one aspect of a comprehensive examination and analysis of the functioning of this system in the organization. It can be defined as a comprehensive, systematic, and regular review of an organization's activities according to the adopted model [7].

If carried out correctly, assessing the maturity level of the organization can be an excellent tool for diagnosing weaknesses in the quality management system and seeking recommendations for its improvement [8]. However, the problem is that most assessment methods either do not evaluate individual criteria or, as in the EFQM (European Foundation for Quality Management) model, do not explain how the model is weighted [9].

The increase in the maturity level of a quality management system is an important factor to develop. It is important from the point of view of a sustainable organization, which is a focus of the ISO 9004:2009 standard. A sustainable organization should slowly improve its quality management system level to achieve better functioning of the whole organization. This can be done by measuring the level of maturity and finding the factors that influence it.

The literature contains ideas on how to measure the sustainability of an enterprise. For example, [10] contains a general framework but does not detail precisely how to measure it. Other authors have proposed a basic framework for how to address a problem in a particular organization, but their methods are too narrow and cannot be used in other types of organizations [11]. Golinska and Kuebler tried to measure sustainable maturity from an information technology and related specifications point of view [12]. Moreover, Edgeman and Eskildsen presented an interesting conception regarding how to measure sustainable enterprise excellence [13]. Their conception contains dimensions such as strategy and governance, process implementation and execution, financial performance results, sustainability performance results, innovation performance results, and human capital performance results. However, the basis contains some concepts from quality awards models—especially regarding the Malcolm Baldrige National Quality Award model, which is a management-oriented strategy that is (to some extent) concerned with quality management systems' implementation and functioning. Other authors have tried to link the sustainable measure conception with the balanced scorecard method developed by Kaplan and Norton in the form of a sustainable balanced scorecard [14].

Furthermore, there are some papers on how to measure the sustainability maturity level of an enterprise based on typical business excellence model criteria [2]. Another concept [15] concentrates on typical corporate social responsibility indicators [11]. An interesting analysis was conducted by Nguyen et al. [16], who tried to find a connection between quality management and the sustainability performance measure. However, these authors viewed quality management from a practices perspective, connected with award models. Their conception is not strictly linked to quality management systems based on ISO 9001.

There is a gap in the literature regarding how to measure quality management maturity level in a complex way, especially according to principles connected with the ISO 9001:2015 requirements.

A new approach is important because the maturity level of an organization with a quality management system should be based on criteria connected to the system. Furthermore, sustainable organization criteria should also be considered—especially because the ISO 9004:2009 specification concentrates on the sustainable organization concept. The research presented in this paper could fill this gap in the literature and give scholars and managers a useful tool to measure the maturity level

that is based on quality management system principles. The main goals of this study are to measure the level of maturity of quality management systems in organizations with an implemented quality management system compliant with the requirements of ISO 9001 in Poland and to investigate what factors influence the level of maturity.

This paper describes the research that has been done in Poland. Topics related to maturity management in Poland are presented in papers such as [17–19]. Problems connected to the functioning of standardized management systems in Poland have also been previously researched by some scholars, e.g., quality systems [20,21], environmental systems [22,23], and CSR systems [24,25].

2. Literature Review

Continuous improvement, as a result of data analysis, audits, and corrective and preventive action, is aimed at increasing the level of system maturity. Continuous improvement is a very important factor in the process of certifying and maintaining the quality management system [26]. However, to improve the system, you need to make a comprehensive assessment of its functioning. One method for such assessments is audits, both internal and external; however, they are not sufficient [27,28]. The experience of many organizations suggests that comprehensive self-assessment methods are also a very good tool for assessing companies [29–34].

Continuous improvement is a process that aims to increase the efficiency of an organization and strengthen its competitive position by constantly improving the quality of products and services offered, as well as the internal processes of the enterprise. Improvements of the organization as a result of the process of constant change should lead to a reduction in delivery time and costs as well as an improvement of quality, and they should also have a positive impact on aspects of managing people [35–41].

In the literature on the subject, there are many models of improvement used in various philosophies and approaches to quality management. There are models used in the ISO 9000 series of standards: The ISO 9004:2010 focuses on organizational improvement models. Additionally, in the case of existing quality awards, different, though similar, models of organizational improvement are used. The conception of business excellence models was described, with its limitations, by Dahlagard [42]. A good analysis of existing business excellence models, which were the first models developed to measure organizational maturity, was conducted by Metaxas and Koulouriotis [43]. They performed an analysis of 139 papers from 39 peer-reviewed journals.

To assess the level of maturity of quality management systems, different models based on the self-assessment of the organization are most often used. As a quality management tool, self-assessment is associated with so-called models of excellence and quality awards [44–46], for which it was used for the first time on a wider scale [47]; currently, it is also used in the PN-ISO 10014:2008 standard.

Assessing the level of maturity of the quality management system in the organization allows us to precisely determine the strengths, weaknesses, and areas that need improvement in this case. That is why it is a very good tool for continuous improvement [48]. The evaluation process should develop planned activities for improving the organization's functioning, tied in with its systematic review and evaluation.

The methods of assessment and measurement of the level of maturity used in the case of quality management systems are derived from organizational maturity models. The concept of process maturity is derived from the concept of comprehensive quality management (for example, TQM) and the concept of business process management (BPM) [49,50]. Business process maturity models (BPMM) are sets of recommendations and good practices in the field [51–59].

The concept of maturity was first proposed by P. Crosby, who defined it as a state of completeness, perfection, and readiness [60]. Process maturity of an organization can be defined as the degree to which processes are formally defined, managed, flexible, measured, and effective. Process maturity is a concept whose inspiration comes from both quality management and good business practices. A process-oriented organization can be understood in this context as an organization whose processes can

be considered mature from a qualitative point of view [61]. Maturity in relation to processes can also be defined as the ability of the organization and its processes to systematically deliver ever-better results.

In functional terms, the process maturity of the organization is determined by the level of advancement achieved by the applied process management methods and the degree of awareness and knowledge about the functioning of processes in the organization, both of which are used to make decisions by the management [62–68].

3. Methodology and Data Collection

The main scope of this study is to measure the level of maturity of quality management systems in organizations with an implemented quality management system compliant with the requirements of ISO 9001 in Poland.

The following hypothesis was formulated for the research objective:

H1. *Control variables such as the size of the organization (H1a), the time of existence of the enterprise (H1b), business profile (H1c), market position (H1d), financial condition (H1e) and the ratio of management to the normalization processes (H1f) affect the level of maturity of an enterprise's quality management system.*

On the basis of initial research and a literature analysis, an initial conceptualization and an operationalization of variables concerning the level of maturity of the quality management system were performed. In order to improve the research tools, an expert method was used—experts from both the scientific community and business were included in the research.

A proprietary measurement tool was developed to measure the level of organization internationalization. In the case of measuring the level of maturity of the quality management system, the research tool developed by Wolniak was used, after adapting it to the requirements of the new ISO 9001:2015 standard and significantly modifying it using the expert method.

Analyzing the maturity level of the quality management system, the individual variables included in the questionnaire were grouped using the factor confirmatory analysis method. Seven quality level maturity criteria for the quality management system are also called components of the quality management system.

In the case of quality management systems maturity, the following indicator designations were used: WPD—the level of quality management system maturity.

Due to the fact that the surveyed population is numerous (according to the latest ISO survey in 2016, 12,152 organizations in Poland had a quality management system compliant with the requirements of ISO 9001), it was not possible to carry out tests covering all enterprises with a quality management system consistent with these requirements. It was decided in this case to take a simple random sample from the population.

In the next stage of research from the general population, a sample of 3500 organizations was chosen at random; in September 2017, a questionnaire was sent to these organizations via a link to the portal and as an e-mail attachment. Management or quality representatives were asked to complete the questionnaire based on the integrated management systems in the surveyed organizations. The questionnaire was active on the internet portal for three months. As a result of the research, 592 questionnaires were obtained. The response rate was thus 17%. This is a fairly typical rate of return in survey research. We tried to avoid bias by designing the survey carefully, adjusting it following expert studies and pilot studies, and sending reminders to respondents.

The obtained empirical material was verified in terms of completeness and logic. As a result of the analysis, 19 questionnaires were rejected because they were incomplete or contained errors. In total, then, 573 questionnaires were qualified for the analysis. The number of questionnaires obtained significantly exceeds the minimum sample size calculated on the basis of pilot studies.

4. The Results of Empirical Research

The basis for calculating the level of organization maturity was the method developed by Wolniak [46]. The method was significantly modified to meet the needs of the research conducted and to be in accordance with the requirements of the new ISO 9001:2015 standard. The basic concept of the applied method is to consider the maturity of the quality management system from the point of view of seven criteria, the principles of quality management. Within each of the rules, questions were used to determine the level of the organization's maturity.

Since there are many subcriteria to calculate aggregate indicators, allowing for the measurement of the level of maturity in the surveyed organizations, a multistage procedure was applied:

- For each subcriterion, an exploratory factor analysis was used to examine the structure of variables and identify hidden factors;
- the values of the levels of maturity were calculated within specific, identified factors;
- within the given subcriterion, the results for individual hidden factors were averaged;
- the maturity level of the quality management system of the surveyed organizations was calculated using the results for individual criteria.

The level of the quality management system's maturity reflects the organization's improvements. The measurement of the level of maturity is important because the possession of a certificate regarding a quality management system compliant with the requirements of the ISO 9001 standard or the implementation of other certified management systems are zero–one variables. The fact that an organization has implemented a given system only proves the fulfillment of basic requirements but does not prove that it is advanced in terms of quality management processes.

The solution in this case is to measure the level of maturity of the quality management system; according to the adopted scale, you can measure the advancement of the organization in terms of the improvement in quality management.

In the conducted empirical studies, a five-point scale of quality management system maturity assessment was adopted. In the first stage of the research, a confirmatory factor analysis was conducted to find hidden factors within all analyzed criteria.

After identifying the hidden factors, we calculated the maturity level for all of them. Values for individual factors, along with the basic statistical measures, are presented in Table 1. Then, the values for individual criteria were averaged. The results under the criteria and the basic statistical measures for them are summarized in Table 2. Subsequently, using the weights for individual criteria, the total level of maturity of the examined organizations was calculated.

The analysis of the collected results allows us to conclude that the best-assessed criterion, whose maturity level in the surveyed organizations has the highest value, is customer orientation (level of maturity: 4.03). The histogram shows that most organizations who participated in the empirical research had a level of maturity exceeding 3.5 in this area. At the same time, it is worth paying attention to the wide range of the tested criterion, because the minimum level of maturity in this case was very low at 1.97; there were organizations whose level of maturity was rated at the maximum of 5. In this case, the fourth level of maturity was dominant, which means that the majority of organizations were oriented towards the client at a high level of maturity. Only nine surveyed organizations were rated at the lowest level of maturity (the first level).

A high level of maturity in the area of customer orientation resulted from the fact that, in the modern market economy, commercial organizations are not able to stay in the market in the long run unless they produce products or provide services that satisfy the customer. The analysis of partial criteria proves that the surveyed organizations pay particular attention to the identification of key customer groups (level of maturity: 4.47). Identifying which clients are important from an economic point of view is crucial to the functioning of the organization. Similarly, sub-criteria such as the use of measures regarding complaints (4.35), fair processing of applications and client complaints (4.19), and quick processing of clients' requests and complaints (4.18) were rated highly.

Table 1. Values and basic statistical measures for the identified factors.

Factors	Value	Median	Minimum	Maximum	Standard Deviation
Customer orientation					
Identification of needs and goals related to the client	4.04	4.14	1.71	5.00	0.70
Measurement of customer satisfaction and complaint handling	4.02	4.20	1.80	5.00	0.80
Leadership					
Commitment and provision of resources	3.79	3.67	1.17	5.00	0.72
Values, vision and mission	3.70	4.00	2.00	5.00	0.74
Actions towards employees	3.55	3.50	1.50	5.00	0.79
Developing strategies, policies, and business plans	3.58	3.67	1.00	5.00	0.77
Commitment of people					
Employees' competence	3.64	3.57	2.43	5.00	0.70
The interest of people in cooperation with interested parties	3.62	3.50	2.00	5.00	0.60
Knowledge, experience, and rewards	3.78	3.50	2.50	5.00	0.54
Process approach					
Application of the process approach in the organization	3.95	3.70	2.20	5.00	0.67
Process limits and special processes	3.82	4.00	2.00	5.00	0.75
Continuous improvement					
Goals, monitoring, and training of people in the field of continuous improvement	3.77	4.00	1.75	5.00	0.85
Methods and ideas for continuous improvement	3.77	4.00	1.67	5.00	0.79
Evidence-based decision-making					
Analysis of the decision-making process	3.67	4.00	2.00	5.00	0.86
Reliability and timeliness of data and their analysis	3.95	4.00	2.00	5.00	0.74
Problems of suboptimization and data completion	3.96	4.00	2.00	5.00	0.74
Relationship management					
Short-term relationships with supply chain partners	3.85	3.75	2.00	5.00	0.73
Long-term relationships with other interested parties	3.74	3.60	2.20	5.00	0.71

Source. Author's own research.

Table 2. Level of maturity (WPD) and maturity levels for individual criteria.

Criterion	Value	Weight	Median	Minimum	Maximum	Standard Deviation
Customer orientation	4.03	0.2	4.06	1.97	5.00	0.65
Leadership	3.65	0.1	3.65	1.42	4.88	0.60
Commitment of people	3.68	0.15	3.60	2.90	4.67	0.45
Process approach	3.88	0.15	3.75	2.50	5.00	0.65
Continuous improvement	3.77	0.15	3.67	2.21	5.00	0.71
Evidence-based decision-making	3.86	0.15	3.83	2.00	5.00	0.62
Relationship management	3.79	0.1	3.68	2.20	5.00	0.65
Level of maturity (WPD)	3.82	-	3.69	2.61	4.86	0.53

Source. Author's own research.

Empirical research shows that the implementation of quality management systems compliant with the requirements of the ISO 9001 standard improves the organization's focus on identifying and meeting customer needs. The management of non-conformities, in particular customer requests and complaints, is improved. Enterprises examine customer preferences, analyze their needs in detail, and determine which clients are key to their business profile. It is also very important to constantly monitor the needs of customers, which allows the organization to adapt to market trends and be competitive.

The second criterion, in terms of the maturity level, was the process approach (level of maturity: 3.88). The range in this case was much smaller than for the previously discussed criterion. The smallest value obtained was 2.5, while the highest was 5. Most of the surveyed organizations exceeded a maturity level of 3.5.

The analysis of individual subcriteria in the case of the process approach allows us to conclude that several exceeded the fourth level of maturity. In particular, the highest rated issues included: The identification of key activities in the organization (4.19), understanding the interdependence of processes (4.14), the application of process functioning measurements (4.04), the identification of all processes in the organization necessary to achieve the desired benefits (4.03), and the continuous improvement of the entire system based on measurement and evaluation results (4.01).

The process approach is assessed at a high level of maturity, because it is a key approach from the point of view of a properly functioning quality management system. It is impossible to correctly implement a system compliant with the requirements of ISO 9001 without identifying processes and introducing the process approach principles in the organization. For this reason, all surveyed enterprises have a level of maturity in this criterion higher than 1.

Problems occur when it comes to specific issues, e.g., the management of special processes, where the level of maturity was assessed as 3.71. The surveyed organizations also had problems related to translating the process orientation into achieving the organization's goals and achieving predefined benefits. The subcriteria on these issues were assessed at 3.74.

The next criterion in the assessment was evidence-based decision-making (average level of secondary education: 3.86). In this case, a smaller range can be seen, as the lowest grade for maturity was 2. The fourth level of quality management system maturity was also dominant. A histogram analysis leads us to conclude that a large group of surveyed enterprises were at the highest, fifth level of maturity for data-based decision-making (119 organizations).

Detailed data analysis is a very important aspect of modern business operations. Therefore, in this area, the surveyed organizations have a mature quality management system. Two factors were highly evaluated in this respect: Problems of suboptimization and data replenishment (3.96) as well as the reliability and validity of data and their analysis (3.95). The highest rated subcriterion, whose level of maturity exceeded 4, was to ensure that the data held by the organization were up to date (4.07).

On the other hand, there were problems with criteria related to the analysis of the decision-making process (3.67). Organizations have problems with detailed data analysis, especially in the context of their long-term use. Currently, we have easy access to data that are collected using computer software, both in terms of system documentation and data coming directly from production processes. However, with such a huge amount of data, it is increasingly difficult to analyze and use them correctly in decision-making processes.

The analysis of subcriteria shows that the worst ones case were those connected with the use of data for the purpose of making effective decisions. In particular, the worst assessed subcriteria were: Making decisions based on in-depth analyses (3.61), providing access to data and analyses (3.69), and monitoring the effectiveness of the analyses undertaken (3.71).

The biggest drawback of functioning quality management systems compliant with the requirements of ISO 9001 are "soft" aspects of management regarding leadership and human resources. The leadership criterion was rated the worst of all (3.65). None of the surveyed organizations had the highest level of maturity (fifth) in the area of leadership. Most were at the third level of quality management system maturity.

Leadership deficiencies were particularly visible in the case of factors related to activities towards employees (3.55) and the development of strategies, policies, and business plans (3.58). The analysis of subcriteria allowed us to distinguish those for whom the average level of maturity did not exceed 3.5. These included: Ensuring common values, openness, and ethical behavior in dealing with the public (3.46); allowing employees to participate in decision-making (3.49); and developing effective strategies, policies, and business plans to meet the needs of suppliers (3.49).

It is worth noting the poor performance in terms of ensuring openness and ethical behavior in dealing with the public. This is largely due to the fact that Poland is lagging behind other European countries in the implementation of the concept of CSR in organizations [69–72]. Few Polish enterprises report activities regarding social responsibility; even if they prepare CSR reports, they are usually rather basic.

It is very rare for organizations in Poland to prepare integrated CSR reports [73–77]. This attitude later results in difficulties in including social issues in business practice, as well as in maintaining and improving a quality management system compliant with the requirements of ISO 9001.

In terms of leadership at the highest level of maturity, there are issues related to the client. The highest rated subcriterion was that concerning the development of an effective strategy, policy, and business plans in order to meet the client's needs. Similarly in the case of leadership, organizations tend to concentrate first of all on improving customer-related activities, while issues regarding the needs of other stakeholders are secondary.

This is confirmed by the low level of maturity of the surveyed organizations on the criterion concerning the involvement of people (3.68). The criterion was characterized by the smallest range from all seven analyzed criteria for measuring the maturity of the quality management system. The lowest value of the level of maturity was 2.9, while the highest value reached 4.67. Similarly, as in the case of the leadership criterion, none of the surveyed organizations were evaluated at the highest level of maturity (level five). Additionally, in this case, the third level of maturity was most common.

In the case of the analyzed criterion, the lowest-ranked factor was people's interest in cooperating with interested parties (3.62). It turns out that social issues related to interested parties other than direct clients are less important for the Polish organizations surveyed.

There is also a problem with the measurement of employee satisfaction (3.47). It was at a lower level than the measurement of customer satisfaction, which again confirms that the surveyed organizations are focused mainly on meeting the needs of the client and do not always pay the same attention to the needs of employees and other stakeholders.

The positive aspects of human involvement were variables related to: Sharing knowledge and experience between employees (3.91), seeking opportunities for employees to improve their competence (3.79), and employees' commitment to continuous improvement (3.74). Organizations, as seen in the results from empirical research, train their employees and encourage them to improve their competence through external training as well as sharing knowledge with colleagues.

Another criterion for continuous improvement was assessed at the average level of maturity—3.77. The fourth level of maturity was the dominant one. None of the organizations surveyed were on the lowest, first level of maturity. The organization's involvement in continuous improvement could be seen to be moderately positive.

The best-rated subcriteria in this case were: Monitoring of employees' knowledge of methods of supporting continuous improvement of products and processes (3.8) and the commitment of top management to continuous improvement (3.8). The worst assessed subcriterion was employee awareness of methods supporting continuous improvement (3.6). This confirms the phenomenon observed in organizations regarding the introduction of quality management methods and tools. Enterprises usually use those methods and tools that are mandatory, but they rarely implement methods and tools that are not required by the standards implemented in the organization, despite evidence of their effectiveness.

The last criterion for which the level of maturity of the surveyed organizations was measured concerns the management of relations. In this case, the level of maturity was rated at 3.79. None of the surveyed organizations were on the first, lowest level of maturity. The fourth level of maturity was dominant.

The results for individual factors confirm the superiority of the organization's interests in terms of the client and the quality of the product in comparison with the attitude to the needs of other interested parties. The level of maturity in the case of short-term relations with the supply chain partners was rated at 3.85, and long-term relations with other interested parties was rated at 3.74.

The best implemented criterion, in the field of relationship management, was the monitoring of suppliers and the products they supply (3.99). The worst assessed subcriteria were informing interested parties about long-term plans (3.58); and recognition of achievements and improvements inspired by stakeholders (3.65).

The basic statistical values for the total level of maturity are summarized in Table 2. The total level of maturity of the examined organizations was 3.8. The range is small—the lowest recorded level of maturity is 2.61, while the highest is 4.86. Taking into account all the constituent criteria, no organization is at the highest, fifth level of maturity, but neither are any at the first or second level of maturity. The standard deviation for the total level of maturity is smaller than for the coefficients for partial criteria. This means that none of the surveyed organizations are “perfect” at everything; if a given company deals better with certain aspects of the functioning of a certified quality management system, it may come out worse in terms of others.

The analysis of the distribution of maturity level values allows us to state that the largest group of organizations has a level of maturity ranging from 3.5 to 4. This group includes 239 of the surveyed organizations. A large group of surveyed enterprises (109) were in the range of 4.5–5. These organizations have exemplary quality management systems, characterized by a very high level of maturity for almost all criteria.

In the further analysis, it was decided to check the impact of control variables on the level of the maturity of the surveyed organization's quality management system. First, we examined whether the size of the organization affects the level of quality management system maturity. Analysis using the nonparametric Kruskal-Wallis ANOVA test allowed us to conclude that statistically significant differences at the level of $\alpha = 0.01$ occur between the total level of maturity (WPD) of the organization and all maturity criteria (except for human involvement). The test results support the H1a hypothesis regarding the impact of the size of the organization on the level of maturity of its quality management system.

Table 3 presents the values of the level of maturity indicator (WPD) and levels of maturity for individual criteria, categorized by the size of the organization. The analysis of empirical data proves that small organizations are characterized by the highest level of maturity. In their case, the average level of maturity was 4.17. For all criteria except the involvement of people, the level of maturity in the examined small enterprises exceeded 4. This is because the surveyed small enterprises are largely innovative organizations that have implemented several certified management systems and operate in innovative industries. The maturity ratio (WPD) distribution chart suggests that there is a small (nine organizations) group of small enterprises in which the level of maturity was under 3. These are other types of organizations, mainly engaged in commercial or service activities.

The lower level of maturity is characteristic of large enterprises, for which the average maturity index (WPD) was 3.84. However, in large enterprises, in one case, the customer orientation criterion, the level of maturity was assessed above 4 (4.08). Most large organizations, as shown by the chart of value distribution, had a level of maturity in the range 3–3.5. A significant number of large organizations also had a very high level of maturity, exceeding 4.5 (83 organizations). The lowest maturity was seen in the medium-sized organizations surveyed. For them, the level of maturity indicator (WPD) was 3.48. For all examined criteria of the level of maturity, it was the lowest in this group of organizations.

Table 3. Level of maturity (WPD) and levels of maturity for individual criteria from the point of view of the size of the organization.

Criterion	Large Enterprises (N = 451)	Medium-Sized Organizations (N = 70)	Small Organizations (N = 52)
Customer orientation	4.08	3.54	4.27
Leadership	3.66	3.34	4.02
Commitment of people	3.69	3.45	3.92
Process approach	3.87	3.67	4.29
Continuous improvement	3.81	3.31	4.04
Evidence-based decision-making	3.85	3.60	4.29
Relationship management	3.79	3.35	4.38
Level of maturity (WPD)	3.84	3.48	4.17

Source. Author's own research.

An analysis of the impact of the dominant profile of activity on the level of maturity of the surveyed organizations was also performed using the Kruskal-Wallis nonparametric ANOVA test at the significance level of $\alpha = 0.01$. Statistically significant differences existed for the level of maturity indicator (WPD) and for individual criteria for measuring the level of maturity (with the exception of the decision-making criterion based on facts). The obtained results support the H1c hypothesis regarding the impact of the business profile of the surveyed enterprises on the level of quality management system maturity.

Table 4 presents the level of maturity (WPD) for the surveyed organizations and partial indices for individual maturity levels.

Table 4. Level of maturity (WPD) and levels of maturity for individual criteria from the point of view of the dominant profile of activity.

Criterion	Industry (N = 443)	Commerce (N = 35)	Services (N = 95)
Customer orientation	4.09	3.41	3.99
Leadership	3.71	2.57	3.78
Commitment of people	3.67	3.33	3.89
Process approach	3.86	3.41	4.15
Continuous improvement	3.85	2.86	3.76
Evidence-based decision-making	3.88	3.59	3.84
Relationship management	3.87	2.76	3.80
Level of maturity (WPD)	3.86	3.19	3.90

Source. Author's own research.

In the case of the surveyed organizations profile, the highest level of quality management system maturity (WPD) was observed for services (3.9), while in the industry, this indicator was slightly lower and amounted to 3.86.

The lowest level of maturity is characteristic of trade organizations, for which it was 3.19. Such organizations are the least advanced in improving quality management systems. This is confirmed by the analysis of the maturity in the case of subcriteria. For all surveyed criteria, the lowest level of quality management system maturity occurred in trade. For three criteria, this level was lower than 3. They were: Leadership (2.57), relationship management (2.76), and continuous improvement (2.86). Only the mandatory elements of the quality management system, such as process approach and customer relations or documentation, were found to have slightly higher levels of maturity (but in no case exceeding 4). Organizations in which the dominant level of maturity was trade implement quality management systems that meet the minimum criteria necessary to obtain a quality certificate. However, later, once they have an appropriate document confirming the implementation of the system, they rarely commit to its improvement.

The analysis of the relationship between the period of existence of a given enterprise and the level of organizational maturity, performed using a non-parametric Kruskal-Wallis ANOVA test, did not show statistically significant relationships at the level of $\alpha = 0.05$. The results of the study do not allow us to confirm the H1b hypothesis regarding the impact of the company's lifetime on the level of its quality management system's maturity.

The use of a Kruskal-Wallis ANOVA test to analyze the relationship between the assessment of the market position of an organization and the assessment of its financial condition revealed the existence of statistically significant relationships. This allows us to confirm the H1d and H1e hypotheses regarding the impact of the financial condition and market position of the company on the level of its quality management system's maturity.

Additionally, depending on the management's attitude to the standardization of quality management and the level of maturity of the quality management system, they are statistically significant. On this basis, hypothesis H1f, which assumed the influence of the management's attitude towards standardization processes on the level of maturity of its quality management system, was confirmed.

Table 5 presents the ranking of Spearman's rank correlation indicators of the level of maturity (WPD) for all criteria and variables such as the period of existence of the organization, assessment of the market position, assessment of financial condition, and the management's attitude to quality management normalization. The table omits values for which the correlation coefficient is statistically significant at the level of $\alpha = 0.01$.

Table 5. Correlations between the level of maturity (WPD) and level of maturity for individual criteria and selected variables.

Criterion	The Existence of the Organization	Assessment of the Market Position	Assessment of Financial Condition	The Attitude of Management to the Normalization of Quality Management
Customer orientation	−0.02	0.26	0.30	0.71
Leadership	0.00	0.29	0.41	0.65
Commitment of people	−0.06	0.33	0.50	0.58
Process approach	0.37	0.27	0.36	0.36
Continuous improvement	−0.15	0.11	0.49	0.33
Evidence-based decision-making	−0.00	0.12	0.18	0.55
Relationship management	−0.16	0.33	0.48	0.53
Level of maturity (WPD)	−0.05	0.29	0.46	0.67

Source. Author's own research.

The existence of the organization is not correlated with the level of its maturity (WPD). In the case of partial criteria, in most cases the correlation also does not take place. Only the implementation of the process approach is positively correlated with the time of existence of the given organization. The longer the organization has existed, the more it engages in the implementation of the principles of the process approach. In some cases, correlations are even negative (continuous improvement and relationship management). This means that "old" organizations, long-standing on the market, use traditional management methods. They are not pro-social (they do not analyze the needs of interested parties), nor do they try to improve their management systems.

In the case of market position and financial condition, all indicators of the level of maturity in the case of WPD and partial criteria are positively correlated with them. In all cases, the correlation with the level of financial condition is higher compared to the correlation with the assessment of the market position of the organization. Empirical research shows that organizations with a well-functioning quality management system at a high level of maturity are also characterized by a good market position and good financial condition. This suggests that quality management systems work well and actually improve the functioning of the organization. At the same time, it is not about "having a certificate" of the quality management system in accordance with the requirements of ISO 9001. A

poorly implemented and unimproved quality management system does not fulfill its task and does not necessarily translate into improvements in the company's functioning. However, when the system is properly implemented, improved and is at a high level of maturity, it leads to customer satisfaction and translates into good financial results. The correlation coefficient between the quality management system (WPD) quality management index of a given organization and its market position is 0.29; however, its correlation with the financial position is 0.46.

The major influence on a quality management system's improvement and ability to achieve a high maturity level is the attitude of the management towards the normalization of management systems (Figure 1). The correlation coefficient between variables is 0.67. Empirical research shows that the better the ratio of management to the implementation of quality management systems, the higher the level of excellence of a given quality management system.

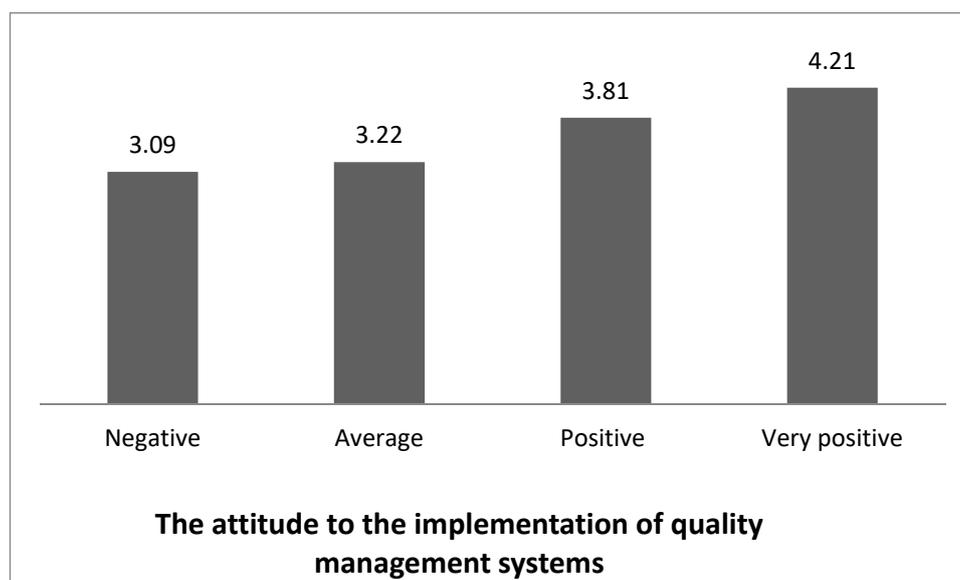


Figure 1. Level of maturity index (WPD) from the point of view of their attitude to the implementation of quality management systems. Source. Author's own research.

In organizations where the management has a negative attitude towards the implementation of certified quality management systems, the implementation is usually forced by the client and the organization has no motivation to improve the system. Then the level of maturity was low and amounted to 3.09.

In those enterprises where there is a positive attitude towards the implementation of certified management systems, the level of maturity level reached 3.81; in the case of a very positive attitude to this phenomenon, its value was 4.21.

The ISO 9001 standard emphasizes the need to involve management as a key factor in the implementation of a quality management system in an organization. Our empirical studies confirm this. The commitment of management and its positive attitude to quality management systems means that the organization is not limited to mandatory tools and methods of conduct. The company improves its quality management system by introducing new solutions, using methods and tools for quality management, and analyzing and putting into practice the results of audits and reviews of the management. Over time, this type of system begins to function better and achieves a high level of maturity.

5. Conclusions

Based on the results of empirical research and identified hidden factors, the level of maturity of quality management systems in the surveyed organizations was calculated. We investigated

the relationship between the calculated level of maturity and control variables. When testing the hypothesis, as well as its individual partial hypotheses, using the adopted method, calculations of the maturity level (WPD) of the quality management system for individual organizations were made. Then, by using statistical tests and calculating the appropriate correlation coefficients, its dependence on other variables was examined. The calculations were made at the statistical significance level of $\alpha = 0.01$.

Empirical research has shown:

- A correlation between the quality management system maturity indicator and the size of the enterprise (the results supported the H1a hypothesis).
- The lack of a correlation between the quality management system maturity indicator and the organization's lifetime (the results did not support the H2b hypothesis).
- A correlation between the quality management system maturity index and the company's business profile (the results supported the H1c hypothesis).
- A correlation between the quality management system maturity index and the market position of the organization (the results supported the H1d hypothesis): The better the market position of the organization, the higher the level of quality management system maturity.
- A correlation between the quality management system maturity index and the financial condition of the organization (the results supported the H1e hypothesis): The better the financial condition of the organization, the higher the level of quality management system maturity.
- A correlation between the quality management system maturity index and the management attitude to the standardization of quality management (the results supported the H1f hypothesis): The more positive the organization's management's attitude to the implementation of certified quality management systems, the higher the quality management system maturity.

An analysis of the maturity level of the quality management system in the surveyed organizations showed that the highest level of maturity occurs in those areas and activities that directly result from the requirements of the ISO 9001 standard. One can include in this case areas such as customer orientation, process approach or evidence-based decision-making. On the other hand, a lower level of maturity is seen in the case of "soft" aspects of quality management related to leadership and human resource management. The problems are also related to the implementation of the concept of corporate social responsibility (CSR). In this respect, the surveyed organizations show numerous shortcomings, which leads to low assessments of their level of maturity, e.g., in ensuring openness and ethical behavior in contact with the public.

Studies have shown that, despite problems related to the functioning of quality management systems, for the majority of surveyed organizations, the level of quality management system maturity can be characterized as medium (3.4-4 on a 5-point scale). It was also observed that numerous surveyed organizations (109) are characterized by a high level of maturity of the quality management system (4.5-5). An interesting relationship was observed when analyzing the size of enterprises in the context of the level of maturity of their quality management system. It turned out that the lowest maturity occurs in the case of medium-sized enterprises; it is higher in both large and small organizations.

The results of the study offer many managerial implications. Many quality management system areas need to be improved within Polish organizations. The main problems of the surveyed organizations are connected with leadership and commitment. Those two problems are connected: It is impossible to maintain a strong commitment from employees without good leadership. Polish organizations, especially large and medium-sized organizations, are based on a rather traditional organizational culture. To achieve better pro-quality leadership, managers should instigate a participatory organizational culture and connected leadership style. This is not only important from a business point of view, but it can also have positive effects on the quality of life of employees. A very important impact of this study is connected with the findings about problems related to the implementation of the CSR concept in Polish organizations. Not only organizations but also authorities

should concentrate on promoting the idea of CSR in the country's economy. This should be the basis of improving human management-related areas within organizations and, thereby, their maturity level.

On the basis of the conducted research, it can be stated that the developed method has proven its worth in measuring the level of maturity of a quality management system. The method described in the paper can be useful for managers to measure their quality management system's level of maturity. The use of the method is an important factor toward the implementation of the conception of a sustainable organization. Using it, we can analyze and compare many aspects of a quality management system within an organization. Then managers can measure the level of maturity in their organization and compare it with the presented results. This can be a useful benchmarking tool. By using it, a manager can know the position of his company as compared to others in terms of the level of maturity of the quality management systems.

In the future, this research should be continued for some years to give a dynamic view of the researched problem. Now we only have a snapshot of the situation at a particular moment of time. A dynamic analysis can provide information about how the maturity level of a quality management system changes year by year and what is changing. Additionally, it may be interesting in the future to research another country to compare the results with the presented analysis of Polish organizations.

The limitation of the conducted research is that the applied methods are of variable operationalization. When measuring the quality level of quality management systems, you can choose a different approach—developing a measurement tool based on the model guidelines contained in the ISO 9004:2009 standard instead of ISO 10014:2008, for example.

Another limitation of the research is the assumption that only organizations having a certified quality management system compliant with the requirements of ISO 9001 were surveyed. This is logical, because it is much easier to measure the level of system functioning in organizations that have this system certified in accordance with the commonly accepted international standard. In such organizations, the system is compatible, and there are specifically designated persons (management representatives for the quality management system) that oversee its functioning, so the test provides comparable results. In addition, the application of the method based on principles used in the implementation of the ISO 9001 standard to measure the level of maturity makes it difficult to study organizations that do not have this system. Nevertheless, there are organizations that have their own independent quality management systems and have not undergone a certification process. Certainly, in the future, it is worth examining them using a different operationalization of variables and tools than were used in this research.

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