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17thInternational Strategic Management Conference**QUALITY SYSTEM MANAGEMENT: THE ROLE OF HUMAN
RESOURCES**

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fmer20005@fme.aegean.gr**Abstract**

We present a state-of-the-art literature survey in Quality Management Implementation focusing on the Critical Success Factors (CSFs) that affect its success. The survey concentrated on peer-reviewed journals and conference papers published in the the last five years in databases and targeted sources. After identifying the most widely used CSFs we elaborate on Quality Management Maturity Assessment identified approaches. We propose a novel Quality Management Maturity Assessment framework called Glykas Quality Compass that evaluates implementation initiatives holistically and comprehensively through a matrix of Critical Success Factors and Enablers. The proposed maturity assessment framework can be applied distinctively to the four categories identified in quality management: Total Quality Management, Quality Standards, Quality Methodologies and Excellence Awards. We finally apply the proposed framework in the newly published human resources management ISO standards in order to verify the framework's ease of use and concept validity. The significance of the study is multifold as it not only proposes a novel holistic Quality Management Maturity Assessment framework but it also presents a generic human resources standards maturity assessment matrix that can be used by both academics and practitioners for future reference.

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1. Introduction

During the last decades, Quality Management (QM) and human resources management (HRM) have been evolving in parallel in both academic research and practice having a major impact on the improvement of organizational performance (Ooi et al., 2009). QM is based on a management philosophy focusing on the customer, top management commitment, employee involvement, teamwork and continuous process improvement (Krajcsák, 2019). QM implementation aims to create an organizational rationale requiring that quality improvement should be experienced by all organizational participants (Krajcsák, 2019). Furthermore, QM can also be characterized as a contemporary "management model", (Mohammed et al., 2016) whose successful implementation requires the optimal combination of all production factors in an ongoing basis.

Successful QM implementation requires a well designed and documented quality improvement strategy involving primarily the human resources. Emphasis is put on employee performance measurement and incentives associated to QM implementation acceptance and commitment rather than ensuring mere compliance to QM principles via supervision and control. Human resource policies are designed, reviewed and redesigned, and QM related performance measures are further specified and attributed to departments, job descriptions and individual employees. The higher the percentage of employees' participation the more likely the success of QM implementation (Snape et al., 1995).

In section 2 the paper presents a review of the state-of-art research on the overlapping research areas of QM and HRM concentrating on the role of HRM in QM and vice versa. The role of HRM in quality management systems is complex due to the inherent uncertainty to predict human behaviour and performance. Our review has identified research gaps related to the role of HR in Quality Management Systems. Very limited research efforts have been identified on the determination of HR critical success factors for QM implementation as well as the enablers that should be in place prior and during the implementation. The differentiation, for example, of people improvement as a critical success factor and its relationship and dependence to HRM structures, HRM processes, HRM managerial systems etc. during in QM implementation has not been identified in the literature. Also there is no clear identification of HRM related maturity assessment frameworks in QM implementation. These research gaps and findings have led us to determine the following research questions that our research aims to address:

RQ1: Which are the HRM related critical success factors in assessing holistic QM implementation?

RQ2: Which are the enablers for HRM based QM implementation?

RQ3: What are the main characteristics of a maturity assessment framework for the assessment of QM implementation in terms of human resources.

In section 3 we present a review of HRM related ISO Standards. These recently issued standards provide a reliable roadmap for organizations to adopt for the management of their human resources. They guide HRM departments manage and improve organizational performance and, ultimately, improve the performance for the organization as a whole. We focus on ISO 10018:2020 which provides guidelines for people's participation in the quality management system focusing on QM implementation participation, empowerment and skills development. Our survey has revealed that there is very limited published

research (nearly non-existent) on these newly published standards and therefore a serious research effort has to be undertaken for their application assessment mainly via their combination with existing established QM maturity frameworks. Our survey has generated the following two additional research questions:

RQ4: How can a QM maturity assessment framework become HRM “centric”?

RQ5: How can a QM Maturity assessment matrix be created specifically for ISO 10018:2020?

In our effort to provide an answer to research question 4 in section 4 we present a maturity framework that was developed for and is being used in QM implementation assessment called the Glykas Quality Compass (GQC). We have made adaptations to the model to make it HRM “centric”. The final adapted model is composed of a ten by ten matrix containing the ten most prominent critical-success factors, which are identified in our literature survey of QM maturity-assessment frameworks and the ten most prominent enablers also identified in the same survey.

In order to provide an answer to research question 5 and to evaluate the validity of the proposed HRM-centric GQC maturity assessment framework in section 5 we present our research efforts on the application of ISO 10018:2020 in HRM GQC. The result is the advanced “HRM GQC-ISO 10018” matrix. The matrix depicts the relationships of ISO 10018 clauses used during the design and implementation of the standards with the critical success factors and the enablers of HRM GQC.

In figure 1 we present the structure of the paper:

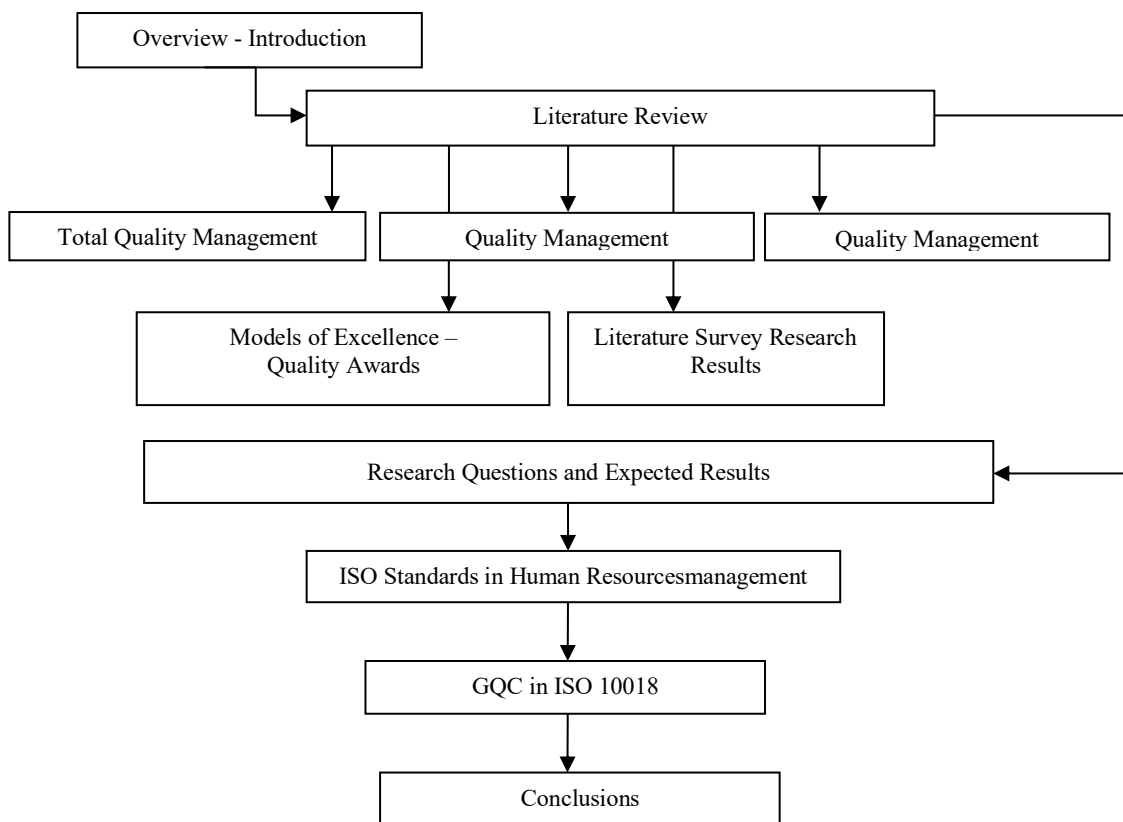


Figure 1. Structure of the paper

2. Literature Review

2.1. Research Methodology

The last decade there is continuous development of QM through models of Quality Awards or Business Excellence. Some studies in this area have focused on testing quality award models, based on a set of criteria, where the criteria are usually a blending of TQM practices. The conclusion of the current research is that Quality Award models should have a dynamic and strategic development role in TQM implementation within organizations.

For the search of studies was selected electronic database and targeted sources that publish journals with reviewers and conference papers. Based on GQC model we searched for keywords. In the first search, 173 papers were initially collected and after careful control, we came up with 61 studies of the last five years. The majority of papers originated from the Total Quality Management & Business Excellence, followed by International Journal of Quality and Reliability Management, TQM Journal and some more sources of similar validity.

In Table 1, we emphasize the key, CSFs and the approaches, which are used per research reference. In addition, in Table 2, we illustrate the case of CSFs per report, as well as the reports, which authors have propose for the classification of CSF into categories.

2.2. Literature Survey

2.2.1. Research Results

The literature review identified a very large number of studies, based on reviews by researchers who have taken into account evaluation frameworks and published papers in reputable scientific journals. Based on the above, it is concluded that this is a very important issue that has occupied a large number of researchers in the scientific community.

The literature on QM maturity assessment frameworks and the importance of successful QM implementation dates back to 1980. The so-called "QM practices" that contribute to the successful implementation of QM have attracted the interest of many researchers (Glykas, 2019b).

Table 1 presents the most remarkable publications of the last five years used in the present literature. More specifically, Table 1 presents the main CSFs and the approaches used per reference in the research. Table 2 presents the CSFs per report as well as the reports whose authors suggest classifying them into categories. According to the study of Bajaj et al. (2018), quality management research has tripled from 1995 to 2015 and they concluded that the majority of researchers define CSFs in different ways. The researchers suggested conducting future research focusing on the QM classification.

In Table 2, the studies used in the literature researches were classified according to the QM perspectives they studied. It has been observed that most researches on QM maturity assessment frameworks have been conducted from TQM's point of view. However, in many cases the term has been used by researchers incorrectly as a synonym for QM. For the other three categories the research is smaller but equally important.

Table 1. Quality Management References Used in the Literature Survey (2017-2021)

Reference	CSFs Proposed and Main Outcome
Aquilani et al. (2017)	Identified the ten most important CSFs in Quality Management: Leadership, Customer Focus, Training and Education, Measurement and Systems, Supplier Collaboration, Process Management, Continuous Improvement, TQM as a Strategic Issue, Culture, and Employee Commitment.
Jehangiri (2017)	Highlights the CSFs that should be applied holistically to make good use of TQM and the need to link CSFs to organizational performance to achieve TQM implementation success.
Sangwa & Sangwan (2017)	Proposed an integrated performance measurement framework to measure the effect of lean implementation throughout all functions. Seven categories, manufacturing process, new product development (NPD), human resource management , finance administration, customer management and supplier management have been divided into 26 performance dimensions and for each one Key Performance Indicators (KPIs) have been identified to measure lean performance .
Bajaj et al. (2018)	Provided a thorough literature survey of a period of twenty years and an analysis of more than thirty CSFs and their categories.
Dahlgaard et al. (2018)	Research results showed the core values and components of TQM are implemented through implementation of Excellence Models . TQM includes earlier management theories and considers quality management policies , strategic vision, mission and their corresponding deployment through holistic frameworks .
Igbal & Asrar-ul-Hq (2018)	Research findings reveal that there is a significant relationship between TQM practices and employees performance with a mediating role of Individual Change Readiness (ICR) .
Camerud & Bäckström (2019)	Presented four decades of research in seven main topics: Service quality and customer satisfaction; <i>Process design and control</i> ; (International Organization for Standardization) ISO certification and <i>standards</i> ; TQM implementation performance and culture; <i>QM practices</i> and performance; Reliability, costs, failure, and problems; and Excellence, quality awards .
Dahlgaard et al. (2019)	Highlighted the need for continuous adjustment of the QM maturity frameworks which should approach QM in a holistic manner based on tools and techniques suited to knowledge-intensive organizations. A more serious effort should be undertaken on the links of QM with organizational resources .
García-Alcaraz et al. (2019)	Proposed a model which relates three critical success factors (CSF) . It presented that managerial commitment is the most important variable for TQM while it depends on the role of the quality department and quality policies in order to achieve customer satisfaction.
Glykas (2019b)	Introduces the Glykas Quality Compass (GQC) and maps all quality initiatives in an organization, classifying them into four main categories: Philosophy, Standards, Methodologies and Awards of Excellence.
Gunasekaran et al. (2019)	<i>Focuses on quality and financial statements, models, people models and technological perspectives through ten high quality studies. Points out the importance of the human factor in quality management per industrial revolution and its connection to the technological revolution over time.</i>
Krajcsák (2019)	Presented a framework with motivational strategies and motivation for employee commitment and successful TQM implementation.
Beraldin et al. (2020)	Survey data analyses support that employee involvement for continuous improvement has a significant indirect effect on organizational outcomes through JIT and TQM which is not moderated by production repetitiveness. The results of the research contribute to a better understanding of the mechanisms through which employee involvement for continuous improvement affect organizational outcomes.
Negron (2020)	Stressed the need for two major distinctions of CSFs-practices: <i>infrastructure Practices</i> (strategy, human resources, leadership, and supplier quality), <i>core practices</i> (process, information analysis, customer) that both contribute to achieving <i>operational performance</i> (performance relationship). Negron also concluded that there is a need for an integrated approach to QM maturity frameworks that involve more than one QM perspectives like TQM, Six Sigma, Standards and Excellence Awards.
Nur Shafiqah et al. (2020)	Based on a comprehensive literature review, seven constructs had been identified for the CSF of QTT implementation : Management Responsibility and Leadership, People Management, Customer Management, Supplier Management, Quality in Design and Process, Measurement, analysis and feedback, Resource Management.
Barbu et al. (2019)	Analyzed the CSFs of organizational performance and classified them to QM perspectives.
Calvo-Mora et al. (2020)	Developed a causal-predictive analysis of the relationships between soft and strategic-hard EFQM factors and the organizational results (customers, people, and society and key results). The results confirm that soft and strategic-hard EFQM factors constitute a socio-technical system in which there are multiple direct and indirect relationships, between these factors and the results.
Cavallone & Palumbo (2021)	Proposed a model with the effects of employees' involvement as a part of the soft side of TMQ . Training activities and motivation measures will empower employees and sustaining their self-efficacy to improve work processes and develop new ideas for enhancing the organizational value creation capability and establish their commitment to organizational excellence .
Hsu et al. (2021)	By reviewing surveys published between 2010 -2019, demonstrated the feasibility of using Self-Organizing Map (SOM), identifies after 2010 new themes that include BE framework , innovation, training, team and design. Emphasizes TQM's dominance in service quality, ISO, innovation and learning . Results show that BE doesn't replace TQM but they are more like similar ideas.
Kulenović & Veselinovic (2021)	Identified six main CSFs : management leadership, customer focus, training, procurement management, information and analysis, process management and four auxiliary: cross cutting quality themes, strategic planning, product/service design and continuous improvement.
Para-González et al. (2021)	Proposed a model for QM maturity practices for EFQM. Have identified nine CSFs: <i>Leadership, Strategy, Personnel, Alliances, Processes, People, Customers, Society, Key Performance</i> .
Vihari et al. (2021)	Through empirical research it presents the positive effect of Soft (TQM) practices on employee work role performance in the manufacturing sector of United Arab Emirates.
Vihari et al. (2021)	Through empirical research it presents the positive effect of Soft (TQM) practices on employee work role performance in the manufacturing sector of United Arab Emirates.

Table 2. Literature Finding Table: QM Perspectives and Critical Success Factors

Reference	QM PERSPECTIVES					CSF FOCUS								ENABLERS				
	TQM	STANDARDS	METHODOLOGIES	EXCELLENCE AWARDS	STRATEGIC	CUSTOMER	HUMAN RESOURCES	PROCESS	LEADERSHIP	CHANGE MANAGEMENT	PERFORMANCE MEASUREMENT	CONTINUOUS IMPROVEMENT	INFORMATION AND KNOWLEDGE MANAGEMENT	CORPORATE SOCIAL RESPONSIBILITY	SUPPLIER RELATIONSHIP	ORGANIZATIONAL RESOURCES ENABLERS	ORGANIZATIONAL ELEMENT ENABLERS	CSF FOCUS CATEGORIES
Aquilani et al. (2017)	√				√	√	√	√	√			√			√			√
Jehangiri (2017)	√	√	√		√	√	√	√	√	√	√				√	√	√	√
Sangwa & Sangwan (2017)		√	√		√	√	√	√			√	√			√	√		√
Bajaj et al. (2018)	√	√				√	√	√	√	√	√	√	√	√	√	√	√	√
Dahlgaard et al. (2018)	√	√	√	√	√	√	√	√	√	√	√				√		√	
Carnerud & Bäckström (2019)	√	√	√	√	√	√	√	√	√	√	√				√		√	
Dahlgaard et al. (2019)	√			√	√	√	√	√	√	√	√	√	√		√		√	
Igbaland Asrarul-Hq (2018)	√		√			√	√		√	√	√				√	√	√	√
García-Alcaraz et al. (2019)	√	√	√		√	√	√	√	√	√	√				√			√
Glykas (2019b)	√	√	√	√	√	√	√	√	√	√	√						√	√
Gunasekaran et al. (2019)	√	√			√	√	√	√	√	√	√							√
Krajcsák (2019)	√	√			√	√	√	√	√	√	√	√	√	√			√	√
Beraldin et al. (2020)	√		√		√	√	√	√	√		√	√	√			√	√	√
Negron (2020)	√	√	√	√	√	√	√	√	√				√	√				√
NurShafiqahet al. (2020)	√	√	√	√	√	√	√	√	√	√	√				√	√	√	√
Barbu et al. (2019)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Cavallone & Palumbo (2021)	√		√	√		√		√	√	√	√	√			√	√		
García-Alcaraz et al. 2019	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Hsu et al. (2021)	√	√	√	√	√	√	√	√	√	√	√				√	√		
Kulenović & Veselinovic (2021)	√		√		√	√	√	√	√		√	√			√	√		√
Para-González et al. (2021)				√	√	√	√	√		√				√				
Vihari et al. (2021)	√	√	√		√	√	√	√	√	√	√	√	√		√	√		

2.3. Discussion and Research Questions

Research into QM maturity assessment models appeared in the literature around 1980 and to date many researchers have argued the importance of successful QM implementation. Researchers initially focused on identifying so-called "QM practices" that contribute to the successful implementation of QM. A study by Ebrahimi and Sadeghi (2013), through an extensive literature study identified 224 practices which they prioritized and came up with fifteen more important ones that are used most often.

According to Mosadeghrad (2014), many researchers have argued for the reasons for TQM implementation failures, and the focus has shifted from QM practices to the evaluation of Critical Success Factors (CSFs) for successful QM implementation. Later literature review initially identified nine important CSFs (Singh & Shrivastava, 2012) while Aquilani et al. (2017) added to them the measurement of performance and continuous improvement, while emphasizing the need for change management throughout the QM implementation process.

Dahlgaard et al. (2019), concluded that success in QM implementation is related to maximum employee participation at all levels based on appropriate education and training. The researchers stressed the need for continuous adaptation of QM maturity frameworks which should approach quality assurance in a holistic way, based on better tools and techniques that meet the needs of new services in knowledge-intensive organizations.

A study by Carnerud and Bäckström (2019) on 4,741 articles in the field of QM published over a period of forty years (from 1980 to 2017), revealed that the quality areas that seem to attract academics and professionals for this period are mainly seven: 1. Quality of service and customer satisfaction, 2. Design and process control, 3. ISO certification and standards, 4. Implementation, performance and TQM culture, 5. QM practices and performance, 6. Reliability, cost, failures and problems and 7. Quality Excellence Awards.

In the same study, QM was classified for the first time in four different perspectives. The first is the TQM application focusing on organizational performance and corporate culture related to the company's human resources aspect. The second is QM methodologies based on frameworks that allow the design and control of the process based on appropriate QM implementation and performance practices. The third perspective is the QM standards and the fourth is excellence awards. However, most researches usually seem to focus on two of the four perspectives. A recent study by Gunasekaran et al. (2019) focused on TQM and methodologies and place future questions about TQM and Six Sigma methodology, the role of human resource management and the role of new technologies in QM. Negron (2020) concluded that there is a need for an integrated approach to QM maturity.

The role of human resources in total quality management systems is complex, due to the inherent uncertainty of predicting the human factor in all models of research, evaluation and development. But it is undoubtedly the crucial element of evaluation of the management system itself and the penetration of research in this variable of the system, will ultimately lead to the need for its viability or development.

In the age of globalization, organizations find it difficult to survive unless they maintain good quality business. TQM is not a destination but modern management thought and a mission aimed at continuous quality improvement (Kritas et al., 2021). According to Bajaj et al. (2018), total quality

management is an important tool that is widely accepted by companies, organizations and services, as an effort to improve business performance.

Total Quality Management is often defined as a "management model" (Mohammed et al., 2016), and as a management philosophy that advocates the improvement of the quality and efficiency (Petridou, 2011) and "embraces" all the activities through which the needs and expectations of the client and the community, as well as its goals are satisfied in the most adequate and cost-effective way, maximizing the potential of employees through continuous improvement (Izvercian et al., 2014; Zalvanos, 2006).

Beraldin et al. (2020) found that there is confusion in the literature between employee involvement for continuous improvement and organizational outcomes. Their research included three key dimensions to employee involvement for continuous improvement: an attitude of continuous improvement, participation in decision-making, and problem-solving in small groups. These practices, when developed together, allow employees to be motivated and given the opportunity to create new best products or processes. Through a review of the literature Beraldin et al. (2020), found that employee involvement allows leverage of their experience and knowledge, employee involvement in planning, improving their work and enhancing productive processes.

The "Soft" and "Hard" aspects of TQM are often referenced in the literature. The "Soft" side is associated with management concepts and principles such as leadership, employee empowerment and culture (Vouzaz & Psychogios, 2007) and deals with top management commitment and teamwork (Agus & Selvaraj, 2020). "Hard" refers to improvement and quality techniques (Vouzaz & Psychogios, 2007) and focuses on problem-solving methods, statistical process control charts, and process improvement (Agus & Selvaraj, 2020). The study of Fotopoulos and Psomas (2009), showed that the improvement of quality and market position is mainly influenced by the adoption of "Soft" TQM elements and secondarily "Hard" TQM.

Effective handling of the "Soft" side of TQM is a prerequisite for the successful implementation of "Hard" TQM (Cavallone & Palumbo, 2021). The result of the study by Fotopoulos and Psomas (2009), about the most important role of "Soft" TQM compared to "Hard" TQM, concerns the quality management function of a company and depends to a large extent on the other perspectives QM, that is ISO quality standards, methodologies and models of excellence EFQM, MBNQA as well as the level of adoption of three quality management principles (continuous improvement, data management and participation of all).

Methodologies and standards are the sections that, along with excellence achievement, complement the field of Quality Management perspectives. Yadav et al. (2021) identified the CSFs of the implementation of the Six Sigma QM methodology and emphasized the importance of resource availability as the second most important factor for the application of Lean Six Sigma.

Standards are a defining feature of reputable professions and a vital part of every organization's life, providing a "guaranteed quality" and the basis for ethical and effective practice. International standards provide guidance on the proper practical management of human resources in areas such as workforce planning, recruitment, integration, learning and human resource development. Organizations that adopt these standards can improve their resilience and viability through responsible human management practices (CIPD - Chartered Institute of Personnel and Development, 2021).

According to Rodríguez et al. (2020), the systems that used more often are the International Organization for Standardization (ISO: 9001) & European Foundation Quality Management (EFQM), which despite the common goals have characteristics that differentiate them. The main differentiators are the criteria in the EFQM (based on which they are graded) and the ISO requirements (based on which the conformity or non-conformity is evaluated regarding the evaluation and control procedures, leading to a different typology of results in the certification processes. The EFQM model is more focused on the pursuit of excellence while ISO is based on quality assurance of the product or service offered by the organization to which it applies.

Models of excellence, according to the literature, provide the appropriate reference framework for the implementation of QM in an organization, as they guarantee that the principles and key factors that underlie this philosophy are fully observed, transferred to the daily business activity as a coherent whole and are developed systematically and planned. The fundamental concepts (leadership, strategy, people, partnerships, resources and processes) presented in the models of excellence have a strong relationship with QM factors, representing a good guide for organizations wishing to introduce and manage improvement activities following the philosophy TQM.

Internationally the most popular Models of Excellence are the Deming Prize in Japan, the Malcom Baldrige National Quality Award (MBNQA) in the USA and the European Foundation for Quality Management (EFQM) Model in Europe. They are similar models in terms of the fundamental concepts and criteria they use for evaluation. The main differences are found in the weights assigned to the criteria, in the evaluation areas or in the implementation context, as each model is applied in a different socio-cultural and economic context.

EFQM has a lot in common with MBNQA. The similarity of the structures of excellence and similar definitions is found in both. The MBNQA, EFQM & Deming Prize Models share common themes of excellence, strategy and planning, leadership, customer focus, people, suppliers and partnerships, processes and management results. All three models are used as guides for TQM implementation by organizations around the world.

Making a reference to TQM, it is essential to understand the crucial, critical, success - factors (CSF). Kulenović and Veselinović (2021), by analyzing previous researches and conducting literature review between 1995 and 2017, has identified six key CFS: top management leadership and commitment, customer focus, employee training, supplier management, information, process, analysis and management.

For Sreedharan et al. (2018) the most important CSF for TQM consists of managerial commitment, the role of Quality Department, Quality Policies, employee involvement and recognition. Likewise, for Salleh et al. (2018), the most important CSF for TQM are management commitment and leadership, total customer satisfaction, employee involvement, continuous improvement, employee training, communication, and teamwork.

Aquilani et al. (2017) have concluded in almost the same CSF for the period 1993-2016, emphasizing though that the crucial CFS are the “top management leadership, top management commitment and the role of top management”, having managers to apply TQM practices in order to improve the organization performance. However, CSFs increase that resulted by the literature review,

should not disorient them. Managers should commence identifying the most significant CFS for the organization, goals, strategies and expected performance, taking into account various processes and frameworks that CSF have available for TQM, by selecting and modifying processes accordingly. Managers should evaluate the results according to their expected performance, their business model and their management approach.

According to Jehangiri (2017), problems, which were identified in the previous studies, indicate a lack in management, commitment, understanding of quality management; lack of awareness about the benefits of implementing TQM in the organization, insufficient TQM knowledge and inadequate understanding of techniques that used to measure the effectiveness of the TQM implementation. Also, the research identified lack in clarity concerning the guidelines, lack in understanding of positive effects of continuous improvement and ignorance of customers' importance.

Organizational lack in information and data concerning CSFs is an obstacle in order for someone to implement TQM effectively and successfully. Many of the criticisms, related to TQM, were the result of its inappropriate application.

The implementation of an overall quality - environment is critical to the success of the TQM application. The commitment of management to TQM is the foundational basis. Without a solid substructure, the establishment will never stand on its own. Once the foundation is laid, attention should be drawn to employee training and empowerment, quality measurement and benchmarking, process management and customer's participation and satisfaction. CSF should be holistically applied rather than fragmentarily in order to develop the full potential of TQM. Critical analysis shows that TQM implementation is a major, organizational change that requires, among others, transformation in the organization culture, processes, strategic priorities and beliefs.

Many research questions have arisen in the literature regarding the association of QM maturity assessment of CFS with main management principles (Asante & Ngulube 2020; García-Alcaraz et al., 2019; Jehangiri 2017). In Glykas Quality Compass (GQC), these principles are considered as necessary conditions or factors to accomplish ten, quality concepts, which are divided in three categories: Five core concepts (Customer focus, Human Resources management, Leadership, Process focus, Strategic focus), three intra-core concepts (Performance Measurement, Change Measurement, Continuous Improvement) and two auxiliary concepts (Information-Knowledge management, Partnership, Social Responsibility and Stake holders' value) (Glykas, 2019b).

3. ISO Standards in Human Resources Management

3.1. Quality Management Standards

At a time when enterprises tends to dominate most of the economy and shareholders often rank first among stakeholders, organizations that do not pay attention to human resource values, do not make reliable decisions and exhibit irresponsible behavior affect the way of the business activity and consequently the profitability of the organization (Barbu et al., 2019). The international ISO standards provide a reliable road map for organizations that want to adopt effective practices that will benefit the organization itself, regardless of its size, and lead to the achievement of its goals (Dmytrenko, 2019). The

International Organization for Standardization (ISO), through the publication of standards, has succeeded to improve the processes and results of organizations through low-cost practices that can be easily implemented in any type and size of organization (Izvercian et al., 2014). ISO standards provide steps for benchmarking an organization's practices in each critical area and clear guidelines for best practices. According to Brunsson (2000), standards are "soft rules" about what to do and how to do it.

The standards are updated approximately every five years through a specific process providing guidelines and effective practices that reflect the views of experts from different countries. Adopting standards is a voluntary decision with no increased cost. Each standard includes measures for benchmarking an organization's activities and specific recommendations for best practices. Thus, they provide a discreet and reasonably simple way for a business to conduct an internal audit and develop best practices (Itam&Swetha, 2021).

Human Resources (HR) are organization's greatest competitive advantage and most important resource. Studies show that organizations that have human capital as a key element in developing their strategies are more effective and efficient in terms of their human resources than competitive companies. At the same time they are associated with expanded financial performance, improved organizational culture and increased social responsibility (Barbu et al., 2019). Thanks to the international standards of the ISO series, all organizations, regardless of the field of activity and size, will be able to create, maintain and constantly improve effective processes related to the recruitment and management of personnel (Dmytrenko, 2019, Barbu et al., 2019).

In the field of human resources since 2011, about 20 standards, guidelines and technical specifications have been published, covering key issues such as recruitment, workforce planning, evaluation, knowledge management systems and employee engagement. The aim of ISO is through the creation of standards the achievement of best practices of human resources that will contribute to the improvement of the overall efficiency of the organization. According to studies by the International Organization for Standardization, "A high-performance human resources (HR) department, with effective management and recruitment, is associated with greater organizational efficiency and plays a key role in instilling corporate values across the workforce." The new ISO International Standards for Human Resources aims to help human resources departments improve their performance and, ultimately, improve the performance of the organization in which they work (Barbu et al., 2019).

Improving employee performance has to do with the various stages and processes within an organization. An organization that considers its people as an important asset and advantage and has a corporate culture with people at the center of decisions, they succeed in having satisfied employees and ensuring their commitment. It is vital to aligning the values of the organization with all stakeholders, and shapes the appropriate behavior in order to create, maintain and continuously improve effective processes.

The ISO Standards in Human Resources management offer some unique advantages. Standards are developed and created based on the consent of all stakeholders, which help to improve organizational efficiency and trade worldwide.

The ISO 9000 series was developed in 1984 (Itam & Swetha, 2021). In later years, the ISO 9000 series of standards has been updated and modified several times, giving significant scope to human resource management such as leadership, support, planning and performance evaluation. (e.g. ISO

30408/9:2016 on people governance and workforce planning, ISO 30406/7:2017 sustainable employability and cost per employee, ISO/TS 24179:2020 guidelines on occupational health and safety measures). Many standards were classified in ISO/TC 260 (Feibert et al., 2017; Longo et al., 2019; Vashishth et al., 2017). The standards developed by the technical committee of ISO/TC 260 for human resource management help not only in the selection of personnel, but also in the optimization of business processes due to the improvement of the working environment for those already employed (Dmytrenko, 2019). Among the mentioned standards, for the management and development of human resources the technical committee ISO/TC 260, has developed and published the following standards (CIPD, 2021):

ISO 30400 Human resource management – Terminology. Introduces terms and definitions, used in human resource management standards and promotes common understanding and consistency in a core vocabulary according to human resource management standards. The plurality of concepts and definitions in the field of human resources management led to the development of the ISO 30400 standard in order to achieve the harmonization of concepts grouped into 12 categories and to maintain consistency in terminology in the field of human resources (Barbu et al., 2019).

- i. Terms related to organization
- ii. Terms related to human resources and planning
- iii. Terms related to people and organization
- iv. Terms related to human resource metrics
- v. Terms related to human governance
- vi. Terms related to sustainable employability
- vii. Terms related to diversity and inclusion
- viii. Terms related to workforce planning
- ix. Terms related to recruitment
- x. Terms related to workforce mobility
- xi. Terms related to talent management
- xii. Terms related to knowledge management

ISO 30401 Knowledge management systems (ISO, 2018b). The requirements for effective organizational knowledge management. Published in 2018 and based on the intention to create a common denominator of an international guide to knowledge development and implementation (Pawlowsky et al., 2021).

ISO 30405 Human resource management – Guidelines on recruitment (ISO 2018d). It provides recommendations for effective procedures (Dmytrenko, 2019) and highlights the fundamental role of the employer in recruitment (Barbu et al., 2019). Recruitment is an important part of human resource management including identification, attraction, selection and hiring affecting the results of human resource management and ultimately the performance of the organization (Barbu et al., 2019).

ISO/TR 30406 Human resource management - Sustainable employability management for organizations. It is a technical report that focuses on sustainability in the field of human resource management (Barbu et al., 2019) and provides guiding principles for the development and implementation of sustainable employability policies. ISO/TR 30406:2017 on the part of the employee is considered the opportunity to work in a satisfactory environment and to ensure the quality of his working

life while on the part of the organization it is the commitment to meet the needs of the employees, to ensure the well-being and the balance between individual needs and organizational requirements (Barbu et al., 2019). It is a bridge between the HR policy and the general policy of the organization according to the quality improvement cycle. In practice, employment sustainability includes the assessment of labor market requirements, the assessment and planning of organizational needs, the retraining and allocation of personnel in case of corrective changes, ensuring a balance in the distribution of jobs according to the requirements and employee skills.

ISO/TS 30407 Human resource management– Cost-per-hire. Measures to determine the economic value of the effort taken to fill vacancies. Cost-PerHire (CPH) represents a measurement tool from the category of technical specifications that allows the evaluation of the effectiveness of recruitment, selection and recruitment process in an organization (Barbu et al., 2019). Since organizations have different selection, recruitment and employment processes ISO/TS 30407:2017 provides an adaptive methodology that allows the calculation of recruitment costs and ensures comparability by providing an algorithm to determine the cost per recruitment unit (Barbu et al., 2019). ISO/TS 30407:2017 has the role of maintaining the quality and transparency of recruitment, ensuring the reduction of calculating errors and facilitating regular audits of recruitment processes (Barbu et al., 2019). The structure of the standard starts with internal costs and ends with the assembly of the various individual cost elements.

ISO 30408 Human resource management – Guidelines on human governance. Human governance is the system by which employees in an organization are guided and held accountable, promoting appropriate behavior within an organization (Barbu et al., 2019). SO 30408 provides guidelines for building an effective and responsive organizational human governance system that can effectively respond to organizational and operational requirements, but also encourage greater stakeholder collaboration, anticipate and manage human resource risks (Dmytrenko, 2019), manage human capital costs, promote participation and a high degree of employee engagement, and develop a corporate culture aligned with overall organizational governance practices resulting in the optimization of overall performance of the organization (Barbu et al., 2019). The structure of the standard is sequential, starting with the establishment of human governance principles and ending with their implementation.

ISO 30409 Human resource management – Workforce planning. It provides guidelines to help organizations respond effectively to their current and projected workforce requirements (Dmytrenko, 2019) in a way that fully adapts to the demands of the ever-changing and complex external environment (Barbu et al., 2019).

ISO/TS 30410 Human resource management – Impact of hire metrics (ISO, 2018d). It identifies measures to determine the impact of critical positions, and the performance of individuals employed in these positions, on the creation and performance of organizational value. The ISO/TS 30410 standard shifts an organization's focus from efficiency and effectiveness to impact that can provide information to support timely, informed and consistent strategic decision-making that helps maximize organizational performance (ISO/TS 30410:2018).

ISO/TS 30411 Human resource management – Quality of hire metrics (ISO, 2018a). The quality of recruitment measurement is critical in determining the effectiveness of the recruitment process and has a direct consequential impact on an organization's performance and has proven to be the most important

performance metric for talent acquisition teams. ISO/TS 30411 offers a reliable framework for organizations concerned with the quality and success of the recruitment process (ISO/TS 30411:2018).

ISO 30414 Human resource management—Guidelines for human capital reporting for internal and external stakeholders (ISO, 2018c). It is the first international standard that allows an organization to have a clear picture of the real contribution of its human capital. At its core is a set of HR metrics that help organizations identify employee strengths and weaknesses. External reporting of standard metrics provides transparency to stakeholders. The term human capital includes the cumulative knowledge, skills and abilities of an organization's people, their impact on an organization's long-term performance and competitive advantage through optimizing organizational outcomes (ISO 30414:2018). Measuring human capital facilitates an organization's ability to manage one of its most critical resources and risks. According to studies, organizations that do not manage their human resources can be negatively affected in their ability and opportunity to create long-term and sustainable value achieved through their people (Scholz, 2011). The ISO 30414 standard provides guidance on reporting metrics for human capital – a representation of the capabilities of people in an organization and their contribution to the success of the organization (Greig et al., 2021). Guided by the principles of human rights at work and in conjunction with the human governance standard (ISO 30408), it establishes guidelines for the collection, measurement, analysis and reporting of human capital data (ISO 30414, 2018). The proposed metrics within the standard provide a range of “business-critical human capital issues” (ISO 30414, 2018) focusing on topics such as employee demographics, qualifications, experience and costs (Greig et al., 2021). It further examines the internal and external reporting of HR information and data on compliance and ethics, organizational culture, training, leadership, health and safety through guidelines provided by the following standards:

- i. ISO/TS 30421 Turnover and retention.
- ii. ISO/TS 30423 Compliance and ethics.
- iii. ISO/TS 30425 Workforce availability.
- iv. ISO/TS 30427 Costs.
- v. ISO/TS 30427 Skills and capabilities.
- vi. ISO/TS 30430 Recruitment.
- vii. ISO/TS 30431 Leadership.
- viii. ISO/TS 30432 Workforce productivity.
- ix. ISO/TS 30433 Succession planning.
- x. ISO/TS 24178 Organizational culture.
- xi. ISO/TS 24179 Occupational health and safety.

ISO 30415 Human resource management—Diversity and inclusion. Developing an inclusive workplace requires an ongoing commitment to diversity and affiliation, to handling inequalities and people's conscious and unconscious biases and behaviours. Every organization is different and those seeking to increase innovation and strengthen their resilience, sustainability and reputation will need to determine the appropriate approach to embedding diversity and inclusion into strategy and business processes based on the framework in place of each organization and any disruptive challenges that arise.

ISO 30415 provides a framework for implementing a principled approach to inclusion and diversity so that an organization can demonstrate its commitment to valuing people and achieving the sustainable development goals (ISO 30415, 2021).

ISO/AWI 10667 Assessment service delivery (part 1 and part 2). The ISO 10667 series ensures that the benefits of using assessments are realized and focuses on aspects of the quality of assessment service delivery in work and organizational environments that occur throughout the entire employment life cycle of an employee from selection, recruitment to succession planning and replacement. The scope of the standard has global application and covers how all assessments are done and defines key concepts related to assessment. It consists of two parts: The first concerns customers (organizations using assessments): 10667-1:2020 "Assessment service delivery - Procedures and methods to assess people in work and organizational settings - Part 1: Requirements for the client" and the second the service providers 10667-2:2020 «Assessment service delivery - Procedures and methods to assess people in work and organizational settings - Part 2: Requirements for service providers». The standards in this series promote the provision of standardized, appropriate and fair assessment practices (ISO 10667-1, 2020).

3.2. ISO 10018

The modern pressures and demands of the dynamic and hard to predict external environment of organizations where staff turnover is high, multitasking is increasing and burnout is accelerating (Chernysh & Kozyk, 2021) the need for new approaches to quality and developing a quality culture in which people will see quality as central to their professional identity being one of them. A quality culture can improve organizational performance, motivate people and align their behavior towards a vision and specific performance goals (ISO 10018, 2020). The idea behind the ISO 10018 standard is to help organizations engage people and help HR departments improve their performance and ultimately improve the performance of the entire organization they work for. According to this standard people are treated on the basis of attitude and motivation, training, learning and empowerment, leadership, networking, communication, recruitment, awareness, engagement, teamwork and collaboration, responsibility and authority, creativity and innovation and finally recognition and rewards (Conde et al., 2018).

According to the study of Chernysh and Kozyk (2021), with the development of the digital economy the opportunities for growth increase. Modern business programs should include a separate human capital development program, taking into account their capabilities. For the effectiveness of the process, it is necessary to apply the international standard ISO 10018 which concerns the organizational and methodological aspects of this process and the strengthening of the role and importance of the skills that affect the quality of employees. The peculiarity of this approach is the application of all processes based on the quality cycle in the sense of interaction and contribution to the achievement of common goals.

In 2012 technical committee ISO/TC 176 published ISO 10018 with the first guidelines on human factors that influence people's participation and capability and create value that helps achieve organizational goals (ISO 10018, 2012). The international standard ISO 10018 was based on the quality principles described in ISO 9000 while its association with ISO 9001 facilitates the participation and competence of people in the quality management system. The original version of the standard was revised

in 2015 and in 2020 it was replaced, by Technical Committee ISO/TC 176 in collaboration with Technical Committee ISO/TC 260 on human resource management, by ISO 10018:2020. The key changes were based on the revised ISO principles with people's involvement changing to people's involvement and linking the various clauses to those of ISO 9001:2015 (ISO 10018, 2020).

3.3. ISO 10018:2020

ISO 10018:2020 «Quality management - Guidance for people engagement» provides guidelines for people's participation in the quality management system of an organization and for participation empowerment and skills development within these guidelines (International Organization for Standardization ISO, 2020) and recognizes that it can be difficult to encourage staff to adopt system quality management and understand how they are related to one's daily work. The standard type includes guidelines for enhanced participation and people's ability to feel recognized within an organization.

According to ISO 10018:2020 (ISO 10018, 2020 leadership has a crucial role in establishing the purpose and direction of the organization by focusing on people and creating the appropriate environment in which employees will have the opportunity to be fully involved in achieving organizational goals. Through effective leadership, top management is responsible for ensuring the overall effectiveness of the quality management system while maintaining quality policy and quality objectives in line with the organization's strategic direction, integrating quality management system requirements into the organization's processes and supporting all members of the management team in their respective areas of responsibility.

Effective considered the leadership that has the vision and ability to align people with it, achieving employee's commitment and support, ability to provide the necessary resources and remove obstacles to avoid possible future adverse situations. At the same time a charismatic leader should be distinguished by passion, know the importance and the way of communication be cooperative with commitment to others, determined and empathetic.

The vision of an organization in ISO 10018: 2020 standard is a dominant idea and directly linked (Figure 2) to the strategy that will be developed. Strategy is the roadmap for the ultimate goal of achieving the vision. If the vision and strategy are not properly structured and aligned, the basic principles of leadership and management will be undermined and the overall effectiveness of the quality management system will be in endangered.

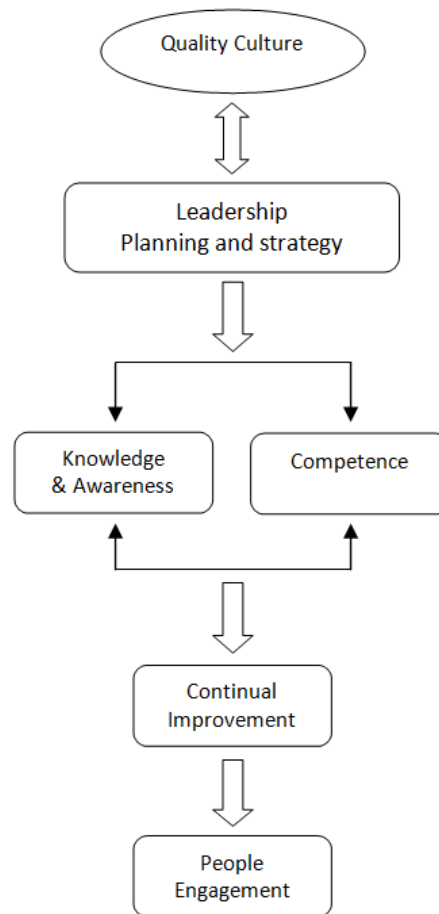


Figure 2. Relationship between people engagement, strategy and quality management system in an organization (International Standard ISO 10018, 2020)

ISO 30401:2018 defines knowledge as the "human or organizational advantage that allows effective decisions and action". Knowledge and awareness are motivating factors that can promote improved individual performance within organizations. Employee performance should be monitored by means such as performance appraisals, periodic reviews, on-site reviews, etc., to distribute this information throughout the organization and to encourage self-assessment as a mean of improving individual knowledge and awareness.

Continuous training, education and experience are the main means to acquire the necessary skills, in order to achieve the efficiency and effectiveness of the quality maintenance system. Education and development are key factors in engaging employees while at the same time increasing the capabilities of people and creating value for the organization and its customers. Respectively, learning is the process of acquiring knowledge through experience. An organization that learns focuses on increasing and retaining knowledge and enhances its capacity for increased efficiency and competitiveness and profitability.

4. Maturity Model Glykas Quality Compass (GQC)

Many research questions have arisen in the literature regarding the association of QM maturity assessment of CFS with main management principles (Asante & Ngulube 2020; García-Alcaraz et al., 2019, Jehangiri 2017). In Glykas Quality Compass (GQC), these principles are considered as necessary conditions or factors to accomplish ten, quality concepts, which are divided in three categories (Glykas, 2019b):

4.1. Five core concepts:

Strategy: The strategy is directly related to the vision and the quality management system within the organization. An organization that has a clear strategic direction, achieves greater employee involvement and contribution, improved human efficiency, improved performance, greater commitment, higher levels of internal and external customer satisfaction and is driven to achieve the vision.

Customer: Focuses on actions and procedures related to meeting the needs and expectations of the customer. It concerns actions related to the general direction of the quality management system, the policy, the objectives, their design, the awareness, the production, the support, the monitoring of the customer satisfaction and the continuous improvement.

Process: It deals with processes and interdependent activities that convert inputs into outputs adding value, increasing quality levels and productivity.

People: People at every level of an organization must be involved and contribute to the achievement of the organization's goals. Through active participation, employees gain new knowledge and experiences, understand the importance of quality and increase their commitment to the organization. Essential considered the incentives, the education and employee's training.

Leadership: One of the most important factors for the continuous improvement of the quality of an organization is that of the appropriate senior management. Leadership must make decisions and define quality policy that must be aligned with quality objectives as part of the corporate culture. Leadership should communicate the vision and strategy of the organization as well as ensure the empowerment and active participation of employees to achieve the goals of the organization.

4.2. Three intra-core concepts:

Performance Measurement: It is the process of evaluating, measuring and determining the performance of an employee. According to the description of the position, it is examined whether the holder of this position covers the duties of the position. Through the measurement of performance the employee is informed and encouraged to reach the best possible level of performance through the appropriate and continuous support. This process ensures the personal development of each employee, increases job satisfaction, motivation and commitment to the organization and its goals.

Change Measurement: Includes change management throughout the organization through evaluation methods and corrective actions. Measurements are made, data collected, analyzed and used in the development of corrective actions that can lead to the implementation and maintenance of change. Change management metrics should be considered holistically to provide information that will help the

organization make substantiated decisions about how to adjust its tactics and take the necessary corrective action to achieve its goal.

Continuous Improvement: It is a continuous effort to improve every process of an organization, focusing on enhancing value-added activities. Organizations with a culture of continuous improvement can benefit from the use of techniques through which they will gain knowledge about process improvement and workflow management.

4.3. Two auxiliary concepts:

Corporate responsibility: It concerns the impact that an organization has on society, the environment, the economy and all stakeholders. Organizations that have effective corporate responsibility programs add value to the organization itself, ensure its viability, and operate in ways that enhance society and the environment. In addition, CSR activities can help forge a strong bond between employees and the organization, boost morale and increase commitment.

Information-Knowledge management: Knowledge management is the process of defining, maintaining and exchanging knowledge and experience of employees in an organization. In the literature Reference is often made to education and learning. It consists of a cycle of knowledge creation and exchange that leads to maximizing cooperative know-how and improving performance by avoiding previous unsuccessful approaches and strategies. In organizations with a learning and development culture, employees are encouraged to exchange information to improve the workforce and achieve the goal of knowledge management.

The above concepts are used in all four quality perspectives (TQM, standards, methodologies and quality excellence awards) and follow the PDCA cycle for continuous improvement. The PDCA cycle, or (Deming, 2000) cycle, is a methodology that consists of four stages: Plan, Do, Check and Act. In the implementation of quality management, planning and pursuance (Do) are the most important stages as they examine the planning of all organizational elements that support and control the implementation according to the available organizational resources. In GQC, at the planning stage, the organizational elements considered as actuators are the quality management principles they study, the organizational structure, the procedures, the job descriptions, and the management systems. Respectively, at the stage of execution the organizational resources are considered the land and the buildings, the equipment, the human resources, the capital and the information systems (Glykas, 2019b).

Glykas Quality Compass (GQC) (Bougoulia & Glykas, 2022; Glykas, 2022; Glykas 2019a; Glykas, 2019b; Glykas et al., 2015) framework provides a matrix/a ten-to-ten table (Table 3), founded on the ten, most crucial, critical-success factors, which are identified in current, maturity-assessment frameworks and the ten, best-known factors, which are identified in literature.

Table 3. Table, based on the ten most important CSF and the ten best known bibliography factors is Framework of Glykas Quality Compass (2019b)

Critical Success Factors	Enablers									
	Organizational Governance					Organizational Resources				
	Organizational Structure	Job Descriptions	Processes	Managerial Systems	Land and Buildings	Equipment	Inventories	Human Resources	Capital	Information Systems
Strategy										
Customer										
Process										
People										
Leadership										
Performance Measurement										
Change Management										
Continuous Improvement										
Stakeholders and CRS										
Information Knowledge Management										

Correspondingly studies Jehangiri (2017), Monge-Mora et al. (2020) have emphasized the need for the presence of all the necessary organizational resources which they consider as factors for the achievement of CSFs. In GQC the six organizational resources identified are: Land and Buildings, Equipment, Human Resources, Inventories, Capital, Information Systems, based on accounting theory and operations management as resources used in activity-based costing and business process costing models (Glykas, 2019b). These six resources with the four managing authorities are the ten enablers of GQC.

In the proposed QM GQC maturity assessment framework, maturity assessment is applied individually to each of the four practices (Glykas, 2019b), providing a clear distinction between the use of QM concepts.

5. GQC in ISO 10018

In order to examine whether the proposed QM GQC maturity assessment framework can be extended to apply ISO 10018: 2020, table GQC-ISO 10018 has been created in Figure 4, which provides the relationships of ISO 10018 contents and requirements (Figure 3) with GQC matrix cells or GQC critical success factors and activators.

4	Context of the organization and quality culture
4.1	Considerations
4.2	Link to ISO 9001 and other quality management standards and systems
4.3	Possible action steps
5	Leadership
5.1	Considerations
5.2	Link to ISO 9001 and other quality management standards and systems
5.3	Possible action steps
6	Planning and Strategy
6.1	Considerations
6.2	Link to ISO 9001 and other quality management standards and systems
6.3	Possible action steps
6.4	Potential benefits
7	Knowledge and awareness
7.1	Considerations
7.2	Link to ISO 9001 and other quality management standards and systems
7.3	Possible action steps
7.4	Potential benefits
8	Competence
8.1	Considerations
8.2	Link to ISO 9001 and other quality management standards and systems
8.3	Possible action steps
8.4	Potential benefits
9	Improvement
9.1	Considerations
9.2	Link to ISO 9001 and other quality management standards and systems
9.3	Possible action steps
9.4	Potential benefits

Figure 3. Documentation Requirements of the ISO 10018:2020

		Enabler Managerial Principle (EMP)				Enabler Resource (ER)				
		Organizational Structure	Job Description	Processes	Managerial Systems	Land and Buildings	Inventories	Human Resources	Capital	Technology and Information Systems
Critical Success Factor (CSF)	Strategy	4.2 4.3 5.1 5.3 6.1 9.1 9.3		9.3	6.2 9.2					4.2 6.1
	Customer	4.1								4.1
	Process	4.2 4.3 5.1 8.1		4.2 7.3						
	People	4.1 5.1 6.3 7.3 8.1 9.1 9.3	6.3 8.3.2	4.2 6.3 8.1 8.3 9.2 9.3	6.3 8.3.2					4.3
	Leadership	4.1 5.1 6.1 9.3		5.1 5.2	5.1 5.2 6.2 9.2			5.1 5.3 6.4 7.1 8.1	5.1	5.3
	Performance Measurement	7.3		7.3	7.3 9.2					7.3
	Change Management				9.2					
	Continuous Improvement	8.1 8.4 9.1		9.1 9.3	8.1 9.2			9.3		8.1
	Corporate Social Responsibility	4.1	4.1							4.1
	Information Knowledge Management	7.3 7.4 9.3		8.1				8.1		

Figure 4. The GQC-ISO 10018 table

In order to correlate the application of GQC in ISO 10018:2020 and CSFs with the cells of the series (EMPs & ERs), in each factor of ISO 10018:2020, are used the headings: Critical Success Factor (CSF), Enabler Managerial Principle (EMP) and Enabler Resource (ER).

5.1. Organizational framework and quality culture

According to ISO 10018:2020, the organizational framework and the quality culture are related to the top management and leadership (CSF) who are responsible for creating common values. People (CSF) within an organization need to know the quality goals, commit to the strategic direction (CSF) and understand the quality expectations and goals that apply to them. An organization that focuses on quality promotes a culture of quality. Social media gives unlimited possibilities to customers who objectively control performance data and select organizations with a positive cultural image. In this direction, it is necessary to provide effective support systems - information technology (ER) for the communication of quality culture to all stakeholders. Finally, the existence of a clear and well-defined organizational structure (EMP) allows the succession of values throughout the organization.

5.2. Leadership

Leaders (CSFs) establish the unity of purpose and direction of the organization. To succeed an organization must have effective leadership (CSF) that is process (EMP) to identify a possible future situation and effective management, i.e. coordinated activities for the management and control of the organization. Leadership has a strategic role and is responsible for setting goals and resources (ER), while managers coordinate activities, direct and control the progress of the organization.

The typical leadership elements as described in ISO 10018: 2020 are:

- i. The vision (CSF) of a potential commitment strategy that enables the improvement of organizational results and leads to positive organizational success and social benefits.
- ii. The ability to align people (CSF) with vision, thus achieving their commitment and support.
- iii. The provision of necessary resources (ER), and the removal of obstacles to achieve the goals.

5.3. Planning and Strategy

In ISO 10018: 2020 the strategy (CSF) is directly related to the vision and the quality management system (EMP) within the organization. An organization with a vision is able to develop its strategy that will lead it to achieve its vision. The vision and strategy must be properly structured and aligned so that the basic principles of leadership and management are not undermined and overall effectiveness is not endangered. However, an organization's strategy cannot be static. Changing conditions inside and outside the organization can lead to change over time. It is important the final destination to remain clear and the business operations to remain aligned.

It is considered critical the communication of vision and strategy to people (EMPs) within the organization as well as the alignment of the quality management system with the vision and strategy, highlighting the high level value of the organization.

In addition, it is important to take actions aimed at engaging people (EMPs) within the organization and providing greater relevance between activities (EMPs) and the requirements of the quality management system (EMP).

An organization with a clear strategic direction (CSF) achieves greater employee engagement and contribution, improved people empowerment (EMP), improved performance, greater commitment, higher levels of internal and external customer satisfaction, and leads to the achievement of the vision.

5.4. Knowledge and Awareness

In ISO 10018: 2020 knowledge and awareness are motivating factors that can promote the improved individual performance of employees in an organization. At GQC the performance measurement (CSF) is proposed as a critical success factor for analyzing people's performance and improving individual knowledge and awareness. Communication, guidance, motivation for continuous learning and improvement, cultivating the development and retention of knowledge are achieved through appropriate processes and human resource management systems.

5.5. Competence

The benefit of training and human resource development is to increase the ability to apply knowledge and skills to achieve the desired results and create value at individual and collective level. To be competitive, an organization must have capable people (CSFs) who are interested in learning. The flow of information and knowledge within a learning organization is achieved through processes (EMP) in conjunction with the organization management system (EMP). Continuous improvement in skills such as communication leads to improvements in the quality of the products and services provided and consequently to increased competitiveness and profitability.

For the effectiveness of the quality management system (EMP) through the improvement of human skills (CSF), it is necessary to have and allocate resources (ER), for continuous education, training and differentiated experience. Training is the key to effective performance. Organizations should ensure that all people are involved, and training plans should be linked to some form of competency requirement in the job description (EMP). In addition the recruitment process should send an early message about the approach to the quality management system.

Active employee involvement (CSF) creates a sense of association to the organization increases overall efficiency. People think that the work they do is important and then they work more efficiently.

5.6. Continual Improvement

According to ISO 10018: 2020, the organization should ensure the continuous improvement of its strategies (CSF), policies and activities (EMPs) related to human participation (CSF). Improving human engagement enhances the organization's flexibility and resilience to respond to changes in the environment.

Achieving continuous improvement (CSF) requires continuous improvement of the suitability, adequacy and efficiency of quality management (EMP) systems. The analysis of the results of the

evaluation and the procedures will determine the strengths and weaknesses but also the opportunities and threats as part of the continuous improvement of the organization.

Achieving continuous improvement (CSF) in the effectiveness of strategies, policies and engagement activities is essential to deploy the results of education, knowledge and awareness rising. The involvement of all in the evolution of culture and the commitment of all to ensure the improvement of leadership and the management of processes is considered crucial.

5.7. Discussion

Section 5 presents a detailed correlation between GQC and ISO 10018: 2020. The analysis of concepts within the GQC maturity framework revealed interesting results regarding GQC critical success factors and actuators and the requirements of ISO 10018: 2020. This international standard is about guiding people to participate. Consequently, no reference is made to inventories, land, facilities and equipment, as they are an intermediate variable of employee satisfaction with the work environment that contribute to employee engagement to a large extent, but are not a requirement of the standard in this study.

Corporate Social Responsibility management is another CFS of the GQC model that is not mentioned in ISO 10018: 2020. Corporate Social Responsibility is a sustainable multi-value approach (Nazzaro et al., 2020) and can ensure the viability of an organization while strengthening external economies. Organizations with a culture of social responsibility and a corresponding department develop management processes and systems within the quality management system. CSR actions enhance employee commitment by feeling proud of the organization, especially if they are actively involved in these processes and also influence all stakeholders in the organization. Similarly, it is interesting to note that customers are only involved in the unlimited power to seek and control objective quality data through technology and to choose organizations with a positive impact on all stakeholders.

6. Conclusions

Organizations use maturity models to evaluate how they work and compare it to best practices. Through comparison they should be able to create their own roadmap to improve and determine the future desired level of maturity (Glykas, 2019b).

The holistic approach of the GQC maturity model, which combines CSFs with quality management principles and the use of organizational resources, can be applied to assess the maturity of ISO 10018: 2020 implementation. It provides a useful guide to improving the application of ISO to organizations that apply it and also provides a useful insight into the level of maturity of the organization in handling quality issues in day-to-day processes. The holistic approach of GQC helps the members of the quality management team to clarify the theory and to relate it to daily activities (Glykas, 2019a).

The contribution of the present research through the QM maturity framework lies in the implementation of an integrated maturity framework in the standards of ISO 10018: 2020. A literature review revealed that GQC is the only maturity model that makes a clear distinction and incorporates QM

perspectives (TQM, Methodologies, Standards, and Excellence Awards). In addition it provides a clear distinction between CSFs, quality management authorities and organizational resources (Glykas, 2019b).

Research specialization is proposed to be applied to future research in a public administrative environment. The need to address the pathogenesis of the public sector, inefficiency and the growing demands of citizens for better services have led to the need to adopt approaches and practices of modern public management (Kritas et al., 2021). Implementation in a public organization implementing ISO 10018: 2020 quality system will contribute to the creation of a general GQC ISO 10018: 2020 matrix, by adapting and developing new techniques and methodology to be used as a reference by future researchers in the field of QM maturity assessment and a new toolkit for this case, which will be an extension of the research on implementation in public administration.

In the last section of the conclusions, the conclusions of the research are summarized and evaluated. The holistic approach of the GQC maturity model, which combines CSFs with quality management principles and the use of organizational resources, can be applied to assess the maturity of implementation of ISO 10018: 2020. Provides a useful guide to improving the application of ISO to organizations that apply it and also provides a useful insight into the level of maturity of the organization in handling quality issues in day-to-day processes.

The research goal of the present study attempts to address and fill the research gap. The answers to the research questions will lead to the proposal of a holistic and comprehensive framework for the assessment of QM maturity and its application to ISO 10018 quality standards.

The conclusions of the current research may include recommendations and tables of adaptation according to the new ISO 10018: 2020 standards to the organizations that will be the case study of the research. The possibility of adapting to the new standards will also be explored in order to enable the application of the GQC method. Finally, the new tools and the necessary methodology will be developed and categorized, which will be adapted to the new findings that will be drawn by research. The creation of general GQC tables for the new set of ISO 10018: 2020 standards, which will be used as a reference by future researchers in the field of QM maturity assessment to ISO standards and a new toolkit for this case, could be an extension of research for the implementation of the GQC framework within public administration.

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