

Shedding light on TQM: Some research findings

Iñaki Heras-Saizarbitoria (Ed.)

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Preface

Over the last decades, the paradigm of Total Quality Management (TQM) has been successfully forged in our business world. TQM may be defined as something that is both complex and ambiguous; nevertheless, some key elements or principles can be mentioned which are common to all of them: customer satisfaction, continuous improvement, commitment and leadership on the part of top management, involvement and support on the part of employees, teamwork, measurement via indicators and feedback.

There are, in short, two main reasons for it having spread so widely: on the one hand, the successful diffusion of ISO 9000 standards for the implementation and certification of quality management systems, standards that have been associated to the TQM paradigm, and, on the other, the also successful diffusion of self-evaluation models such as the EFQM promoted by the European Foundation for Quality Management and the Malcolm Baldrige National Quality Award in the USA, promoted by the he Foundation for the Malcolm Baldrige National Quality Award.

However, the quality movement is not without its problems as far as its mid- and long-term development is concerned. In this book some research findings related to these issues are presented.

San Sebastian, January 2013



The Paradigm of TQM

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Abstract

In this short contribution a reflection on the evolution of the the Total Quality Management paradigm is presented. The main differences between the three perspectives of Quality Management are analyzed, together with a set of changes and improvements to the practice of TQM that are likely to take place.

Keywords: *Quality Management; Total Quality Management; paradigms.*

1. Introduction

According to Camisón, Cruz and González (2007) the concept of Total Quality Management (TQM) is a multi dimension construction about which there is not a consensus of definition. This is the reason why so many perspectives are enabled about it. From pragmatic definitions considering them as a set of Principles, techniques and practices till a more theoretical approach defining it as a new management paradigm, these are some appealing ideas to be named.

In the literature, Inspection and Quality Control, Quality Assurance and Total Quality Management are differentiated to present the evolution of Quality Management. As noted by Casadesus *et al.* (2005) these are the three main stages whose scope and significance differ radically, and that somehow also reflect the evolution of quality management over the years.

In the early years of mass production (years 20 and 30 in the U.S.) quality was synonymous of industrial quality inspection and final inspection after production. This ensured that products were satisfying customer requirements. It was the traditional quality control and included, in its most developed system: sampling, operating characteristic curves and tables with acceptable levels of quality. The dominant feature was: defect-correction-improvement. Later, around the 40's, the Quality Management extended the scope of final inspection to inspection

during the production process. Thus, not only the finished product was inspected but also failures were treated in order to prevent similar errors. This procedure intended to avoid giving added value to a defective product. Also one must be aware that the majority of defects arising in the manufacturing process, were treated through techniques as for example the Statistical Process Control. These techniques, had its origin in the military field back to II World War when the need of increasing the production of war material was huge.

In a later stage after the end of the War, from the years 50, quality begins to extend to the final inspection of process and to sign prevention. During the economic crisis, along which any company had to make continuous adjustments, inspections and the defective products were a major cost, it seems that the product “check out” was taking a long time and improved nothing. The only thing they were good for, was on one hand to ascertain the number of defects produced and on the other to guarantee that they did not reach the customer. Based on these assumptions the systems installed in the organizations begin to speak about assurance and consider it seriously.

Table 1. Differences between the three perspectives of Quality Management

Aspect	Inspection	Assurance	Total Quality Management
<i>Scope</i>	Related to the product	Of the production process and of some supporting services	All the processes in the organization
<i>Objective</i>	Detection of errors	Generate trust fulfilling the norms of a documented quality system Internal effectiveness	Client satisfaction (internal and external) through continuous improvement
<i>Philosophy</i>	Classification of Products of quality after production	Produce quality from the conception to the delivery	Improve quality in all organizations perspectives
<i>Responsibility</i>	Quality /Inspection Department	Manager for quality system	All the people
<i>Client</i>	Not much attention	Expectattions limited to the requirements of the client	Clients: internal and external
<i>Quality</i>	Conformity as to the final product specifications	Conformity with the quality system	Quality expected by the client and total quality of the organization
<i>Suppliers</i>	Not much attention	Something to be controlled	An important contribution for quality
<i>Models</i>	Only product model	ISO 9001, EAQF, VDA, QS 9000, ISO/TS 16949	EFQM, Deming Prize, Malcom Baldrige, Modelo Iberoamericano

Source: elaborated from Heras *et al.*, 2008.

The quality system of the company has to improve the quality of the products or services. Insurance, as discussed later in depth, is to systematize and formalize the different processes that take place in the company to try to ensure that quality is built inside the product or service. Assurance, as it will be considered later, is to systematize and formalize the different processes that take place in the company in order to ensure that quality is built in the product or service. For this, one must audit the system and not the product, to put it in another way, what matters is the quality of processes and not the result of these. In this regard, it has to be highlighted the work of some organizations, business and other, that during the 60's and 70's markedly influenced the development of standards for Quality Assurance. Thus, among the pioneers standards Quality Assurance include NATO's rules relating to Quality Assurance Quality Assurance Publication Allied call, and the automotive supplier evaluation program from Ford Q101.

A kind of quality revolution has occurred in the 70 and 80 along the twentieth century. Yet, earlier than this, there was already an evocative talk about quality Management (it is noteworthy to mention the enormous strength of Japanese companies in the development of philosophies and tools for quality improvement). Quality starts to stop having a focus on the product, service or process, and becomes part of people and activities performed by the people. Quality Management extension is achieved in all areas of the company, and becomes a strategic factor. One single person or the very quality department, neither, can be blamed for the final product or service, otherwise, all people must be involved in the final result though, although some will be more directly affected than the others.

2. Total Quality Management as a management paradigm

At last, Total Quality Management is considered as a management philosophy or a paradigm (as discussed in the previous section of this thesis) based on the participation of all members of the company. Under the Total Quality Management approach the organizations try to increase the satisfaction of stakeholders (including in this term the external and internal customers, the employees, and the society as a whole) and at the same time improve organizational efficiency granting added value for all members —the organization and the society.

A number of different environmental changes led to the widespread adoption of TQM paradigm and the development of a set of principles, tools, techniques, and methodologies related to that paradigm. Global competition, brought both technical and political changes, and made competition more intense what has touched deeply the organizations as to their

competitive power. Although professionals in quality have long advocated the importance of product excellence: "Superior product quality is the key to the continued economic health of the nation today" (Feigenbaum, 1966, p. 81) it took some time, however, to recognize the strategic importance of quality to firm success.

A new emphasis on benchmarking competitor performance, attending to customer satisfaction, and focus on a new product development was created. In general, the new emphasis on strategic quality management placed new demands on the organization, in terms of market research, benchmarking, life-cycle costing, and measurement of customer satisfaction (Garvin, 1988). In the 1980's and 1990's corporate leadership began to strongly espouse the importance of quality. Organizational quality practices also became the benchmark requirement for supplier certification, started by Ford with the Q101 program (Dooley, 1994). By that time at a national level, the European Economic Community set forth organizational quality system standards which must be filled by companies in order to access EEC's markets. The changes that took place in the practice of quality under the paradigm of TQM are too numerous but they could be summarized in Table 2.

Table 2. Paradigm of TQM (situation before and after TQM)

Before TQM	After TQM
Responsibility of the Department supported by top management	Responsibility of everyone, in particular, of management
Product is different	Product is competitive
Quality in physical products	Quality for health and for R&D and teaching and physical products
Analysis of the failures	Benchmarking and best practices dissemination
Quality placed on the production line	Executive line authority
Treatment of non conformities – correction measures	Methods of continuous improvement
Product is reliable	Customer satisfaction is global having KPI associated as to management performance

Source: own, adapted from Dooley (1994).

In conclusions, with the TQM paradigm quality moved from being the responsibility of the quality department to belong to everyone, in particular, management: product quality changed and it is not any more a product differentiator but a competitive advantages; the importance of quality comprehends, beyond physical products, services, information, health care, education, government and even religion; issues of learning, training, education, and self-management came to the forefront of practice; benchmarking and other methods of learning "best practices" came to be in use; organizations define a executive line authority for quality;

methods considering the continuous improvement of the quality process were developed; organizations recognized the importance of focusing all of their activities on the customer and their requirements and Key Process indicators (KPI) were established to evaluate firm's management performance.

3. Conclusions

A Kuhnian¹ model of paradigm evolution would predict that if the current quality paradigm of TQM continues, then more context-specific theories and models will be developed that refine the more generalized existing knowledge based. We can already see this happening along a number of fronts, because it appears that the effectiveness of certain TQM activities may be dependent on the environment in which the organization finds itself in. The literature presents that certain TQM practices may be more or less valid depending on different factors (e.g. Table 2).

Table 3. Ranges of quality and TQM practices findings

Ranges of quality	Better performance
Low quality performers	a focus on teams, customer contact, empowerment, process simplification, design quality, and inspection
Medium range performers	a focus on wide-scale process improvement, training, supplier involvement, metrics, design of new products, and a quality vision
High range performers	a focus on leadership, benchmarking, total employee involvement, strategic quality, innovation and product niche and a highly visible quality vision

Source: own, adapted from Dooley (1994).

For low quality performers, a focus on teams, customer contact, empowerment, process simplification, design quality, and inspection present better results; for medium range performers, a focus on wide-scale process improvement, training, supplier involvement, metrics, design of new products, and a quality vision had best approach; and for high range performers, a focus on leadership, benchmarking, total employee involvement, strategic quality, innovation and product niche and a highly visible quality vision worked best.

The proposition considering that the holistic mechanisms of TQM (which tend to be rather mechanistic and deterministic in nature) may not be well-suited for environments where a high level of adaptability is required, is supported by developments in the field of a complex

¹

According to Kuhn, "A [paradigm](#) is what members of a scientific community, and they alone, share." (The Essential Tension, 1977). Unlike a normal scientist, Kuhn held, "a student in the [humanities](#) has constantly before him a number of competing and incommensurable solutions to these problems, solutions that he must ultimately examine for himself." (*The Structure of Scientific Revolutions*).

theory (Dooley, Johnson, and Bush, 1995). Kauffman's work (1995) suggests that organizations are best managed if they optimize semi-autonomous "patches", loosely coupled together. Kauffman's work also suggests that the customer should be "listened to" most of the time, but not all of the time. Similar arguments from innovation scholars exist (Christensen, 1997).

Another way in which the quality discipline is going to be developed and broaden its scope, within the existing TQM paradigm, is the *focus on the enterprise and/or the community*. One can examine trends in both academia and industry practice over the last century and note that efforts have successively been undertaken by the parts. As to the environment of the companies the community is something very important. Green manufacturing efforts and ISO 14001 concerns, reveal a part of the social responsibility of the firms. That is the reason why many quality professionals involved in the implementation of ISO 14001 environmental assurance programs do it as a consequence of ISO 9000 quality practices.

The next obvious level of scope is that of the enterprise. One can already see this trend by the growing interest in enterprise requirements planning (ERP) and supply chain management. It can be predicted therefore that in the near future, a growing number of efforts will be focused on improving the quality of the enterprise, and this may represent the next paradigm of the quality discipline, predicting that the methods and theories that need to be used, will differ significantly from the existing ones.

A number of other changes and improvements to the practice of TQM are likely to occur:

- the need for classical, human-centered SPC (statistic process control) will diminish with the advances in automation, feedback control, and automated diagnosis;
- the growing interest in "knowledge management" systems depends on the strength of information technology in order to share knowledge across space and time (Dooley, Skilton, and Anderson, 1998). Resources can be made explicit and shared, however, can also be imitated. Since the ultimate value of the firm depends on knowledge that cannot be imitated, it is reasonable to assume that knowledge which is tacit and not easily imitated, as opposed to explicit, will grow in importance. For this reason we might expect that quality systems will increasingly focus on tacit knowledge;
- TQM's focus usually on segments or cliques of customers not on individual customers. The growth of "one-to-one" marketing, increasing flexibility in production and logistics, product postponement, and ecommerce will support the goals of mass customization being able to serve the needs of individual customers. Quality systems will need to increasingly focus on the management of individual customer requirements;

- the constant improvement of quality in a particular market segment makes it increasingly difficult for a firm to create new value with its products. There has been a wave of interest in applying quality concepts to "special" processes, such as new product development, supply chain management, and information systems. This is likely to be followed by a wave of interest in new process and service development; quality efforts on the areas of government and education will likely be new areas for quality improvement efforts;
- increasingly, information quality, will be the most important issue in spite of quality leadership, product quality, process quality, or service quality.

It is perhaps this last item that deserves the most attention in terms of how the discipline of quality might change in a more significant way; internet will make a shift to a new paradigm for it is a very hard and difficult area for quality because it has direct influence in the present world of business. The attention to quality of service on the Internet must also include the user: the total quality package includes the physical network, the devices attached to nodes of the networks, and the customers using the information/computing devices (Baumann, Bhattacharya, Capone, Dooley, Fritsch, and Palangala, 1999). The issue of Internet quality of service is an example of the real change for a New Paradigm of quality.

Aggregating, in the below table, these most important ideas, in the roots of a change from a Quality Paradigm to a New one (see Table 3).

Table 4. New paradigm of Total Quality Management

New paradigm of TQM
<i>Growing emphasis on contingency and configuration theories</i>
<i>Function of quality somehow dissipated</i>
<i>Quality discipline: focus on the enterprise and the community</i>
<i>SPC (statistic process control) will diminish with advances in automation</i>
<i>Quality systems: focus on tacit knowledge</i>
<i>Management of individual customer requirements</i>
<i>Interest in new processes and services development</i>
<i>Information quality</i>
<i>Quality of service: Internet and the world of business</i>

Source: own.

As the supply and distribution chains all around the world become more and more complex, the business world is less like an organized hierarchy and more a complex adaptive system

(Dooley, Johnson, and Bush, 1995; Choi and Dooley, 2000). These reasons make the alert for a change. The paradigms of TQM based on predictability, control and linearity may be or seem to be insufficient. Due to the above referred challenges the existing paradigm of TQM will be adapted to the different market environment and the new paradigm will emerge. In the meantime organizations are living in this period of continuous change and adaptation to new and different situations and not all of them pursue a TQM philosophy.

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The Dissemination of the TQM Paradigm: a Preliminary Study Based on Scholar Citation and General Trend Counts

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Abstract

The aim of this short contribution is to analyze the process of dissemination of the Total Quality Management paradigm. For that purpose, the evolution of the citation of some of the most prominent models, techniques and tools associated to the Total Quality Management paradigm in both the academic journals and in the general internet community is analyzed. In the analysis that have been carried out it is observed that the diffusion of the TQM paradigm could be close to its maturity if some indicators are taken into account.

Keywords: *Quality management; Total Quality Management; EFQM; ISO 9001; diffusion.*

1. Introduction

A proliferation of paradigms is taking place in management thought and practice, defining paradigms as means of understanding the world and a basis for informing action (Clarke and Clegg, 2000). This notion of management paradigm and, more specifically, the notion of management paradigm change can be related to the notion of management fads and fashions (Abrahamson and Fairchild, 1999).

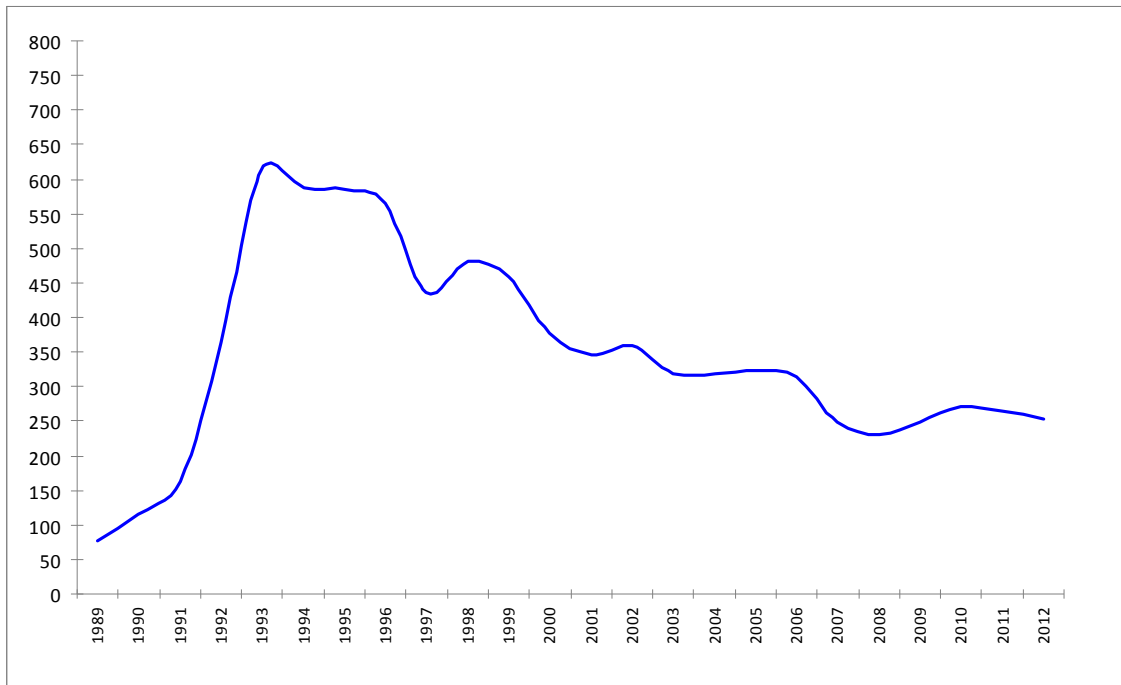
The aim of this preliminary contribution —a work in progress— is to analyze the process of dissemination of the TQM paradigm. For this purpose, we will analyze the scholarly and general diffusion of some of the main terms, models and tools associated to this paradigm of business knowledge. Therefore, this short contribution is structured as follows: following this short introductory section, the results of the work in progress are summarized; in the third section are to be found the preliminary discussion and conclusions drawn from the contribution; the fourth and last section contains the bibliographical references.

2. The evolution of the TQM paradigm: some preliminary results

In the academic area one of the tools most used to try to measure the changes of management paradigms or fashions consists of analyzing the evolution of the citation of those paradigms in the academic journals (see, for example, David and Strang, 2007). Therefore, in figure 1 this evolution is presented, taking into account a search realized with the more powerful search engine for academic purposes: Google Scholar. Despite this more and more used tool searches across a broad range of scholarly and other literature, it has to be taken into account, as with any indexing and data-base service, that this tool has its strengths and weaknesses (see on this issue Jacso, 2005). Nevertheless, other alternatives for this purpose, such as *conventional* scholar data-bases (e.g. ABI-Inform Global Edition) have a more clear bias towards Anglo-Saxon publications and then the measure of the diffusion of the various techniques and tools of management by those data-bases can be questioned.

Then, if we analyze the evolution of the citation of the TQM concept with Google Scholar —number of documents with the term TQM included in the title— we see that, as pointed out by David and Strang (2007) the wave of media attention shown in Figure 1, mirrors the pattern observed for other management paradigms or management fashion-like trends (Abrahamson and Fairchild, 1999) and helps us to chart the TQM fashion cycle. In the aforementioned figure is observed that TQM experienced his period of summit, at the beginning of the nineties, when the paradigm was at the top in the Anglo-Saxon world. It is important to note also, that from year 1999 the term TQM has been reduced considerably in the academic literature.

Figure 1. Trends in attention to TQM within the academic community

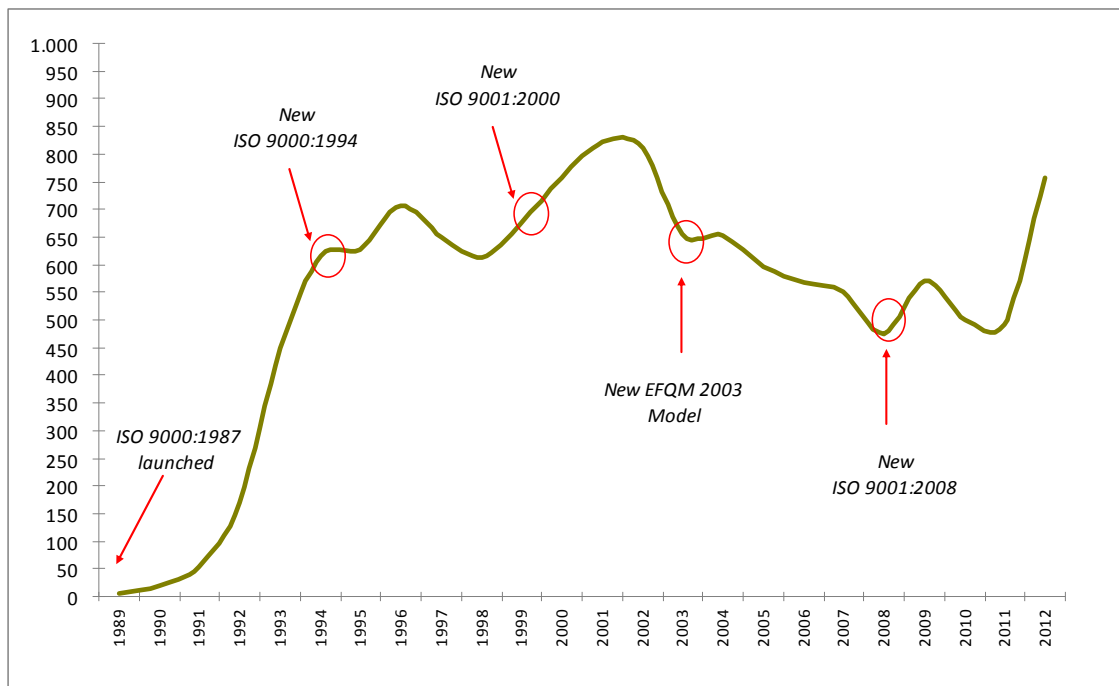


Source: own data based on information obtained from Google Scholar (2013). Note: Number of documents with the term TQM included in the title.

Nevertheless, together with the concept of TQM we have also to analyze the more prominent models, techniques and tools associated to the TQM paradigm. Then, we might also analyze the evolution of other concepts such as ISO 9000 and the EFQM model for self-evaluation. Here we have to take into account that “ISO 9000 standards” or “the ISO 9000 family of standards” are the expressions commonly used to refer to the totality of standards in the same series, although in the 2000 version the only standard which includes a model for implementing a certifiable management system (i.e., the only management system standard) is the ISO 9001 standard. In fact, in the 1987 and 1994 versions, in addition to the ISO 9001 standard, the ISO 9002 and ISO 9003 standards also included certifiable management system models, which is why the plural form used previously continues to be employed. Loosely speaking, reference is still made to “ISO 9000” or “certified in accordance with ISO 9000”, whereas, properly speaking, the correct expression should be “ISO 9001 standard” or “certified in accordance with ISO 9001” (there is an ISO 9000 standard in the current series, but it is a standard applied to definitions and terminology).

In Figure 2 we can see the evolution of the attention to ISO 9000 within the academic community. As we can see the evolution has been quite erratic, with periods of growth accompanied with reduction periods. In our perspective, the influence of the launching of new versions of the ISO 9000 standard (e.g. ISO 9001:2000) should be analyzed in depth.

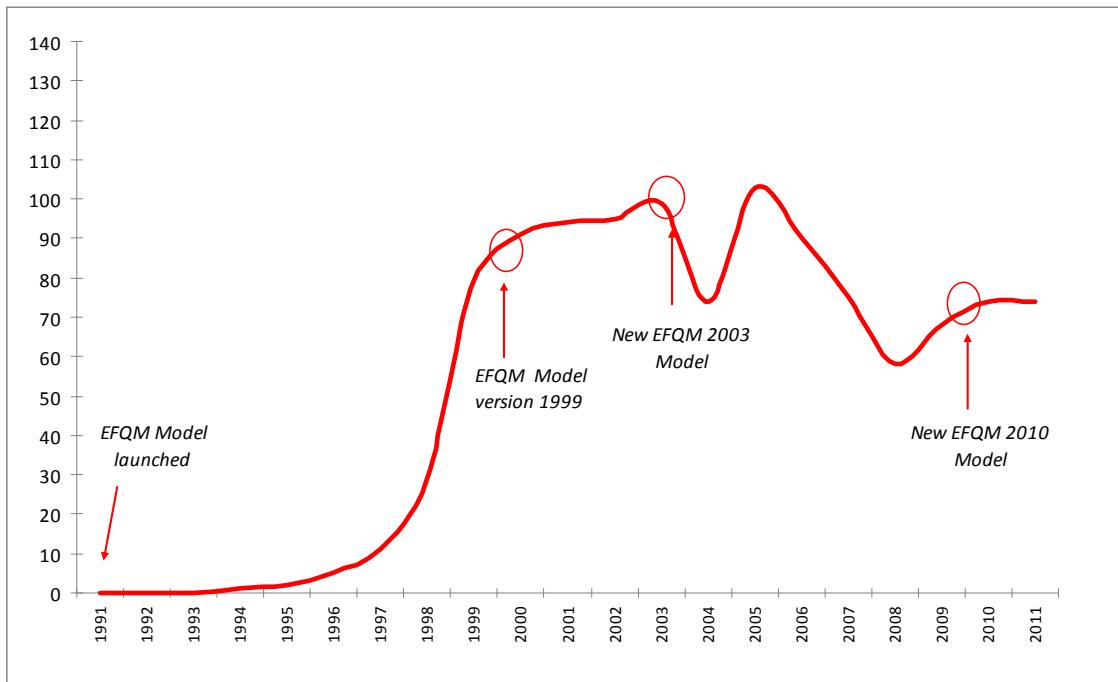
Figure 2. Trends in attention to ISO 9000 within the academic community



Source: own data based on information obtained from Google Scholar (2013). Note: Number of documents with the terms ISO 9000 or ISO 9001 included in the title.

Finally, if we analyze the evolution of the citation of the ISO EFQM concept by means of Google Scholar we see that there is a continuous decrease in the volume index of the concept (see Figure 3). In the aforementioned figure is observed that EFQM experienced his period of summit, at the beginning of the century. It is important to note also, that from year 2005 until 2009 the use of the term EFQM has been reduced considerably in the academic literature. Nevertheless a new version of the EFQM Excellence Model was launched in September 2009 and it appears that it has resulted in a slow upward trend.

Figure 3. Trends in attention to EFQM within the academic community

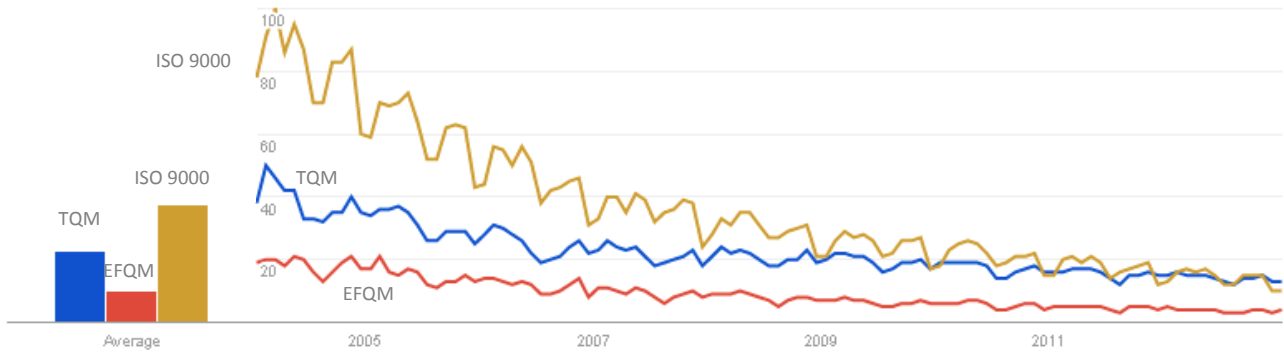


Source: own data based on information obtained from Google Scholar (2012). Note: Number of documents with the term EFQM included in the title.

On the other hand, we could also analyze the evolution of the general citation of the TQM concept by means of Google Trends, a real-time daily and weekly index of the volume of queries that users enter into the main global general search engine for Internet. This tool provides a time series index of the volume of queries users enter into Google in a given geographic area (Choi and Varian, 2012). Anyway, we have to take into account the Google Trends provides insights into broad search patterns and that several approximations are used when computing the results, as stressed by the promoters of this tool.

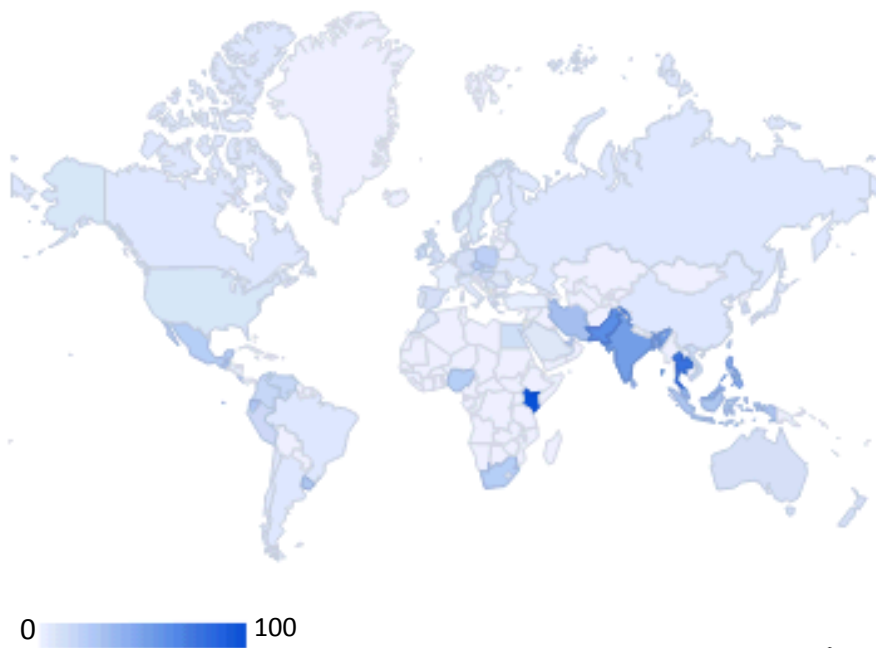
In short, if we analyze the general comparative trend in attention to the terms TQM, EFQM and ISO 9000 within the global internet community we see that there is a continuous decrease in the volume index of the concept (see Figure 4).

Figure 4. Comparative trend in attention to the terms TQM, EFQM and ISO 9000 within the global internet community



Source: own, based on Google Trends (2013). Note: The number 100 represents the peak search interest.

Figure 5. Regional interest for the term TQM



Source: own, based on Google Trends (2013). Note: The number 100 represents the peak search interest.

With regards of the regions of the world where more is quoted the TQM concept. It seems that the core countries of the *production* and distribution system of management knowledge are not the ones with higher incidence of the TQM concept. On the contrary, the peripheral countries seem to be those with a higher incidence. Furthermore, if we analyze the evolution of the geographic interest of the TQM concept, it seems there has been a move from the centre to the periphery over time.

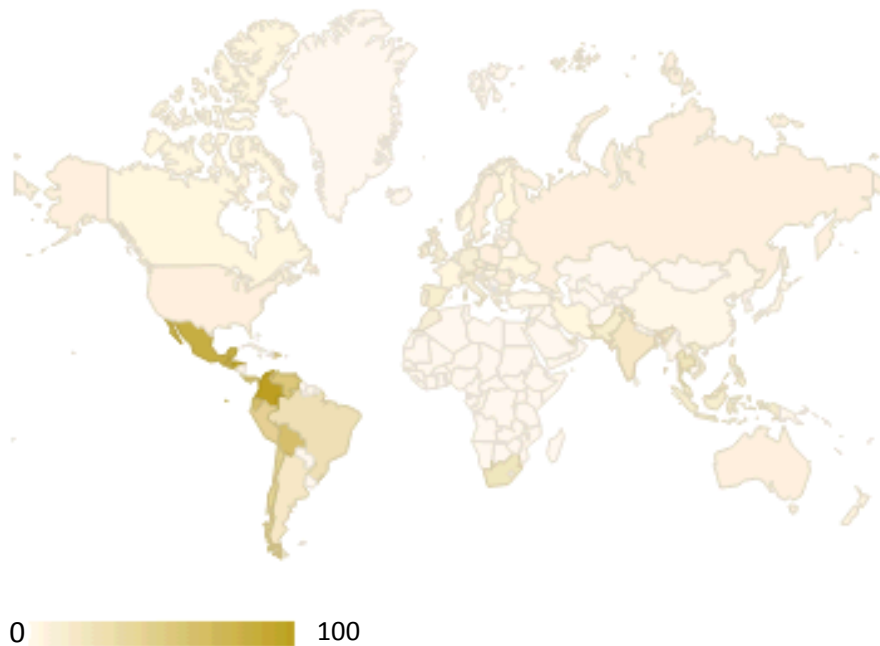
Figure 6. Regional interest for the term EFQM



Source: own, based on Google Trends (2013). Note: The number 100 represents the peak search interest.

Regarding the regions of the world where more is quoted the EFQM concept, it has to be underlined the presence of 3 non-European countries in the top-ten ranking; they are the following ones: Iran (first position); Spain (second position) and Colombia (seventh position).

Figure 7. Regional interest for the term ISO 9000



Source: own, based on Google Trends (2013). Note: The number 100 represents the peak search interest.

3. Discussion and conclusions

If the both the attention of the academic and non-academic communities on TQM and related concepts, tools and models are analyzed, it seems that the TQM paradigm model has declined and could be close to its maturity. Although the popular press and the general public may have abandoned TQM (Ehigie and McAndrew, 2005), scholarly research seems to be interested in the paradigm. It has to be taken into account that rather peripheral countries —with regards to the generation process of management knowledge —such as Iran, United Arab Emirates, Spain and Colombia are among the more interested in this model (something that also happens for the proper adoption of the ISO 9001 standard). On the contrary, countries from the centre or the core —again, regarding the management knowledge *production* and distribution process— such as the UK and the USA, are not even in the top ten of the ranking. There is no doubt that this preliminary evidence revealed must be analyzed

with caution as the use of very powerful searching engines such as Google Scholar and Google Trends are not free of distortions.

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Validity of TQM Self-Assessment Model: Opening the EFQM White-box

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Abstract

The internal validity of the EFQM self-assessment model, a descriptive-causal or theoretical model—in other words, a white-box model—is analysed in this article. The main finding of the article is that the EFQM model enjoys robust internal validity, despite the fact that there exist relationships among some of its enablers and results that fail to reach a suitable level of validity. These findings coincide with the conclusions drawn from studies carried out previously for the Malcom Baldrige model. The conclusions drawn in the article may be of interest both for academic and professional spheres of activity.

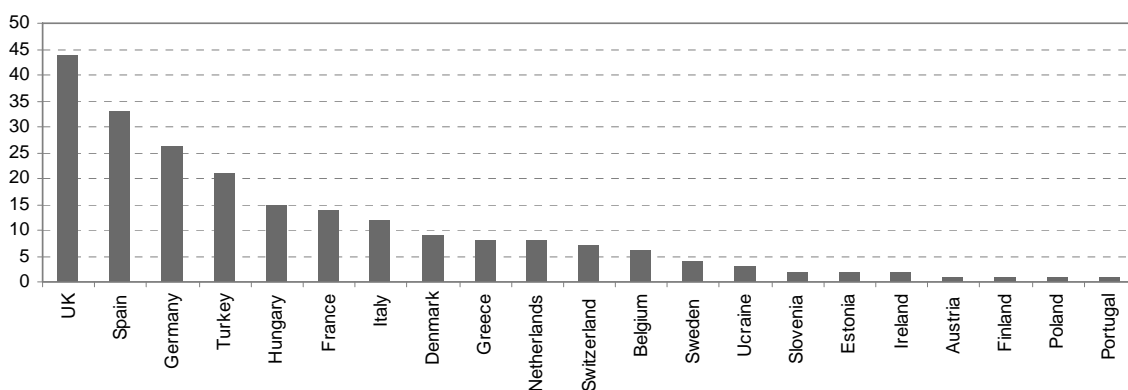
Keywords: *Total Quality Management, self-assessment, EFQM model, internal validity.*

1. Introduction

Total Quality Management (TQM) may be defined as a something that is both complex and ambiguous. Nevertheless, some key elements or principles can be mentioned which are common to all of them (Dahlgaard-Park, 1999; Reed *et al.*, 2000; Sousa and Voss, 2002): customer satisfaction, continuous improvement, commitment and leadership on the part of top management, involvement and support on the part of employees, teamwork, measurement via indicators and feedback.

The TQM self-assessment models, such as the EFQM model—the leading quality award model together with the Malcolm Baldrige Model (Dahlgaard-Park, 2008)—, have contributed immensely towards clarifying and disseminating TQM in Europe. According to José Ignacio Wert, the former President of EFQM, there were around 30,000 European organisations that were using the EFQM model (Wert, 2006). Regarding the dissemination of EFQM Excellence Awards, as can be seen in graph 1, United Kingdom, Spain and Germany ranked among the countries with the greatest number of recognitions.

Graph 1. EFQM Excellence Awards by country (1992-2009)



Source: put together by the author from information obtained from EFQM (2010).

However, despite the unprecedented success in the practical application of the model, empirical academic research regarding its validity and reliability has not been developed

parallel to this (Bou-Llugar *et al.*, 2005; Williams *et al.*, 2006; Bou-Llugar *et al.*, 2005), and, as Eskildsen *et al.* (2001) pointed out several years ago, there are clear shortcomings existing when analysing the consistency of the model. As Dahlgaard-Park (2008) underlined, clear indications of cause and effect relationships in terms of enabler and results criteria may be questioned. Furthermore, as Williams *et al.* (2006) stressed, there is a major lack of academic work that contrasts the internal validity of the EFQM model, a basic issue for the legitimisation of any management model. In this respect, this article constitutes a contribution to the aforementioned.

The article is structured as follows: following this introductory section, the literature review and the conceptual framework are included in the second section; in the following – third – section, the research model and its corresponding hypotheses are articulated; in the fourth, the methodology and data used are analysed; the fifth section contains the results of the empirical research; in the sixth are to be found the discussion and conclusions drawn from the article, with their practical implications and limitations; the seventh and last section contains the bibliographical references.

2. Literature review and conceptual framework: *white-box* Vs. *black-box* models

The EFQM model can be considered as a holistic and integrative approach, where strategic, managerial and operational control processes are integrated in the model (Dahlgaard-Park *et al.*, 2001). In the literature, some of the internal relations existing in the EFQM model have been analysed in previous research. Dijkstra (1997) ascertained the existence of a positive and moderate relationship between the *enabler* criteria, owing to the presence of a common general factor that is latent in all of them.

Bou-Llugar *et al.* (2005), analysed the EFQM model in depth, based on the information supplied by a further set of companies, in order to try and assess the causal inter-relation existing between the *enabler* and *results* criteria; the authors ascertained that the *enabler*

criteria are indeed related in a balanced way to the *results*. In another interesting work by these same authors (Bou-Llusar *et al.*, 2009), they also ascertained that the EFQM model reliably reflects the premises of TQM.

Calvo de Mora and Criado (2005) analysed the reliability, validity and predictive power of adaptation of the EFQM model applied to the state university sphere of activity, based on a sample of 111 Spanish university centres. This is a work which, despite focusing on a very specific sector of activity for which purpose the EFQM model has been adapted, constitutes a background and key reference point for this research.

However, despite these interesting contributions that have been detected, no study has been detected among those reviewed that has empirically contrasted the validity of the EFQM model based on reliable primary sources of information deriving from the external assessments themselves made using a rigorous protocol by independent professionals. On the contrary, this kind of study has been carried out in specialist academic literature for other TQM models such as the Malcolm Baldrige model (e.g. Wilson and Collier, 2000; Flynn and Saladin, 2001; Pannirselvam and Ferguson, 2001).

First of all, we should specify the type of validity to which we are alluding. Thus, by taking the work carried out by Barlas (1996) as a reference, in which the concept of validity of the management models is analysed, we should point out the fact that when referring to the notion of validity of a model, a distinction needs to be drawn that proves crucial. This distinction involves distinguishing between descriptive-causal or theoretical models - also known as *white-box* models - and those models that are purely *correlational*, i.e. based on data, also known as *black-box* models. As Barlas (1996) points out, there is no statement of causality in *black-box* models for the purpose of their structuring, whereas *white-box* models (such as the EFQM model), by dint of the fact that they are descriptive-causal models, are based on statements that include those referring to the way in which real systems that

attempt to create a model operate. For these types of model, Barlas (1996) points out that what is crucial is the validity of the internal structure of the model, i.e. its *internal validity*, on whose study this work is based.

If the few previous works are analysed which, either directly or indirectly, analyse the validity of the EFQM model, it can be ascertained that there are different meanings of the term *validity*. Nabitz *et al.* (1999, 2000) refer to the *face validity* in order to refer to its generic and simple nature, the fact that it is easy for both managers and employees to use; they also point out that the model is characterised by its *concept and construct validity*, albeit without its being ultimately contrasted in any way. Williams *et al.* (2006) refer on the one hand to the *academic validity* of the model, understood as being the academic rationality of the model, i.e. the extent to which it covers or measures the construct of Quality Management. Furthermore, these authors also refer to another important aspect of the model related to its validity, which in our work we refer to as *internal validity*, i.e. “*the hypothesised relationships between the enabler criteria (how results are achieved) and the results criteria*” (Williams *et al.*, 2006; p. 1291). This is an issue that these authors do not empirically contrast in their work and they draw the conclusion that, after so many years during which the model has been used, it is time for it to be analysed.

This is, broadly speaking, the aim of the work by Bou-Llusar *et al.* (2005, 2009), who analyse the causal inter-relationships existing between the elements that make up the EFQM model, whereas in the few other previous studies, analysis tended to focus on the study of the inter-relation existing between some of the elements that make up the model (Dijkstra, 1997; Eskildsen *et al.*, 2001). Although Bou-Llusar *et al.* (2005, 2009) do not expressly analyse the internal validity of the model, the ultimate underlying aim of their work does in fact turn out to be similar to ours, given that they consider the need to provide an empirical validation of relationships existing within an EFQM model. However, these authors do not, as has already

been stated, use information obtained from independent external assessments for their study, but rather, data obtained from a survey addressed to company managers. On the other hand, we are not going to alter any aspect of the EFQM model in our study.

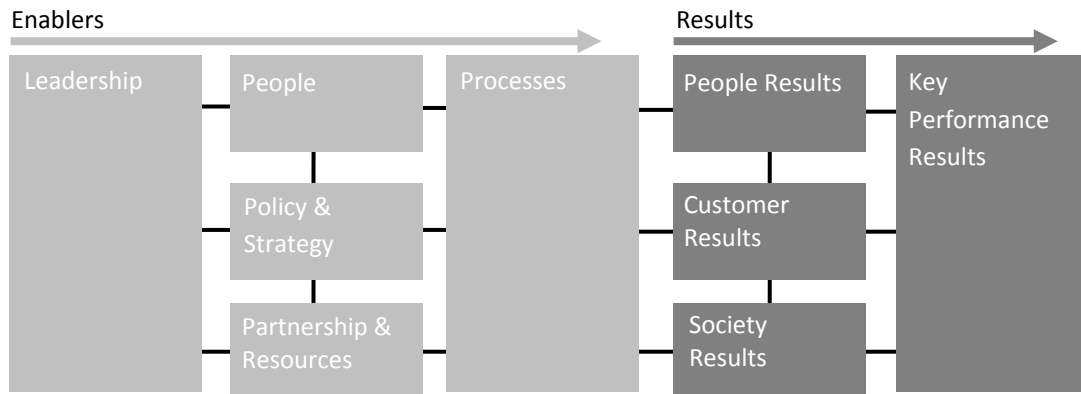
Rather, we take it *as it is* so as to assess which relations among agents of the model can be considered robust and significant from the statistical point of view. It should be pointed out that both aspects are new ones in this type of study of the EFQM model: on the one hand, the contribution of the point of view of the assessor and, on the other, the adjustment to the EFQM model itself *as it is*. In our opinion, if these issues have not been previously analysed from an empirical standpoint using suitable information, this has been due to the difficulty in obtaining data related to self-assessment in accordance with the EFQM model – a source of data of a confidential nature with major exploratory potential (e.g. Pannirselvam and Ferguson, 2001).

3. Research model and hypothesis

When analysing the internal validity of the EFQM model¹ (see figure 1), an attempt is made to quantify the extent to which the *agent* or *enabler* criteria are to be found in practice, related to the *results* criteria. Furthermore, it is also interesting to analyse whether the relationships insinuated by the model when pinpointing the different categories or *boxes* of criteria from left to right truly refer to the impact each group of *boxes* has over the criteria located on the right. In addition, the fact has had to be taken into account that the model suggests a causal relationship among the different criteria that comprise it from left to right (EFQM, 2003): ranging from the criteria of a more strategic nature (leadership) to operative results (key results).

¹ Formally, it should be pointed out that the internal validity of the 2003 version of the EFQM will be the one subject to analysis (this being adapted in case no data should happen to be available for some sub-criteria pertaining to the aforementioned version in the empirical part).

Figure 1. EFQM model

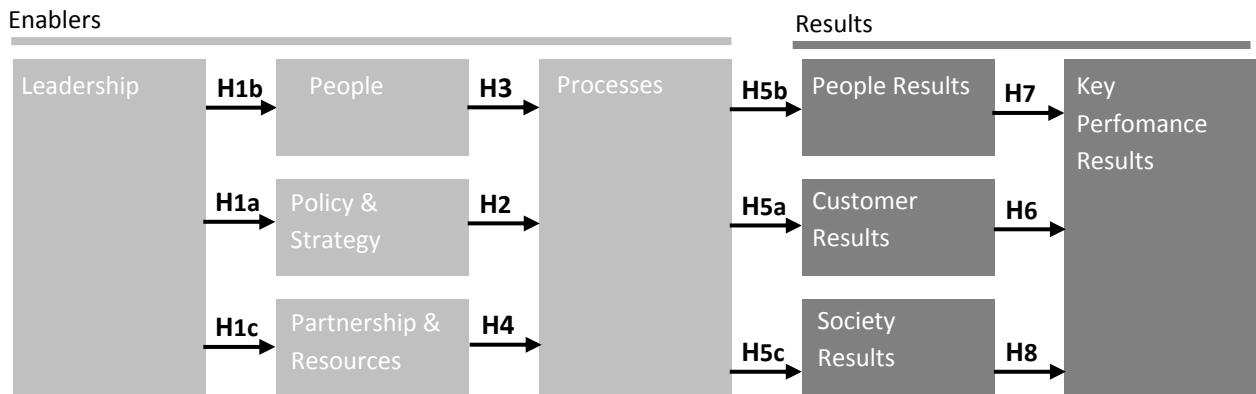


Source: EFQM, 2003.

Thus, the first criterion (leadership) has an impact on criteria of a tactical nature (criteria 2, 3 and 4) and the latter, in turn, on operative criteria (e.g. those referring to processes). In this way, the processes explain the results in customers, individuals and society and all these in turn ultimately explain the operative results (EFQM, 2003).

Consequently, in this work we attempt to analyse the internal validity of the EFQM model without any alteration, as it is presented by the Foundation that proposes and reviews the model (EFQM, 2003). We think it necessary to stress the fact that we wish to analyse it *as it is*, without rearranging or regrouping the sub-criteria according to possible latent constructs that could be used to underlie the model. Therefore, criteria or sub-criteria will not be treated as has been done in other works among the literature available that analyse other quality management models, even though this may be to the detriment of the reliability of the constructs used and also subsequently to the detriment of the fitness of the sample to the model. In short, we shall assess the model solely with the aim of detecting any possible limitations in the sample, rather than eliminating or rearranging any items into different criteria.

Figure 2. Relationships among criteria of the EFQM model



Source: put together by the authors based on the EFQM model (EFQM, 2003).

To sum up and taking the inter-relations put forward by the EFQM model itself as a reference (EFQM, 2003), a model is proposed for the purpose of analysing the impact of *enabler* criteria on *results*, which will be analysed by means of a structural equation model using SmartPLS software.

Twelve working hypotheses are listed in total (see figure 2), each one corresponding to a link or inter-relation existing between some category or element of the model, whether an element that may belong to *enabler* or *results* criteria. The model proposed is sufficiently explicit if the content and objectives of the EFQM self-assessment model are analysed, and we shall therefore draw up the twelve hypotheses it suggests. Specifically, we shall clarify the list of hypotheses that are set out in the arrows that go from right to left, given that the direction of these relationships is determined by the EFQM model itself, whose validity we are attempting to contrast.

We shall consider the internal validity of the EFQM model (Pannirselvam and Ferguson, 2001; Williams *et al.*, 2006) to be contrasted empirically if the statistical significativity of the causal relationships listed among the different working hypotheses is confirmed.

It is necessary to now make a final observation about the model being analysed. In accordance with Calvo de Mora and Criado (2005), we shall use latent constructs with reflective indicators for the *enablers* and with formative indicators for the *results*. In fact, the *enabler* sub-criteria evidence and display the latent construct that encompasses them. The sub-criteria of a specific enabler are affected by the same latent construct (Chin, 1998). However, according to Collier and Bienstock (2006), we shall consider the *results* criteria to be formative: they are the result of adding the respective items in order to obtain a global value. Indeed, formative items generate or give rise to the latent variable (Fornell, 1982). Each of these results criteria comprises two sub-criteria: one which measures perception and another constructed by the indicators themselves used by the organisation to measure the criterion. Therefore, these indicators do not necessarily have to be correlated. They may manifest themselves as being separate from each other (Chin and Gopal, 1995).

4. Methodology and data

The empirical analysis has been based on data provided by Euskalit, the Basque Foundation for Quality, referring to scores that have been obtained in external assessments of organisations from the Basque Autonomous Community (BAC) in Spain, for the years between 1998 and 2008, inclusive. Attention should be drawn to the strong dissemination of the EFQM model in the BAC: organisations from this region awarded 21 of the 29 cases of recognition between 2001 and 2009 of those awarded to Spanish organisations by the EFQM.

As for the reliability of the data, it is interesting to point out that the theoretical reliability of data obtained from external assessment processes has been highlighted in specialist literature (e.g. Pannirselvam and Ferguson, 2001). By focusing on the case of Euskalit, it should be pointed out that the EFQM assessors who took part in the field work are not EFQM licensees (neither from Euskalit nor from any other similar organisation). The assessors belong to the Euskalit Assessors' Club; they are people who have received specialist formal training in the

EFQM self-assessment model and who, without any financial gain at all, are committed to improving the management quality of organisations within their milieu. To sum up, these assessors constitute a very reliable, independent source of information owing to their training and specialisation in EFQM model self-assessment and assessment work.

On the other hand, it is also interesting to add that only international EFQM recognition obtained by companies from the BAC evidence the rigorous work carried out by external assessors from Euskalit; attention should also be drawn to the fact that the companies externally assessed by external assessors from the EFQM Foundation have always obtained higher scores than those obtained in external assessments made by Euskalit. In our opinion, this evidence corroborates the reliability of the data used.

The customary work process for finding a model that adapts to a sample involves two stages. In the first is carried out an exploratory analysis until a model is determined that can then be validated in the second, confirmatory phase. In our case, we consider the EFQM model to be good as it is, without removing or adding anything. In any case, we shall then also go on to analyse the subscales – not with the aim of refining these scales as has been stated, but rather, to ascertain their degree of reliability and validity. This will provide criteria when drawing conclusions from the subsequent analysis.

A structural equation model will be used for this subsequent analysis using the Partial Least Squares (PLS) technique, which enables the path analysis among latent constructs to be carried out (Ringle *et al.*, 2005). Smart-PLS software will be used for such purpose. The aim of this technique is to predict the latent variables and is based on covariance, to the extent that it is applied in order to explain the variance of the independent variables.

The main advantages of this technique over those based on covariance lie in the fact that it is less demanding with the distribution of the sample variables and with the size of the sample. Indeed, PLS enables latent constructs to be modelled under conditions of non-normality

(Compeau and Higgins, 1995). In contrast, the main disadvantage involves the fact that it proves to be not so sufficient in analyses of an exploratory nature. In fact, rather than taking on equivalent weights for all the indicators of a single latent variable, PLS permits greatest weights for those items with a stronger correlation with the latent variable. That is why it is suitable for application in our study, as our aim is not to search for a new model, but rather, to analyse the causality of an existing model that has been widespread and used for over a decade now (Eskildsen *et al.*, 2001).

Specifically, the *path analysis* has been used to estimate the robustness of the relationships existing among the new constructs. This is a multi-variant analytical method for examining groups of relationships established by linear causal models (Li, 1975; Jöreskoj and Sörbom, 1993). The EFQM model represents the causal relationships among the different sub-criteria, and so this methodology is suitable for the purpose of our analysis (Pannirselvam and Ferguson, 2001).

5. Results

5.1. Sample and statistical description of the variables

The study sample is made up of 242 assessments of companies from the BAC made by Euskalit according to the EFQM model between the years 1999 and 2008. Some of the companies were assessed more than once during this period. The elements that make up the sample are assessments rather than companies. We are unable to identify each of the companies assessed owing to data confidentiality.

The average scores in the different sub-criteria of the EFQM model are within a range of between 25.72 and 49.84, with the score range being between 0 and 100 in the case of all criteria. In no case is the average value of the scale exceeded. Most of the average scores of the sub-criteria are within a range of between 40 and 50. The average scores of each criteria

have also been calculated, and these values are between 42.02 and 45.80 in the case of the *enabler* criteria. On the other hand, the average values of the *results* criteria are 44.65 for *results in customers*, 42.37 for *results in individuals*, 28.78 for *results in society*, and 45.06 for *key results*. It is noted that the *results* criteria for society are far lower than the other criteria.

As regards variance, it is observed that this is between 46.08 and 163.76. It should be noted that variance in the items pertaining to criterion 8 (*results in society*) is also very different compared to variance in the other sub-criteria: the latter is far higher. All this leads one to draw the conclusion that the criterion *results in society* may prove difficult to fit in to a model that lists EFQM criteria.

5.2. Assessment of the measurement model

We shall now proceed to analyse four aspects in this section: the individual reliability of the items; the reliability of the subscales or internal consistency; the convergent validity and, lastly, the discriminant validity of the constructs.

The individual reliability of the item for constructs with reflective indicators is guaranteed by a load value of over 0.707. Carmines and Zeller (1979) point out that a higher value than this enables the fact that the indicator forms an integral part of the construct to be ascertained. As is noted in table 1, six of the sub-criteria do not reach this threshold. Although other authors Barcklay *et al.* (1995) accept lower values, we have not pursued the usual procedure for refinement of the subscales since, as has been previously stated, our aim has been to find relationships among the criteria pertaining to the EFQM model *as it is*, rather than seeking the best model that is adapted to the sample. Despite this, a high degree of individual reliability of the items is noted.

The sub-criteria with load on their corresponding factor below 0.707 are:

Table 1. Loads of the external model

	1 Leadership	2 Policy & strategy	3 Individuals	4 Alliances & resources	5 Processes	6 Customer results	7 Individual results	8 Society results	9 Key results
1a	0.8623								
1b	0.8684								
1c	0.8108								
1d	0.7316								
1e	0.5929								
2a		0.8282							
2b		0.8273							
2c		0.8139							
2d		0.7649							
2e		0.4920							
3a			0.7970						
3b			0.7882						
3c			0.6998						
3d			0.7685						
3e			0.7080						
4a				0.7280					
4b				0.7060					
4c				0.7438					
4d				0.7562					
4e				0.7916					
5a					0.6927				
5b					0.8297				
5c					0.7510				
5d					0.7072				
5e					0.8224				
6a						0.4469			
6b						0.9775			
7a							0.4352		
7b							0.9969		
8a								0.8402	
8b								0.9436	
9a									0.8331
9b									0.9442

Note: all the loads of the *enabler* criteria are significant (p-value>1.96) Source: put together by the authors from data supplied by Euskalit.

1e. Refers to motivation, support and recognition of individuals by the leaders of the organisation. Data is only available for companies audited in 2004 and subsequent years. This is a criterion that is incorporated in the 2003 version.

2e. Refers to communication and introduction of policy and strategy. In reality, this is just on the limit and in fact this indicator has only been answered by 56 companies, which explains such a weak load.

3c. Measures the involvement and extent to which responsibilities are assumed: this is a value that is very close to the boundary value established.

4b. Its load is 0.7060, just below the established limit of 0.707.

6a. Are measurements of perception for the results in customers.

7a. Are measurements of perception for the results in individuals.

Consequently, only sub-criteria 6a and 7a are at levels that fail to ensure the individual reliability of the item.

The robustness of these loads is analysed below using a *bootstrapping* process. Those that are below a value of 1.96 - and in which their robustness is therefore not assured - are items 6a, 7a, 8a, 8b and 9a. We wish to put on record here that in view of these results, the model will probably have fitness problems among these *results* criteria, although we insist once again that our aim is to try out the unaltered EFQM model.

The second point to be analysed in order to assess the measurement model is the internal consistency of the subscales, i.e. the reliability of the subscales.

Seven of the nine constructs evidence satisfactory values according to the criteria proposed by Hair *et al.* (1998). However, Cronbach's alpha for the criteria *results in customers* and *results in individuals* does not reach the minimum 0.7. Nine top level factorial analyses were also carried out in order to research the one-dimensional nature of the constructs. In all cases, a single factor was extracted and the amount of variability captured ranges from 57.86% to 81.86%.

Another rate used to assess the reliability of the reflective constructs is the composite reliability. Nunnally and Bernstein (1994) suggested a minimum 0.7 for valid modest reliability for the first stages of the research, although the recommended value is 0.8 for basic research purposes. The five values obtained are within a range of 0.8622 and 0.8842 (see table 4).

Table 2. Reliability analysis of the constructs

Construct	Items	Cronbach's alpha	Range of Cronbach's alpha by eliminating an item	Range of correlations of items and subscale total	Type of r indicated	One-dimensional analysis	
						KMO	% variance captured by the factor
1 Leadership	1a, 1b, 1c, 1d, 1e	0.866	0.822 – 0.864	0.586 – 0.748	Reflective	0.855	65.50%
2 Policy and strategy	2a, 2b, 2c, 2d, 2e	0.854	0.803 – 0.872	0.532 – 0.748	Reflective	0.841	65.47%
3 Individuals	3a, 3b, 3c, 3d, 3e	0.816	0.761 – 0.801	0.535 – 0.667	Reflective	0.787	58.11%
4 Alliances and resources	4a, 4b, 4c, 4d, 4e	0.814	0.766 – 0.796	0.554 – 0.642	Reflective	0.832	57.86%
5 Processes	5a, 5b, 5c, 5d, 5e	0.829	0.760 – 0.834	0.515 – 0.753	Reflective	0.771	60.76%
6 Results in customers	6a, 6b	0.397	-	0.248	Formative	0.500	62.41%
7 Results in individuals	7a, 7b	0.532	-	0.363	Formative	0.500	68.17%
8 Results in society	8a, 8b	0.769	-	0.637	Formative	0.500	81.86%
9 Key results	9a, 9b	0.753	-	0.605	Formative	0.500	80.24%

Source: put together by the author from data supplied by Euskalit.

The third point to be analysed is that of convergent validity. To this end, the average variance extracted (AVE), which provides the amount of variance obtained via its indicators related to variance due to measuring error. Fornell and Larcker (1981) recommend values over 0.5. The AVE indicators for the five *agent* or *enabler* criteria are between 0.5561 and 0.6084 (see table 4). Convergent validity is therefore assured.

The fourth and final aspect to be analysed in order to assess the measurement model is that of discriminant validity. We use the criteria used by Fornell and Larcker (1981): the square root of the AVE should be higher than the correlations evidenced by this construct with the other constructs. Table 3 shows the square root diagonal of the AVE, while the other cells show the correlations. The initials N.A. indicate the fact that the procedure is not applicable to formative constructs – in our case, those referring to *results*.

Table 3. Discriminant validity

	1 <i>Leadership</i>	2 <i>Policy and strategy</i>	3 <i>Individuals</i>	4 <i>Alliances and resources</i>	5 <i>Processes</i>	6 <i>Customer results</i>	7 <i>Individual results</i>	8 <i>Society results</i>	9 <i>Key results</i>
1 Leadership	<i>0.7800</i>								
2 Policy and strategy	0.659048	<i>0.7560</i>							
3 Individuals	0.660150	0.615709	<i>0.7532</i>						
4 Alliances and resources	0.475616	0.628333	0.472770	<i>0.7454</i>					
5 Processes	0.656164	0.656767	0.532744	0.575270	<i>0.7628</i>				
6 Customer results	0.178827	0.196964	0.203636	0.168447	0.213556	N.A.			
7 Individual results	0.230745	0.202988	0.274266	0.155414	0.223468	0.452885	N.A.		
8 Society results	0.216968	0.262638	0.177850	0.218836	0.225075	0.198674	0.222729	N.A.	
9 Key results	0.254630	0.398992	0.269880	0.474326	0.295095	0.377769	0.300357	0.136355	N.A.

Note: correlations between latent variables under the main diagonal. In the diagonal are the square roots of the AVE, in italics. Source: put together by the authors from data supplied by Euskalit.

It is noted that the reflective constructs comply with the criterion used by Fornell and Larcker (1981) to guarantee discriminant validity. For their part, the formative indicators also exceed the condition put forward by Luque (2000), as the maximum correlation is 0.49. Fornell and Larcker (1981) recommend values lower than 0.9.

5.3. Assessment of the structural model

The *goodness-of-fit* (GoF) rate proposed by Tenenhaus *et al.* (2004) regarding global adjustment of the model is 0.3815. This rate takes into account both the variance explained for the dependent latent variables and their communalities (table 4).

The variability explained by the model for the dependent latent variables on the left part of the model (*enabler* criteria) is higher than 0.40 in four cases. In the case of *process* criterion, it reaches nearly 50%. However, the model fails to explain so well the constructs on the right part that refer to the *results* criteria. In fact, the reliability analysis for these constructs already reveals possible problems in this part of the model. However, we once again insist on the fact

that the initial purpose of this analysis is to study the EFQM model *as it is*, without any alteration.

Table 4. Fitness of the model

	AVE	Composite reliability	R2	Communality	Redundancy
1 Leadership	0.608446	0.884195		0.608446	
2 Policy and strategy	0.571514	0.866546	0.434345	0.571514	0.244197
3 Individuals	0.567289	0.867378	0.435798	0.567289	0.246166
4 Alliances and resources	0.555639	0.861835	0.226211	0.555639	0.123675
5 Processes	0.581812	0.873684	0.493242	0.581812	0.209878
6 Customer results			0.045606	0.588419	0.029022
7 Individual results			0.049938	0.502893	0.030212
8 Society results			0.050659	0.741018	0.037966
9 Key results			0.165413	0.790739	0.107985

Source: put together by the authors from data supplied by Euskalit.

Table 5 shows the coefficients of the internal model. A *bootstrapping* process has been used to test the robustness of these coefficients consisting of 500 samples of 100 elements each. In each box is noted down whether the corresponding hypothesis is accepted or rejected.

Figure 3 displays the results from table 5. This figure only shows the significant paths between criteria. A greater density of robust coefficients is noted on the left part. Indeed, the *leadership* criterion goes a long way to explain the results obtained in the *agent* criteria of *policy and strategy*, *individuals* and *alliances and resources*. The processes depend to a large extent on previous criteria (*policy and strategy* and *alliances and resources*). However, they only impact on one of the *results* criteria (*results in customers*).

There is only one path from the *leadership agent* to the *key results*. If one may be permitted to refer to the classic name used in project management, we might say that the “critical path” traverses *customer results*. These criteria are especially determinant, as the model indicated the fact that they are a necessary step on the way to obtaining key results.

Table 5. Coefficients of steps between internal variables

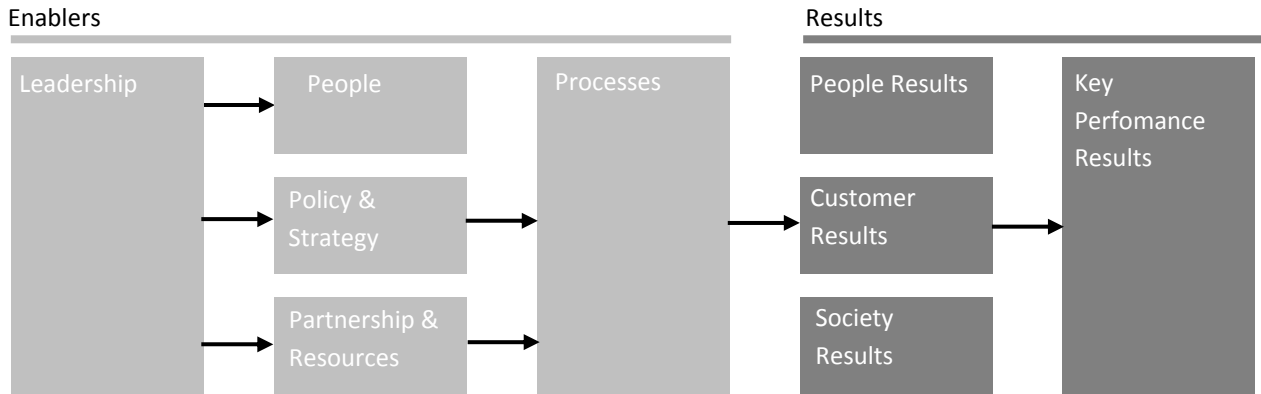
	1 <i>Leadership</i>	2 <i>Policy and strategy</i>	3 <i>Individuals</i>	4 <i>Alliances and resources</i>	5 <i>Processes</i>	6 <i>Customer results</i>	7 <i>Individual results</i>	8 <i>Society results</i>	9 <i>Key results</i>
1 <i>Leadership</i>		0.6590 (10.4058) H1a Accepted	0.6610 (11.3460) H1b Accepted	0.4756 (6.5347) H1c Accepted					
2 <i>Policy and strategy</i>					0.3969 (3.2827) H2 Accepted				
3 <i>Individuals</i>					0.1723 (1.7243) H3 Rejected				
4 <i>Alliances and resources</i>					0.2422 (2.0561) H4 Accepted				
5 <i>Processes</i>						0.2136 (2.0166) H5a Accepted	0.2234 (1.8404) H5b Rejected	0.2250 (1.8557) H5c Rejected	
6 <i>Customer results</i>									0.2989 (2.2357) H6 Accepted
7 <i>Individual results</i>									0.1555 (1.0427) H7 Rejected
8 <i>Society results</i>									0.0423 (0.3276) H8 Rejected
9 <i>Key results</i>									

Source: put together from data supplied by Euskalit. Note: the p-value is in brackets. The coefficients significant to level 0.05 are in bold. Results obtained from contrasting the working hypotheses.

The left part of the model (the *enabler* criteria) shows robust coefficients: only one of the six is not statistically significant, although it should be pointed out that the p-value associated with the relationship between the *individual enabler* and the *process enabler* is 1.72, close to the

boundary value established by 1.96. In other words, although this relationship is not significant to a level of 5%, it is so when slightly relaxing the demand for significance.

Figure 3. Significant coefficients



Source: put together by the authors. Note: coefficients significant to level 0.5.

To sum up, it is noted that the *enabler* criteria are closely correlated. On the other hand, the *results* criteria are not so inter-related as the *enablers*. The prior analysis involving measuring assessment already enabled the results to be disclosed as shown in table 5: the existence of a major number of rejected hypotheses in the bottom right area of the table, which refers to the relationships among *results*. Analogously, the same phenomenon is observed in the up right area, regarding to people results.

6. Conclusions

In the course of the analysis it has been ascertained that there is a major impact of the *leadership* enabler on the pursuit of policy and strategy in organisations, and also on the *individual* criteria and on *alliances and resources*. The importance of leadership in accordance with what is described in classical literature about TQM is clearly in evidence. It should also be pointed out that both the *policy and strategy* criterion and *alliances and resources* impact on the *process* criterion; however, the *individual* enabler criterion does not have a significant impact on an improvement in processes.

On the other hand, the *process* enabler only impacts on *customer results*. This criterion, in turn, is the only one that explains the *key results* criterion. In this sense, attention should be drawn to the fact that both the results in the *individual* criterion and the *results in society* criterion are excluded from the model, given that no significant relationships have been detected with other criteria.

To sum up, several of the relationships among the constructs proposed by the EFQM model are significant: seven of the twelve suggested by the model. Consequently, we understand that the internal validity (Pannirselvam and Ferguson, 2001; Williams *et al.*, 2006) of the EFQM model is contrasted, albeit with limitations. These conclusions would seem to coincide with the conclusions drawn from studies carried out previously by Pannirselvam and Ferguson (2001) for the Malcom Baldrige model, and Calvo de Mora and Criado (2005) and Bou-Llusar *et al.* (2005, 2009) for the EFQM model. Indeed, Pannirselvam and Ferguson (2001) proved the existence of significant relationships among the categories and confirmed the validity of the Malcolm Baldrige National Quality Award framework, based on data obtained from external assessments. Calvo de Mora and Criado (2005) and Bou-Llusar *et al.* (2005, 2009) also detected strong evidence of the causal relationship between the *enabler* and *result* criteria of the EFQM model based on perceptual data.

Attention should be drawn to the fact that another of the contributions made by this article is without doubt the proposal for using data obtained from external assessments of the EFQM model made by independent assessors, based on a training and assessment protocol such as that defined by Euskalit. As Pannirselvam and Ferguson (2001) point out in their study – and Calvo de Mora and Criado (2005) and Bou-Llusar *et al.* (2005, 2009) also stress when referring to the limitations of their respective studies based on perceptual variables – the information deriving from a third party who assesses this type of TQM model guarantees objectivity, rigour

and less characteristic bias introduced than information obtained from the directives of the organisations themselves that adopt these models.

This work has several limitations that need to be fully taken into account when interpreting the conclusions drawn from it. One of them is related to the methodology used to contrast the model. As Calvo de Mora and Criado (2005) point out, structural equations refer to the linearity of the relationships existing among the latent variables – in our case, the criteria pertaining to the EFQM model. In any event, we understand that the tool used is particularly suitable as it is geared towards a predictive causal analysis in situations of great complexity, albeit with sufficient theoretical knowledge in order to develop analyses of a confirmatory nature. Moreover and as Diamantopoulos and Winklhofer (2001) note, the PLS technique is suitable for assessing models with latent variables with formative and reflective indicators.

Another limitation of the article is related to the limited geographic scope of the sample of data used. It would be very interesting to extend this scope to Spain as a whole or even to a series of European Union countries. In this sense, the analysis could be greatly enriched by being able to include data obtained from external assessments presented at awards themselves granted by EFQM.

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An Holistic Theoretical Perspective to Analyse the Efficiency of Quality Management: Preliminary Findings of a Qualitative Study

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Abstract

The purpose of this contribution in progress is to propose an holistic model to analyse the efficiency of the adoption of Quality Management practices based on the ISO 9001 meta-standard. The work also summarizes the preliminary findings of a broader research carried out in companies of different sectors of activity in Portugal, based on a qualitative methodology. The preliminary contributions of this research aims to reinforce the state of art as concerns the theoretical scope of analysis of these issues enriched by the case study achievement.

Keywords: *ISO 9001; efficiency; performance; institutional theory; contingency theory; RBV; efficiency; effectiveness.*

1. Introduction

As the academic understanding of practices for Quality Management has increased, the focus of research has shifted from the analysis of drivers of certification to the analysis of more complex issues such as the internalization or the substantive and symbolic adoption of Quality Management practices such as ISO 9001 (Heras-Saizarbitoria *et al.* 2011, 2009).

As stressed by Ebrahimi and Sadeghi (2013), the impact of Quality Management practices on business performance has been the subject of constant interest and challenge among researchers. In the literature most of the research based on factual measures has been focused on ISO 9001 on firm's financial performance, since data-bases of ISO 9001 certified facilities are available and this represents a sort of Klondike for researchers, as underlined by Häversjö (2000).

Therefore, under this scope of analysis one rises many investigation questions concerning the characteristics, size, culture and placement of the organization in the environment and in the market. According to these paths, literature review was developed and from it many relevant propositions were taken. It must be stresses that the purpose of this paper is to measure the

efficiency of ISO 9001 on management, and furthermore, its association with the organization financial performance, under a holistic theoretical approach. The development of this study in progress was achieved according to the following procedures: from the initial research questions literature review was started. Upon it, the most relevant propositions were taken and identified (by numbers); according to their contents these literature suggestions were aggregated in assertions that were inter connected to the initial research questions.

Some relevant investigation questions overcame enabling this case study that was achieved on a qualitative methodology (interviews) in companies of different sectors of activity. Its goal was to evaluate organizations perception about the referred issues – characteristics, size, culture, involvement and financial results.

For that purpose, the remainder of this paper is arranged as follows. Following this introduction (1), the holistic theoretical framework and literature review (2) are analyzed. From this the research propositions are posited. Next the methodology (3) steps and data observation follow – from the research questions till the results obtained. At last the conclusions (4) are synthesized.

2. Theoretical framework and literature review

In this work the holistic theoretical framework proposed in this article integrates the Contingency theory, the Institutional theory and the Resources-Based View.

Contingency Theory can be classified as belonging to the class of behavioral theories and argues that there is no ideal or optimal way to manage. Wiio and Golhaber (1993) summarize: contingency may arise from leadership factors and Fiedler (1992) treats them as function of different variables within the organization including human resources; elements belonging to the decision-making process that Vroom (1992) names as factors of motivation and involvement of the employees; standards of behavior (Smith 1984) that are applicable in certain cases and translate some power. For Somsuk (2010), contingency is defined through a combination of ideas: there is only one way to well manage an organization - drawing a model related to the environment; so, effective organizations have an adequate adjustment to it and to its subsystems; the needs of the organization are better satisfied as they think best; at last the management model should be appropriate both to the tasks to be performed and to the nature of the group work.

Institutional theory considers the more intrinsic aspects (norms, rules, regulations, procedures and routines) of the structure of the organization (Scott 1995). In brief, one could say that the guiding elements of institutional theory are: the basis of compliance, the mechanisms of

action, the logic of operation, the indicators of the performance framework and the legitimacy (Scott 1995). Depending on the type of organization concerned - regulatory, normative or cognitive - the predominant features are defined. Regulator means that the indicators of action are based on existing laws and regulations associated with a punishment regime. Normative type means that certification will constitute the guiding principles. Cognitive type has to do with indicators provided by a comparison to others or to different environments, and may be the case of mimetic isomorphism. Companies many times seek legitimacy through processes of isomorphism - similarity between the internal characteristics of the organization and its environment. Firms are open systems with communication processes that interact with other organizations and they are a direct output of its institutional environment (Levitt and Nass 1989; Lowrey 2005). The mimetic isomorphism supposes that the organization has a tendency to imitate other similar and successful organizations (Levitt and Nass 1989; Chua and Petty 1999; Lowrey 2005; Leiter 2005) considered as a model (O'Connor *et al.* 2004). The coercive isomorphism is a form of coercion by a third party (State, Trade Unions, clients or suppliers) and can reveal itself through the existence of regulations (Levitt and Nass 1989; Chua and Petty 1999; Lowrey 2005; Leiter 2005). The normative isomorphism stems from the widespread applicability of standards across classes of professionals and recognizes that this class has an important role in disseminating certain kind of orientation (Levitt and Nass 1989; Chua and Petty 1999; Lowrey 2005; Leiter 2005).

The RBV theory suggests that the organizations are active and reactive agents. It stresses that the use of specialized resources are not replicable in other organizations because they have very peculiar situational frameworks for its management (Chandler 1962; Rumelt 1984; Wernerfelt 1984). This helps to create opportunities for diversity and real competitive advantages. The fundamentals of these resources can be based on knowledge (knowledge based) and the consequent power (competence based from Hamel and Prahalad 1990). Somsuk (2010) subdivided it into explicit knowledge or information and tacit knowledge or expertise. Teece *et al.* (1994) and Dirickx and Cool (1989) mentioned the based dynamic capacity that has to do with change. Thus, business strategy of any organization, depends on the resources whose use can be derived in specific skills (Oliver 1997) and its ability to maintain the routine production over time (Wernerfelt 1984).

Regarding the literature review, fundamentals for this study were either international or national studies. As to international contributions many of them associated quality to performance: Haversjo (2000), tries to identify some relationship between organisations' profitability and the quality management system, Casadesus *et al.* (2001), Chong and Rundus

(2004) and Martinez and Jimenez (2008), made questionnaires about it. For a similar effect Kujala (2002), used the interview. As to studies carried out in Portugal, a qualitative, a quantitative methodology or a mixed way of both was used. Furtado (2002) purpose was to measure the impact of certification on productivity and efficiency of materials used. He found that certified companies register a bigger growth of their turnover and productivity based on the materials used, while it seems that there is a greater difficulty in meeting expectations as to labour productivity. Pereira (2005) studied the factors of competitiveness and business performance through a model of analysis using both descriptive multivariate and correlation analysis and concluded that quality and technology are very relevant depending on the type of industry¹. Ribeiro (2006) decided to analyse the relationship between certification and financial performance and concluded that the antiquity of organisations' certification was connected to performance. A rather interesting work was carried out by Sousa (2006) on a completely different type of activity – tourism with the aim of relating the cultural aspect to performance and ISO 9001 certification. Findings showed that the involvement of the management, conducting internal audits, implementing corrective actions and also training are the key for success. Carvalho (2008) focused on TQM practices in Portuguese companies through quantitative methods in order to analyse the performance of organisations that adopt TQM associated with other management tools. As conclusion he said that the success of TQM implementation should be divided by companies and clusters: (i) highly committed, (ii) moderately committed and (iii) little committed with TQM practices. Results indicate that there is no link between TQM practices and other management philosophies to explain business performance. Although only a small proportion of companies use TQM practices, a large part of the Portuguese business is just quality certified ISO 9001. Sampaio (2008)² used both tools – quantitative and qualitative - and results demonstrated that certified companies based on internal motivations show higher profits than those certified companies on external motivations³.

From the elements belonging to the above referenced studies, those that are closer to the present research either as to the methodology or as to the contents are from Häverjö (2000), Kujala (2002), Heras *et al.* (2002, 2008), Sousa (2006), Ribeiro (2006) and Sampaio (2008).

3. Methodological approach

¹ The use of the theoretical framework set out in the present research study was not a target of the author

² Sampaio (2008) and Ribeiro (2006) used the database of the “500 Biggest and Best” – current edition of the *Expresso Publishing*, previously *Revista Exame*. The tools used in these studies were quantitative – OLS, SPSS, clusters and multivariate analysis – and qualitative.

³ As already mentioned about other authors this author did not use any theoretical framework approach in his study

This methodological approach will consist of the following contents

3.0 Start up	3.1 Data	3.2 Sample	3.3 Outcome
1 Research questions 2 Literature propositions 3 Units of analysis 4 Assertions (Interconnection of propositions) 5 Criteria (for results interpretation)	1 Interviews 2 Preparation of the interview guide	1 Characterisation of companies	1 Results

3.0 Start up

The theoretical research suggestions suggested a multiple case study (Yin 2009). It means the diverse descriptions and narratives concerning a single unit of analysis may be replicated and a final cross analysis of results will be done. Thus, the qualitative analysis option will be guided by the below described paths. The initial research questions were the motivation for literature propositions; the units of analysis will be defined; the interconnection of the literature propositions (assertions) will emerge. At last the establishment of a criterion for the results interpretation will be considered. Data will address the collection of information through semi structured interviews. The sample will disclose the companies where these interviews were achieved. Finally the results in a “cross case analysis” (Yin 2009) will be analysed and ascertained with the defined criteria enabling pertinent conclusions.

3.0.1 Research questions

The objectives of the initial research questions, next described, motivated the literature review: (i) characteristics and reasons for companies to adopt quality management practices; (ii) the size (assets, sales or number of employees) of the organisations implies quality certification, or an inner belief felt; (iii) culture of the country and of the organisation and quality management; (iv) cost accounting records help organizations to better manage quality; (v) kind of changes in the organization after quality certification; (vi) Quality Management System and the financial results. Under this approach, literature review allowed many propositions.

3.0.2 Propositions and assertions from literature

Quality, performance and associated propositions are summarised in Table 1.⁴

⁴ It should be clarified that the same research question may have standpoints and frameworks covering different parts of the same study. For example, question (v) concerning changes in the organisation after ISO 9001 implementation with impact on the structure (organisation and quality), on the process (Process of ISO 9001 implementation) and on its effects (Effects of the quality process), may be considered in three different chapters.

Table 1 Research questions and propositions

Research Questions	Literature Review	Proposition No.
I	Process of quality implementation Effects of the quality process	16 17,18,19
ii	Organisation and quality Effects of the quality process	2 25
iii	Organisation and quality Process of quality implementation	6,9,10 12
iv	Process of quality implementation Effects of the quality process	20 21
v	Organisation and quality Process of quality implementation Effects of the quality process	1,3,4,5,7,8 11,13,14,15 22,23,24
vi	Effects of the quality process	26,35

The above transcribed table considered the topics of literature review connected with the initial research question and the corresponding number of literature propositions. Their articulation forming assertions is below described.

Organisation and quality

Table 2 – Assertions a1, a2 – Organisation and quality

Literature propositions (p)	Assertions
<p>1 Typically, changes take place in the organisation after quality certification (Heras et al. 2008)</p> <p>2 The decision to certify the organisation can be taken either by the will of top management or by the market itself (Wiio and Goldhaber1993; Tolbert and Zucker 1996; Wiele and Brown 2002)</p> <p>3 Organisations, after certification, by becoming more formal according to an ISO standard, may feel that their structure is more agile (Benson et al. 1991; Germain and Spears 1998).</p> <p>4 Usually, the more organisations specialise in a particular product, the more they should feel the need for quality management in that product (Benson et al, 1991; Germain and Spears 1998).</p> <p>5 When organisations choose to decentralise, they may ease the system of quality management (Benson et al. 1991; Germain and Spears 1998).</p>	<p>a1 the structure of ISO 9001 certified organisations, may be more enhanced</p>
<p>6 After being certified, organisations may believe more in their management process (Schein 1992)</p> <p>7 After being certified, organisations feel that structures and processes are more visible (Schein 1992; Argyris and Schon 1996)</p> <p>8 Strategies can be better defined after certification (Schein 1992; Argyris and Schon, 1996)</p>	<p>a2 ISO 9001 may contribute to a culture reinforcement</p>

<i>Literature propositions (p)</i>	Assertions
<p>9 <i>The culture of quality after certification is different in the organisation's culture (Kotter and Heskett 1992)</i></p> <p>10 <i>The culture of quality, if absorbed by all employees, becomes part of the organisation's culture (Kotter and Heskett 1992; Lindby et al. (1999)</i></p>	

As previously mentioned, organisations that have a dynamic and flexible organisational structure (Kanter 1989) are more likely to implement a quality management system. Dale (1994) argues that these organisations will have, procedures, controls and monitoring instituted to ensure a quality management system (something very institutional, as to Wiio (1993). It may perhaps be concluded that ISO 9001 certification helps organisations to have a better defined structure (assertion a1). Nevertheless, it has also been suggested by Schein (1992), Kotter and Heskett (1992) and Lindby *et al.* (1999) that organisations culturally more open would be better hosters of the quality process. Hence, from the articulation of literature propositions (p6:p10), either as to strategy or as to the visibility that the company gets after certification, it may be stated that a stronger quality culture is recorded after that process (assertion a2). ISO implementation process will now be considered.

Top management should involve the employees of the organisation (Mac Adam and Oneill 1999; Kaplan and Norton 2001; Zahirul 2003). For Dillard and Tinker (1996), organisations should require a prior knowledge on quality of their employees as the best way to have a comprehensive engagement⁵ and ability for change (Hammer and Champy 1993). Quality process effects will raise expenditures which to be better managed, might be considered, as an intangible assets (Kaplan and Norton 1991; Heskett *et al.* 1994; Huselid and Becker 1998). This way, best management practices would emerge (assertion a3). As previously mentioned, employee involvement is critical, because their efficiency is relevant to the financial result (Imai 1986; Garvin 1988; Juran 1989; Deming 1991; Lingle and Scheimann 1996). Certified organisations may evidence a more motivated human structure (assertion a4) and the quest for continuous process improvement is a natural event, leading to customer satisfaction. This is the common thread of the quality process (Crosby 1979; Feigenbaum 1991; Dean and Bowen 1994). So, the fifth statement (a5) is mentioned considering that a greater customer loyalty (assertion a5) arises after the quality process. But some other effects may arise.

ISO 9001 implementation process

⁵ This way, it would be easier to share the quality strategy with the remaining hierarchy (Neergard, 1997).

Table 3 – Assertions a3: a5 - ISO 9001 implementation process

<i>Literature propositions (p)</i>	Assertions
<p>11 Present organisations, when recruiting their employees, should require in their CV some knowledge on quality (Dillard and Tinker 1996).</p> <p>12 The principles and guidelines of quality are best attained if the strategy is measurable and shared by all (Mc Adam and Oneill 1999; Kaplan and Norton 2001; Zahirul 2003)</p> <p>13 Following certification, the organisation’s structure is usually reorganised (Hammer and Champy 1993)</p> <p>20 The consideration of certification costs as an intangible asset could facilitate quality management (Kaplan and Norton 1991; Heskett et al. 1994; Huselid and Becker 1998)</p> <p>14 After certification, employees feel usually more involved in their activity (Garvin 1988; Juran 1989; Deming 1991)</p> <p>15 Top management, after quality certification, is more committed (Imai 1986; Neergard 1997)</p> <p>16 Customer expectations are best understood and satisfied after certification (Crosby 1979; Feigenbaum 1991; Dean and Bowen 2004)</p>	<p>a3 after ISO 9001 certification organisations may develop better management practices</p> <p>a4 with quality certification organisations may register a more motivated human structure</p> <p>a5 with ISO9001 quality there is greater customer loyalty</p>

The effects of ISO 9001 implementation

The effects of quality certification (table 5) may be of a non-financial nature (assertions a6:a7 - first part of the table), and of financial nature (assertions a8:a10). As to the former some authors argue that organisations seek certification because they perceive it as a competitive advantage (Porter 1985; Senge 1994; Basu 1997; Stern 2001) reason why some elect the market (Oakland and Tanna 2007) – leading to assertion a6, and others elect the customers (Lingle and Scheimann 1996; Zairi 1996). One thing seems for sure: quality focus must come from the top management (assertion a7).

Table 4 – Assertions a6: a10 – Quality process effects

<i>Literature propositions (p)</i>	<i>Assertions</i>
<p>17 Quality certification may be perceived as a competitive advantage (Porter 1985; Senge 1994; Basu 1997; Stern 2001)</p> <p>18 In some instances, the market was the reason for quality certification (Pun 2002; Taylor 2003; Chong 2004; Gore 2004; Ortiz 2006; Ntungo 2007; Oakland and Tanna 2007)</p> <p>25 When the organisation’s management feels that certification relates to the financial performance, it is more successful (Haversjo 2000; Hendricks and Singhal 2000; Heras et al. 2002; Sampaio 2008)</p> <p>19 Success is explained by top management commitment to quality certification (Hofstede 1991; Adam et al. 1997; Schein 1999; Lagrosen 2003)</p>	<p><u>Non-financial</u></p> <p>a6 a large part of quality certifications is driven by the market</p> <p>a7 the focus of quality must come from top management</p>
<p>21 If organisations could consider quality as an intangible asset, very likely, the situation of decoupling would be mitigated (Westphal and Zajac 1994; Tolbert and Zucker 1996; Wiele and Brown 2002).</p> <p>22 Organisations, should have an immediate accounting of quality costs (Kaplan and Norton 1991; Ittner and Larcker 2003; Yang 2008)</p> <p>23 Quality costs should be presented according to their nature – in terms of prevention, assessment and faults (Yang 2008).</p> <p>24 Timely accounting information provides clues to quantify quality (Shirley 1997)</p> <p>26 Quality certification is decided according to the time of the product life required (Stern 1991; Chenall 2003; Walsh 2006)</p> <p>27 Organisations that follow measures of accounting agreed with quality management have better performance (Kotter and Schlesinger 1979; Schonberger 1986; Keep 1989; Bjornenak and Olson 1999; Lin and Johnson 2002)</p> <p>28 Quality certification, may provide some improvement in performance indicators (Chenall 2003; Walsh 2006; Ross et al. 2008)</p> <p>29 Usually performance indicators used by organisations are: sales growth, return on assets (ROA) and return on equity (ROE), financial autonomy and net income (Kaplan 2001; Walsh 2006; Ross et al. 2008)</p> <p>30 Organisations that use non-financial tools like BSC, TQM, ISO among others, to measure the management quality, end up having a better performance (Zairi 1996; Weldeghiorgis 2004)</p> <p>31 Financial measures are the sufficient measure to assess management performance (Zairi 1996; Weldeghiorgis 2004).</p> <p>32 Organisations’ financial information is one of the most important (Zairi 1996; Lingle and Scheimann 1996)</p> <p>33 Financial measures should be the necessary and sufficient to explain performance (Zairi 1996; Weldeghiorgis 2004)</p> <p>34 Employees’ efficiency is relevant to explain financial performance (Lingle and Scheimann 1996; Zairi 1996)</p> <p>35 Customer satisfaction is critical (Scheimann and Lingle 1996; Zairi 1996)</p>	<p><u>Financial (Immediate)</u></p> <p>a8 costs related to quality may be significant</p> <p>a9 good practices of management may create conditions for a good management performance</p> <p><u>(Mediate)</u></p> <p>a10 a good management performance can lead to a good financial result</p>

As to a financial nature, literature reveals that expenditure on quality should be handled carefully (Yang 2008) because organisations should know how to manage the causes and consequences of their errors (Yang 2008; Ittner and Larcker 2003; Shirley 1997), in order to ensure the continuity of their business. Quality expenditures may be significant (assertion a8). Companies that have an accounting record agreed with the quality record, end up having better performance than the others (Kotter and Schlesinger 1979; Schonberger 1986; Keep 1989; Bjornenak and Olson 1999; Lin and Johnson 2002). It sounds that good quality management practices may create conditions for a good management performance (assertion a9); in addition some principles of motivation and involvement from the top of the hierarchy (Zairi 1996; Weldeghiorgis 2004; Kaplan and Norton 2001; Walsh 2006; Ross *et al.* 2008) should contribute to a good financial result (assertion a10).

3.0.3 Units of analysis

The selection of Portuguese listed companies has to do with their initial public offering (IPO) and because they are more rapidly in the global market (Gore 1994; Dawson 2009). These companies are the most identifiable in terms of information present on line (in a special web site). Potential investors, or stakeholders (Peteraf and Stanley 1997; Michael 2001; Phillips 2003) may use it to make decisions. In Spain, Nicolau and Sellers (2002), confirm that quality certification may be associated, in listed companies, with the yield per share. In Portugal, Beirão and Sarsfield (2002) analysed the impact of ISO 9000 on the share price and concluded that the previous knowledge of quality certification to happen in a company - has a positive effect on its valorisation. In America, Ferreira (2008) posits that the securities exchange market is likely to see prices change, according to the announcement of certification of its companies but the positive correlation is observed only in large companies. In China, Bu (2007) does not share the same opinion concluding that this has to do with the level of indebtedness. Yet at the time of disclosure, quality certification reveals as being a performance bonus, and, has a positive impact on the valorisation of its capital. In short, it seems that the value of organisations after ISO certification becomes more credible to all stakeholders (Chemmanur and Paeglis 2004). So from the Portuguese website of stock exchange companies named CMVM (accessed on February 25, 2010) the financial elements relating to listed companies were withdrawn, identifying, individually, the ones ISO 9001 certified.⁶ These organisations belong also to Euronext being classified by an ICB acronym meaning – industry classification benchmark. ICB is a detailed and comprehensive structure for the sectors and respective

⁶ Financial companies (banks and the like) and sports companies (Football Co's - Benfica, Porto and others) were not considered because the type of management does not fit the scope of this analysis.

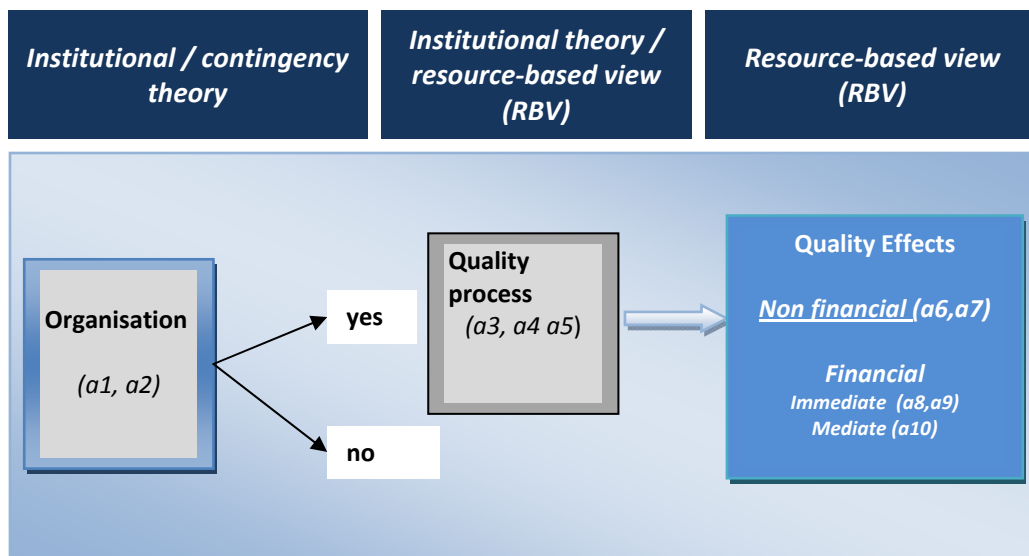
industry, facilitating the comparison across companies through the economic activity classification. In parallel a publication of certified companies (*Guia de Empresas Certificadas - Certified Companies Guide – Edition Cem Palavras 2010*) identified the construction and food sectors, in 2010, in Portugal, as the most relevant in terms of Quality Management System.

Thus, the following sectors will be considered: ICB 2350 – Construction (where two companies will be selected) and ICB 5330 – Food and retail (where two companies will be selected). In addition, to screen for desired effects, and to grant greater sustainability to the results (Yin 2009), it was also considered a sector without ISO 9001 certification – ICB 5550, concerning “media” where two companies were also selected. These companies, totalling six, belonging to this case study, were selected according to factors that could facilitate the address to them namely the openness and availability to meet academic demands.

3.0.4 Propositions inter relation

The literature review enabled a framework spread out by, at least, three different management theories: institutional, contingency and resources based view (RBV). The logical connection between the propositions interrelation resulted in assertions, that underlie the purpose of this research (see figure 1).

Figure 1 Theoretical approach of the Model of Analysis



The interpretation of this model follows this flow of ideas:

Institutional and/or contingency theory (a1- a2): thus, the organisational structure (a1) is connected to the cultural nature (a2). These elements may be of institutional or of contingent nature.

Institutional theory/RBV (a3 - a5): the mentioned assertions (a3:a5) arise, referring to the implementation and motivation of good quality practices: after ISO 9001 certification, organisations can develop better management practices (a3) and a more motivated human structure (a4) resulting in greater customer loyalty (a5). These facilities are of institutional or of a resources perspective.

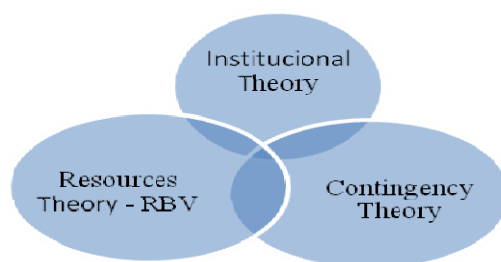
Resources View - RBV (a6 - a10): a large part of quality certification is driven by the market (a6) and the focus of quality should come from top management (a7). Subsequently, the financial effects are a consequence of a quality process and costs related to quality may be significant (a8) but good practices of quality management may create conditions for a good management performance (a10).

To test this model an empirical case will be oriented by the following criteria.

3.0.5 Criteria for results comprehension

As before mentioned different theories can engage this issue: from the institutional (Scott 2001; Oliver 1997) to the contingency (Wiiio 1993) or to the resources-based view RBV (Wernerfelt 1984). Any of these may be crossed by the stakeholders' theory (Phillips 2003). In Figure 2, the different circles intend to interpret the results.

Figure 2 - Criteria for interpreting results



From the descriptive interpretation of results, references to the theoretical foundation will be highlighted considering their greater or lesser extent, according to the degree of frequency in which the term is used. This will allow defining the sequential positioning of theories through the size of the representative image. The intersection of theories means a double or triple simultaneous theoretical interpretation. Oliver (1997) named cultural factor as an institutional

element; yet it may also be considered as a resource enabling the process of quality implementation - RBV (Schein 1999) and may also be taken as something contingent if associated to the changing events of our century (Dawson 2009).

3.1 Data

The procedures concerning the semi-structured interviews (Yin 2009) undertaken in Portuguese companies were the following.

3.1.1 Interviews achievement

Interviews were developed according to a guide, prepared according to the logical sequence of subjects formatted in the ISO 9001 structure. A week before the interview taking place, a copy of the guide was sent by email to the interviewees. The interviews were done from June to October 2010; their duration was 60 to 90 minutes and were carried out, both in listed companies with ISO quality principles and without ISO quality certification. The latter situation was intended to make a counterpoint to the desired effect. Interviewed people were either representatives of the elements of organisations' top management and or professionals responsible for Quality Management.

3.1.2 Interview guide elaboration

The preparation of the interview guide had two basic stages: the first was the definition of its structural archetype and the second was the definition of its contents. It had two versions to be presented in quality certified and non-quality certified companies. It was based on the abovementioned Model of Analysis. Its topics contents, formatted in the ISO 9001 structure, were the result of the framework of assertions (a1: a10) created upon literature propositions (propositions: 1 to 35). Therefore, it is essential to address its key points, identified in 4.5.6.7.8.⁷, meaning respectively:

Quality Management System (4)	QMS
Management Commitment (5)	MC
Resource Management (6)	RM
Product Realisation (7)	P/S
Measurement, analysis and improvement (8)	MAI

⁷ From ISO 9001 standard points 1 to 3 of the ISO 9001 Standard are respectively: 1. Fundamental concepts of its application, 2. Regulatory framework and 3. Terms and definitions that are not relevant or fundamental for the present research aim.

When combining ISO 9001 items to the assertions built, propositions from literature are related.

Table 5 ISO 9001 contents, related assertions and propositions

Performance	Assertions and propositions from the literature
Quality Management System	a1 - p:1-5; a5 - p:16
Management Commitment	a2 - p:6-10; a3 - p:12,13,20; a7 - p:19, 25
Resources	a4 - p:14,15; a8 - p: 22,23.24,26
Product / Service	a6 - p: 17,18
Measurement, Analysis, Improvement	a9 - p: 27,28,29 a10 – p 30-35

All assertions listed from one to ninth, concern non financial performance (A). The tenth assertion concerns financial performance (B). This way topics of the interview guide, stand on the right side and on the left one stands the theoretical basis (see below table).

A – Non-financial performance

Table 6 . Propositions and interview guide questions about Quality Management System

Quality Management System – QMS Propositions	Interview guide QMS
<i>Usually, there are changes in the organisation after quality certification (Heras et al. 2008) (p1)</i>	1 How do you classify, after certification, the definition of quality policy and objectives by top management (p1+p3)
<i>The decision to certify the organisation can be taken either by the will of top management or by the market itself (Wiio and Goldhaber 1993; Tolbert and Zucker 1996; Wiele and Brown 2002) (p2)</i>	2 Do you consider that, after certification, the management process has more self confidence (p2)
<i>After certification, organisations, due to the fact that they become more formal by following an ISO standard, may feel a more agile structure (Benson et al. 1991; Germain and Spears 1998) (p3)</i>	3 Do you consider the consequences of a process of quality certification advantageous for the organisation (p3)
<i>Usually, the more organisations specialise in a particular product, the more they should feel a need for a quality management in that product (Benson et al. 1991; Germain and Spears 1998) (p4)</i>	4 Classify the functional reorganisation after the implementation of the quality process (p3+p4+p5)
<i>When organisations opt for decentralisation, they may ease the system of quality management (Benson et al. 1991; Germain and Spears 1998) (p5)</i>	5 Do you consider that, after certification, workers are more involved in the management process (p1+p2)
<i>Customer expectations are better understood and satisfied after certification (Crosby 1979; Feigenbaum 1991; Dean and Bowen 2004) (p16)</i>	6 With certification, customer expectations are better understood (p16)

Having identified the questions relating to the Quality Management System, follow the ones about Management Commitment.

Table 7. Propositions and interview guide questions about Top management commitment

Management Commitment – MC Propositions	Interview guide Management Commitment
<i>After certified, organisations may believe more in their management process (Schein 1992) (p6)</i>	7 How do you assess the involvement of top management on the quality factor (p6)
<i>After certified, organisations feel that structures and processes are more visible (Schein 1992; Argyris and Schon 1996) (p7)</i>	8 How do you classify the importance of the market for the company's certification (p7)
<i>Strategies can be better defined after certification (Schein 1992; Argyris and Schon 1996) (p8)</i>	9 How do you assess, after certification, the agility of the organisation when faced with new situations (p7+p8)
<i>After certification, quality culture is different in the organisation's culture (Kotter and Heskett 1992) (p9)</i>	10 How do you classify the description and organisation of functions in the hierarchy after certification (p9+p10+p12)
<i>If absorbed by all employees, the culture of quality becomes part of the organisation's culture (Kotter and Heskett 1992; Lindby et al. 1999) (p10)</i>	11 Do you consider that quality certification relates to some centralisation of power in the organisation (p12)
<i>Quality principles and guidelines are best attained if the strategy is measurable and shared by all (Mc Adam and Oneill 1999; Kaplan and Norton 2001; Hoque 2003) (p12)</i>	12 How do you classify the progress of the top management performance after certification (p8+p9+p13)
<i>After certification, the organisation's structure is usually reorganised (Hammer and Champy 1993) (p13)</i>	13 How do you classify the quality culture in the organisation after certification (p8+p10)
	14 After certification, do you consider that quality culture is identified more with the organisation's culture (p10)

A quality process implementation is supposed to have a critical involvement of organisations' top management. Resources both human and material are needed for an action of this nature and will be analysed next.

Table 8. Propositions and interview guide questions about Resources

Resources Propositions	Interview guide Resources
<p><i>After certification, employees feel usually more involved in their activities (Juran 1989; Garvin 1988; Deming 1991) (p14)</i></p> <p><i>Workers' efficiency is relevant (Scheimann and Lingle 1996; Zairi 1996) (p35)</i></p> <p><i>Top management, after quality certification, is more committed (Imai 1986; Neergard 1997) (p15)</i></p> <p><i>When recruiting their employees, today's organisations should require some knowledge on the quality on their cv (Dillard and Tinker 1996) (p11)</i></p> <p><i>In situations of greater success in this action, it was top management that chose the way of quality certification (Hofstede 1991; Adam et al. 1997; Schein 1999; Lagrosen 2003) (p19)</i></p> <p><i>The consideration of certification costs as an intangible asset could facilitate quality management (Kaplan and Norton 1991; Heskett et al. 1994; Huselid and Becker 1998) (p20)</i></p> <p><i>If organisations could consider quality as an intangible asset, the situation of decoupling would probably be mitigated (Westphal and Zajac 1994; Tolbert and Zucker 1996; Wiele and Brown 2002) (p21)</i></p> <p><i>In organisations, there should be an immediate accounting way of identifying quality costs (Kaplan and Norton 1991; Ittner and Larcker 2003; Yang 2008) (p22)</i></p> <p><i>Quality costs should be presented according to their nature – in terms of prevention, assessment and faults (Yang 2008) (p 23)</i></p> <p><i>Timely accounting information may provide clues to quantify quality (Shirley 1997) (p24)</i></p>	<p style="text-align: center;"><u>Human</u></p> <p>15 Do you consider that Quality implementation facilitated employees' motivation (p14+p35)</p> <p>16 Human resources are recruited considering knowledge on "quality" in their curriculum (p11)</p> <p>17 What is importance ascribed to the evaluation of employees' functional skills (p14+p35)</p> <p style="text-align: center;"><u>Material</u></p> <p>18 Does identification and quantification of quality costs assume importance in the company (p15 + p19)</p> <p>19 Do you consider significant to classify the expenditure on quality as an intangible asset (p20)</p> <p>20 Quality costs are analysed in detail – prevention, assessment and faults (p24+p25)</p> <p>21 Is the accounting department able to register all the movements that cause quality costs (p24)</p> <p>22 How do you classify the connection of quality certification to organisation's sales (p19)</p> <p>23 How do you classify the connection of quality certification to the organisation's financial performance (p24)</p>

After having started a process of quality certification, assuming the involvement of top management and the existence of human and material resources, the definition of the product or service, according to the expectations outlined, will be the goal of this entire process.

Table 9. Propositions and interview guide questions about Product/Service

Product / Service Propositions	Interview guide Product
<p><i>Quality certification is frequently decided because the moment the product life has required so (Stern 1991; Chenall 2003; Walsh 2006) (27)</i></p> <p><i>Quality certification may be seen as a competitive advantage (Porter 1985; Senge 1994; Basu 1997; Stern 2001) (p17)</i></p> <p><i>In some cases, the market was the reason for quality certification (Pun 2002; Taylor 2003; Chong 2004; Gore 2004; Ortiz 2006; Ntungo 2007; Oakland, and Tanna 2007) (p18)</i></p> <p><i>Customer satisfaction is crucial (Lingle and Scheimann 1996; Zairi 1996) (p36)</i></p>	<p>24 Does certification depend on the time of the product lifecycle (p26)</p> <p>25 Do you consider that certification is a competitive advantage for the organisation (p17)</p> <p>26 Do you consider this management option for certification as a market need (p18+p35)</p>

To keep up the quality management system many instruments of measurement, analysis and improvement will contribute to its maintenance.

Table 10. Propositions and interview guide questions about Measurement Analysis and Improvement

Measurement Analysis Improvement Propositions	Interview guide Questions
<p><i>Organisations that adopt the measures of accounting records agreed with quality management and its audits show a better performance (Kotter and Schlesinger 1979; Schonberger 1986; Keep 1989; Bjornenak and Olson 1999; Lin and Johnson 2002) (p28)</i></p>	<p>27 How do you classify the management's interest in complying with the plan of quality internal audits (p27)</p> <p>28 How do you classify the link between quality certification and the organisation's management performance (p25+p28)</p>

Measurement Analysis Improvement Propositions	Interview guide Questions
<p><i>When the organisation's management feels that certification relates to financial performance, it is more successful (Haversjo 2000; Hendricks and Singhal 2000; Heras et al. 2002; Sampaio 2008) (p25)</i></p> <p><i>Quality certification, if implemented in certain circumstances, may provide some improvement in performance indicators (Chenall 2003; Walsh 2006; Ross et al. 2008) (p28)</i></p>	<p>29 Do you consider that ISO implementation helps measuring management quality (p25)</p> <p>30 How do you evaluate employee performance after certification (p28)</p> <p>31 Do you consider that continuous improvement is a more solid idea after certification (p27)</p>

All the questions described until this stage refer to the organisation's management process in the perspective of non-financial performance. As to the organisation's financial performance, the following matters seem very relevant.

B - Financial performance

As already mentioned, some authors advocate very briefly that one can only manage what one can measure (Shellhorn 2007) and others say that the good financial performance is usually a result of a quality management (Weldeghiorgis 2004; Zairi 1996). Other ideas suggest that organisations seeking success use something different like management tools such as BSC – Balanced Score Card, TQM – Total Quality Management and even ISO (Zairi 1996; Scheimann and Lingle 1996; Weldeghiorgis 2004) because they allow a continuous management assessment. All these ideas will now be tested in the following sample of companies.

Table 11. Propositions and interview guide questions about Financial performance

Literature Propositions	Elements of Financial statements
<i>Normally, indicators used by organisations are: sales growth, return on assets (ROA) and the return on equity (ROE), financial autonomy and net income (Kaplan 2001; Walsh 2006; Ross et al. 2008) (p29)</i>	32 After certification, how do you classify the evolution of sales growth (p30+p31+p32+p33+p34 +p35)
<i>Organisations that use non-financial tools (such as BSC, TQM, ISO or other) to measure management quality end up having a better performance (Zairi 1996; Weldeghiorgis 2004) (p30)</i>	33 After certification, how do you classify the evolution of net income/sales (p30+p31+p32+p33+p34+p35)
<i>Financial measures are the sufficient measure to assess management performance (Zairi 1996; Weldeghiorgis 2004) (p31+p32+p33)</i>	34 After certification, which is the evolution of the net profit/equity – ROE (p30+p31+p32+p33+p34+p35)
<i>Organisations' financial information is the most important one (Zairi 1996; Scheimann and Lingle 1996) (p34+p35)</i>	35 How do you record, after certification, the evolution of the net profit/total assets – ROA (p30+p31+p32+p33+p34+p35)
<i>Financial measures should be sufficient to explain performance (Zairi 1996; Weldeghiorgis 2004) (p33)</i>	36 After certification, how has the financial autonomy evolved (p30+p31+p32+p33+p34+p35)

3.2 Sample

3.2.1 Characterization of companies

As already mentioned, this analysis will be done under two perspectives: a) ISO 9001 certified companies and b) ISO 9001 non-certified companies. This study intends to be able to follow the suggestion of Yin (2009) in the use of “cross-case analysis”. It should be noted that the source of information which follows was the same for all the companies – information was got from the CMVM site - Management Reports, Balance Sheet and Income Statement.

a) ISO 9001 certified companies

ICB 5330 - Food and Retail: Company 1 and Company 2 - Food and retail: this ICB in Euronext list, obtained in May 2010, reaches a global value of 12,247,000 Euros, where Company 1 contributes with an income of 6,894,000 Euros, representing 56% of that value, and Company 2 with 5,353,000 Euros, representing the remaining 44%.

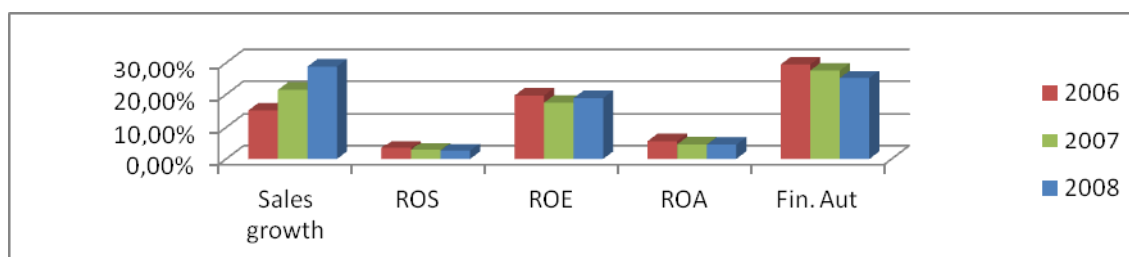
Company 1

The activity of this company is mainly food distribution (95.2% - holding) having late 2008, 1,411 stores in Portugal and 1,045 in Poland. 4.8% refer to production of fast-moving consumer goods (oil, margarine, drinks, toilet and care goods, ice cream, laundry detergents) of international brands. The geographical distribution of turnover was 49.4% for Portugal and 50.6% for Poland. This Group has presented, in the last five years, very solid results. To note, in 2008, a growth of 29%, dropping to 6% in 2009. The net return on sales (ROS) has occupied a share of 2-3%; the return on equity has represented about 20% of assets. The combination of this performance contributes to a sound indicator of financial autonomy rating 26%-34%. The quality factor has to underlie these expectations, hence the company is ISO 9001 certified (since 2001). In terms of financial performance, this company recorded the following evolution:

Table 12 - Economic and financial evolution from 2005/2009 – Company 1

Company 1	2009	Var % 09/08	2008	Var % 08/07	2007	Var % 07/06	2006	Var % 06/05	2005
1 Turnover	7,317,108	6.14%	6,893,737	28.86%	5,349,678	21.39%	4,407,175	15.12%	3,828,168
Operational res.	349,841	15.53%	302,815	34.48%	225,180	4.35%	215,797	-0.33%	216,503
2 Net results	223,267	26.87%	175,980	16.61%	150,909	0.00%	150,908	2.83%	146,761
3 Equity	1,065,695	14.45%	931,125	7.74%	864,205	12.63%	767,281	14.42%	670,565
4 Assets	3,178,944	14.70%	3,726,565	19.17%	3,127,063	20.19%	2,601,721	9.65%	2,372,666
ROS (2:1)	3.05%		2.55%		2.82%		3.42%		3.83%
ROE (2:3)	20.95%		18.90%		17.46%		19.67%		21.89%
ROA (2:4)	7.02%		4.72%		4.83%		5.80%		6.19%
Self Financing (3:4)	33.52%		24.99%		27.64%		29.49%		28.26%
<i>date of ISO 9001 certification: 2001</i>									

Graph 1 - Economic and financial analysis - Company 1



If it can be stated that certification in the food business is linked to the market, as sales growth have shown it. Other performance indicators selected ROS, ROE, ROA and Autonomy have not followed that favourable evolution trend.

Company 2

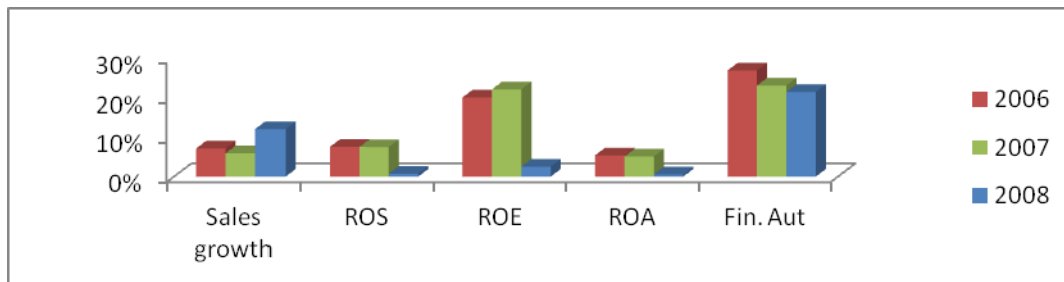
Company 2 has, in 2009, about 35,000 workers in large-scale distribution. Its mother-company actively manages a portfolio of independent businesses, comprising the following vectors that compose the turnover: retail (78.6%), including the exploitation of 793 hypermarkets, supermarkets and specialty shops located in Portugal and Spain; telecommunications services (17.8%), landline and mobile telephone services; promotion, ownership and management of shopping centres (3.6%). The group is present in 12 countries: Portugal, Spain, United Kingdom, Germany, Greece, Italy, Ireland, Romania, United States, Brazil and Australia.

The economic and financial development recorded since 2005 has fluctuated a little, with a turnover growth of around 6%-12% and net profits, in function of the organisation's turnover, have recorded values of 6-7% between 2005 and 2007. Suddenly, in 2008, they stood at 0.7%, while turnover had grown 12%! Notwithstanding that, Company 2 records a very comfortable financial autonomy – from 21% to 26% - which shows strength of its financial structure. This company recorded the following evolution:

Table 13 Economic and financial evolution from 2005/2008 – Company 2

Company 2	2008	Var % 08/07	2007	Var % 07/06	2006	Var % 06/05	2005	Var % 05/04	2004
1 Turnover	5,353,000	11.99%	4,780,000	5.89%	4,514,000	7.10%	4,214,926	n/a	n/a
Operational res.	175,000	-61.62%	456,000	27.73%	357,000	6.56%	335,030	n/a	n/a
2 Net results	39,000	-89.08%	357,000	5.31%	339,000	27.74%	265,379	n/a	n/a
3 Equity	1,563,000	-3.40%	1,618,000	-4.54%	1,695,000	10.39%	1,535,430	n/a	n/a
4 Assets	7,306,000	3.99%	7,026,000	11.15%	6,321,000	0.23%	6,306,688	n/a	n/a
ROS (2:1)	0.73%		7.47%		7.51%		6.30%		
ROE (2:3)	2.50%		22.06%		20.00%		17.28%		
ROA (2:4)	0.53%		5.08%		5.36%		4.21%		
Self Financing. (3:4)	21.39%		23.03%		26.82%		24.35%		
<i>date of ISO 9001 certification: 2001</i>									

Graph 2 Economic and financial analysis - Company 2



Company 2, from the food sector, confirms the trends observed in Company 1. Although sales growth has not been so significant, it is consistent with what has been observed in previous years.

In interpreting the sector, it may be said that the food sector, reaching the public directly, must be safeguarded in terms of ensuring the product; hence, it is mostly certified and this is mainly associated with the organisations' size. Small entities like supermarkets or grocery stores, serving exactly the same target-population, are not ISO certified.

ICB 2350 - Construction: Company 3 and Company 4 - In the construction sector, which, (from *Euronext*, May 2010) recorded a global value of 7,524,000 Euros in 2008, Company 3, with a turnover of 1,868,000 Euros, represents about 25% and Company 4, with 835,000,000 Euros, represents about 11%.

Company 3

Company 3 is a group of Construction and Public Works - CPW, with about 3,000 workers. It deals with construction of infrastructures and civil engineering (78.4% of turnover), including highways, bridges, tunnels, hydraulic and railway infrastructures; activity of promotion and management of real estate (houses, shops, offices); environmental services (15.3% of turnover), contracted management of highways (representing 6.3% of turnover). From 2007 to 2008, the turnover showed a significant increase of 33% due to polarisation of the export market. Thus, sales net profitability amounted to 2% and 7.6%, return on equity reached 12% in 2008, having been 28% in 2007 and in brief representing an average of 12% in the remaining years. The return on assets placed between 1% in 2008, 3% in 2007 and an average of 2% in the remaining years.

This company's quality certification dates back long ago, but the subsequent reorganisation of its structure made ISO 9001 to be in force just from 2004. In terms of sales, 2008 was a very good year, registering an increase of about 50%, but in terms of the remaining indicators, this positive evolution did not occur.

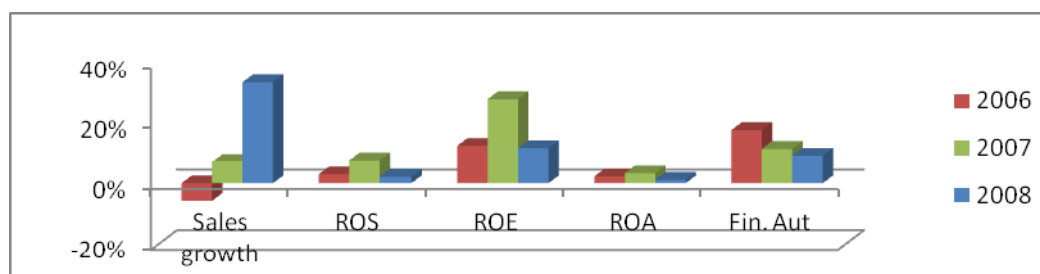
As a result of this evolution, the financial autonomy ranges from 9% in 2008 to 19% in 2005, reflecting some loss in the company's financial structure. In terms of financial performance, this company recorded the following evolution:

Table 14 - Economic and financial evolution from 2005/2008 - Company 3

Company 3	2008	Var % 08/07	2007	Var % 07/06	2006	Var % 06/05	2005	Var % 05/04	2004
1 Turnover	1,868,731	33.30%	1,401,900	7.16%	1,308,233	-5.27%	1,381,001	n / a	n / a
Operational res.	192,740	30.07%	148,186	76.01%	84,194	-44.97%	153,010	n / a	n / a
2 Net results	39,770	-63.09%	107,745	186.29%	37,635	0.26%	37,536	n / a	n / a
3 Equity	341,317	-11.79%	386,926	27.36%	303,795	-4.51%	318,153	n / a	n / a
4 Assets	3,709,651	9.55%	3,386,326	95.18%	1,734,992	5.45%	1,645,296	n / a	n / a
ROS (2:1)	2.13%		7.69%		2.88%		2.72%		n / a
ROE (2:3)	11.65%		27.85%		12.39%		11.80%		n / a
ROA (2:4)	1.07%		3.18%		2.17%		2.28%		n / a
Self Financing. (3:4)	9.20%		11.43%		17.51%		19.34%		n / a

date of ISO 9001 certification: 2004

Graph 3 Economic and financial analysis - Company 3



Company 4

This company is one of the largest Portuguese construction groups, employing about 2,000 workers. Turnover, by activity, is distributed as follows: building and infrastructure

construction (86.4%): houses, schools, hospitals, offices, shops, industrial establishments, hotels, stadiums, highways, bridges, among other projects; construction, sale and maintenance of industrial facilities (7.6%): production and assembling of steel structures, aluminium facades and carpentry products, design and sale of electrical, mechanical and hydraulic systems, railway infrastructures, security and access control systems; contracted management of infrastructures and public services (5.8%): infrastructures (roads, parking lots, highways) and public services (water treatment and distribution); real estate management and promotion (0.2%). The geographical distribution of business is as follows: Portugal (50.1%), Angola (36.6%), United States (4.8%), Mozambique (2.7%) and others (5.8%).

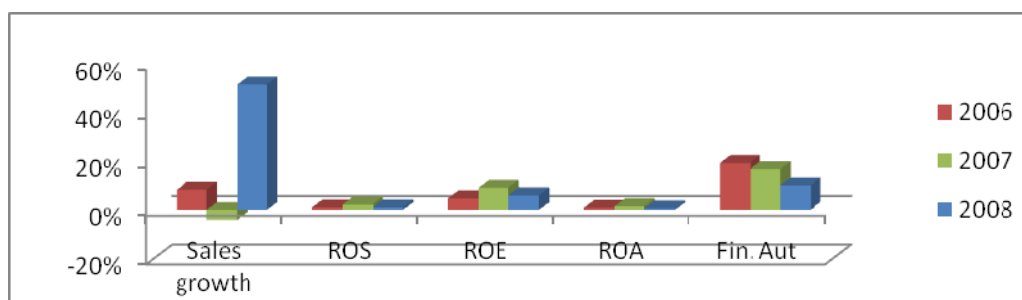
In terms of economic and financial evolution from 2007 to 2008, the turnover showed a significant increase of nearly 52%, and in 2009 recorded 12%. The progress of the profitability indicators showed the following values: sales net income – amounted to between 1% and 2%, and return on equity, from 2006 to 2009, grew from 4.7% to 9%, albeit with an oscillating growth in 2007 and 2008. The financial autonomy of 19% in 2006 registered 9% in 2009, evidencing some weakness in the financial structure.

Table 15. Economic and financial evolution from 2005/2009 - Company 4

Company 4	2009/2010	Var% 09/08	2008	Var % 08/07	2007	Var % 07/06	2006	Var % 06/05	2005
1 Turnover	936,263	12.16%	834,751	51.65%	550,451	-4.14%	574,207	8.27%	530,362
Operational res.	49,335	-3.59%	51,172	117.83%	23,492	-14.80%	27,572	457.24%	4948
2 Net results	11,631	42.03%	8189	-33.75%	12,361	111.99%	5831	1311.86%	413
3 Equity	130,282	-6.15%	138,826	1.90%	136,243	9.74%	124,150	5.36%	117,830
4 Assets	1,524,054	10.41%	1,380,360	69.83%	812,797	26.20%	644,050	-6.27%	687,142
ROS (2:1)	1.24%		0.98%		2.25%		1.02%		0.08%
ROE (2:3)	8.93%		5.90%		9.07%		4.70%		0.35%
ROA (2:4)	0.76%		0.59%		1.52%		0.91%		0.06%
Self Financing. (3:4)	8.55%		10.06%		16.76%		19.28%		17.15%

date of ISO 9001 certification: 2004

Graph 4. Economic and financial analysis - Company 4



b)ISO 9001 non-certified companies

In these companies, as there is not a “cut off” element concerning quality certification, because they are not ISO 9001 certified, their financial economic analysis is not relevant and has not been prepared.

ICB 5550 - Company 5 and Company 6 - In 2008, in the media industry (from Euronext, May 2010) totalled 1,439,000 Euros, where Company 5 records 270,000 Euros income and represents 19% of that amount, and Company 6, with 122,000 Euros, represents 8%.

Company 5

This Group is among the leading references of Portuguese media. Turnover, by activity, is distributed as follows: operation of a television channel and audiovisual production (73.7%): exploration of the TVI general channel and production of television programs (NBP; first channel in terms of soap operas, series and movies); music production and film distribution (10.8%): edition of music CDs and DVDs, events organisation, marketing of television rights, DVD distribution; operation of radio stations (6.2%). Turnover (in addition to divested activities), by source of revenue, is distributed by sales of advertising space (79.7%), CD and DVD (8.2%), magazines (3.8%) and other (8.3%). The total turnover (in addition to the divested activities) takes place in Portugal. The company, owned by the Group under analysis, is representative of a television channel with approximately 550 employees.

The Group's net profit reached, in 2008, the amount of 19.8 million Euros, a decrease of 34% over the previous year.

Company 6

This company consists of a Group with around 900 employees and specialises in the publishing of newspapers and magazines in the areas of economy, sports, general culture, computers and others. Turnover, by activity, is distributed as follows: newspaper publishing (71.4%) and magazine publishing (28.6%). In the perspective of the revenue source, it is divided into newspapers and magazines sale (42.9%) and advertising space sale (41.8%) and others (15.3%). The total turnover takes place in Portugal. The Company's economic and financial evolution has not disclosed, from 2007 to 2008, very satisfactory values due to a difficult international

macroeconomic environment, which had impacts on domestic demand and on the level of Portuguese economic recovery.

Interviews results achieved in these companies will now be analysed and discussed.

3.3 Outcome

3.3.1 Results and discussion

The whole literature review, present along this study was framed in the trilogy of perspectives: institutional, contingent and resources (RBV). According to the defined criteria of results defined, it will be displayed by the end, a cross case analysis. So, to begin with the opinions obtained in the interviews of the six companies according to the most important issues (points 4,5,6,7 and 8) of ISO 9001 are now described.

Quality Management System (point 4 of ISO 9001)

This was the first topic to be addressed in the interview guide and it is well known that Quality Management System needs a definition of quality policies and objectives something belonging to the institutional theory – a form of normative rationality (Ginsberg 1994).

Companies from the food sector provided immediate and concise answers. In company 1 it was stated: *“...The review and updating of Food Quality and Safety Policies, and the resultant change in the processes, are a commitment of the Organisation, aiming at its greater efficiency...”*; in company 2, this issue was taken even more seriously: *“...those quality policies and objectives have always existed even before ISO 9001 certification. The maintenance of those policies and objectives is an ongoing concern of top management in order to minimise business risk.”*

In this sector, quality is important because there is something called “social responsibility”. And, at this point, one should quote legitimacy theory, because it reflects public expectations concerning organisations’ behaviour (Gary 2002). Heras *et al.* (2008) referred that ISO 9001 certified companies, by their size or by their concern for the market, before being ISO certified, had already quality practices. In other words, quality management may exist even without a regulation that substantiates it, but needs strict principles and cultural values (Schein 1992; Neergard 2002).

In the construction sector, statements from company 3 confirm it: *“...quality policies and objectives were better explained after ISO certification”*. In the competitor (company 4) the answer was: *“...values of top management at the quality level. Compliance with national and*

international regulations, in particular with regard to the Product/Service Certification and to the proper Quality Management System functioning. Since 2004, the company has the quality process (ISO 9001) quality management system implemented, with clearly explained quality policies and objectives”.

These answers provide an explanation to the reason of certification, in the sense of ascribing company reputation (Rahman *et al.* 2007) or legitimising its relation with others (Gary 2002; Phillips 2005).

Food companies answered similarly. One company (1) stated: *“...we have always had some quality culture, but now its practices mean that everyone knows what quality is”*. The other company (2) clarified that even before ISO 9001 they had quality practices: *“...quality culture is shared by all the principles that steer our management. It could be said that, after certification, there has been a greater awareness of quality”*. In the construction sector, company (3) referred: *“...quality is already a topic that is part of our daily work”*. It seems that quality has been a very gradual process of attachment, but, presently, people are used with the concept. In company (4), the answer was different, suggesting more the idea of continuous improvement: *“...quality has to be present in everything that is done. The organisation’s culture is a reflection of all the events that mark its life; quality certification was one of those, now others will follow”*.

The culture of the organisation, geared towards quality, is a factor that may contribute to an easier implementation. In this case, culture could perhaps be envisaged as a mix of the institutional theory (Levitt and Nass 1989; Chua and Petty 1999; Lowrey 2005; Leiter 2005) and the RBV (Wernerfelt 1984). It may be stated that organisational culture (Schein 2002), considering the more intrinsic aspects – standards, rules, regulations, procedures and routines that typify and condition it – would be something suiting this company. These artefacts (Kujala 2002) may contribute to a greater flexibility being able to be considered as a resource which they attach to, in order to make a change.

The change in the organisations processes’ streamlining should be something consequent (Germain and Spears 1998; Benson *et al.* 1991). However, answers obtained were not so unanimous. In the food sector, in company (1) it was said that due to the procedures and regulations the certification process removed some agility: *“...in face of the procedures set, a little streamlining is lost facing new situations, gaining on the accuracy achieved.”* Company (2) referred leanness, as to new situations as: *“...very good, as it is associated with management practices, that is fostered by the implementation of the ISO 9001 standard, which*

frames our thoughts and actions.” This company may be more used to quality practices, once quality certification is older, being these management practices more institutionalised.

In the construction sector, answers were not far from this reality. For one of the companies (3): *“...the process approach requires more flexibility towards new situations”* while for the other (4): *“...quality certification was not the factor that forced us to be agile; in addition to the fact that we have it, we must also meet market factors and competition – suppliers and the technology, that require us to be agile.”*

In short, for the Quality Management System, the sequential order of predominance from the Theoretical Framework is: institutional theory, resources theory and contingency theory.



The institutional theory because it is associated with the formal structure of organisations (Scott 1995), Wiele and Brown (2002) and Gary (2002); RBV (resources based view) is applicable because the allocation of resources is crucial (Wernerfelt 1984) and the contingency theory because market dynamism (Laats 2005) can affect any decision. Yet it is well known that ideas and principles of quality need top management involvement and determination.

Management Commitment (point 5 of ISO 9001)

Top management commitment in the implementation of a quality process seems fundamental. Respondents confirmed the importance of top management about quality issues. Indeed, in company 1 the answer was illustrative: *“...high involvement, given that it must be attentive to customers’ needs to secure its business.”* This applies to all firms interviewed: senior managers were unanimous in recognising that quality must be inherent to the organisation’ top hierarchy. It seems that the institutional theory fits these perceptions (Scott 1995; Oliver 1997). Literature has been confirmed (Schein 1992; Argyris and Schon 1996), even by ISO 9001 non-certified companies.. Usually, the institutional theory is used when studying the adoption of practices or strategies in the organisation in order to survive, knowing that it must adapt to environmental conditions (DiMaggio 1983). Top management strength must be inherent to this whole change.

Can it be said that, as a consequence of quality certification, such commitment may reach the definition of the functions in any organisation? Company 1 said that *“...after quality*

certification, and under the scope of quality it becomes a more facilitated action by the requirement of a clear definition of all functions - directly or indirectly”; and in company 2: “...we had such a description before, but after certification it became clearer, as it was embodied in procedures”. It could be said that this is a very institutional perspective (Oliver, 1997).

In the construction sector, the position was somehow different. Company 3 stated that certification contributed to a clarification of functions: *“...the description and organisation of the functions has clearly been improved and systematised with the implementation of the Quality Management System”* but in company 4: *“...quality certification was not the engine and lever of decision making in the organisation. The description and the organisation of the functions has clearly been improved and systematised with the implementation of the Quality Management System, but we already had it”*.

This company did not seem willing to ascribe much importance to quality and its effects. The mastery of other management techniques – such as Balanced Scorecard (Mc Adam and Oneill 1999; Kaplan and Norton 2001; Hoque 2003) – seems to have contributed in a great extent to the successful implementation of quality certification. It could be asserted that, after Neergard (2002), this company had quality regardless of certification.

It was interesting to note that non ISO certified companies indicated that the organisation’s culture should be changed after certification.

Concerning the opinions of quality certified companies culture was an elected issue. In company 1: *“...quality culture is part of the organisation’s culture, and it has always been a pillar of our Group’s Mission”* and in company 2: *“...our quality culture is shared by all the management principles. It could be said that, after certification, there has been a greater awareness of quality”*.

Both companies belong to the food industry and it is interesting to note that there are entities where quality is handled with a higher proximity to the final customer what means some responsibility on performance (Phillips 2003).

In the construction industry Company 3 stated: *“...yes, quality is a topic that is already part of our daily work”* and company 4 added: *“...quality has to be present in everything that is done. The organisation’s culture is the reflection of all the events that mark its life. Quality certification was one of those moments, now others will follow”*.

It could perhaps be noted that culture considered by Schein (1999) and Kujala (2002) becomes a resource that, either as knowledge based (Prahalad and Hamel 1990) or a dynamic capability

based (Teece *et al.* 1994; Dirickx and Cool 1989), results in increased competence. However, these capabilities must be triggered from top management of any organisation knowing to lead the organisation's strategies as an inherent responsibility.

In summary, for Management Commitment the case study revealed the following sequential order of positioning of the theories: institutional, resources and contingency.



Whilst it is very important to have an orientation and involvement of the organisation's top management to allow an easy adaptation to a new process, still it is relevant to use the resources to do so.

Resources (point 6 of ISO 9001)

This was the third topic addressed in the interview guide on a double perspective – human resources and material.

Human Resources

Companies from the food sector argued that quality has always been a management priority. One of them (1) stated that *“Clearly yes...”* while another (2) said *“...there was an easier explanation, almost normative need, to assess employees on the basis of their performance.”*

It seems useful for organisations to be able to cling to a regulation to justify performance assessment appealing for the institutional theory (Levitt and Nass 1989; Chua and Petty 1999; Lowrey 2005; Leiter 2005). Due to quality implementation, employees have more training and more knowledge. Culture in an organisation (Schein 1999 and Kujala 2002) becomes a resource either as knowledge based (Prahalad and Hamel 1990) or dynamic capability perspective (Teece *et al.* 1994; Dirickx and Cool 1989) resulting in higher competence and better performance. As to a greater involvement of organisation's employees in consequence of ISO 9001 certification, literature (Deming 1991; Juran 1989; Garvin 1988) argues that, there is a better training of employees. Different opinions arise.

Companies from the construction sector: in one of them (3), it was stated: *“...insofar as they had to be covered by the design and implementation of its process, they were involved. Motivation to quality is still very difficult”*. Here it is being gradually attained while in the other

(4) it seems more at ease referring “...insofar as they had to be covered by the design and implementation of its process, people were involved more than motivated”.

Non-certified companies referred that they have ongoing performance assessment associated to management objectives. Any quality process encompasses organisation employees through permanent audits of the process. RBV as to knowledge or competence (Hamel and Prahalad 1990; Somsuk 2010) has a full place in this topic. However, it does not mean that, in their recruitment (upstream), a specific knowledge of this matter has been met. Literature considers that employee selection and recruitment in organisations should be done considering persons with *curricula* specialised in quality (Dillard and Tinker 1996). In this case study none of the certified companies in quality uses this form of recruitment, unless it is selecting someone for the specific area of Quality clarifying that: “...we are not yet at that level of evolution”.

There seems to be a kind of inertia. This refers to literary frameworks from Schein (1999), Kujala (2002) and Hofstede (2002), who argue that cultural aspects are really crucial in organisations’ management. Culture, also becomes a resource that can enhance knowledge (knowledge based from Prahalad and Hamel 1990) or capacity (dynamic capability based, Teece *et al.* 1994; Dirickx and Cool 1989), and may result in higher competence able to foster a better performance. This also depends on material resources.

Material

The material resources consist of acquisitions necessary to implement the organisation’s daily routine, plus the process of quality management. Yet they assume no significant values that may lead managers to consider such expenditure as an intangible asset. It was stated: “...we consider expenditure on quality as a compulsory investment. Quality costs do not assume significant relevance to be considered an asset”. Yet, the need to consider these costs of the quality process as an intangible investment has not been felt (Wiele and Brown 2002; Tolbert and Zucker 1996). The interviews contradicted literature. Besides this, in addition, companies do not classify the expenditure on quality by type of costs. This classification by nature of expense could help, to better manage organisations’ internal processes (Yang 2008; Ittner and Larcker 2003; Kaplan and Norton 1991; Shirley 1997).

The opinions of the construction sector show this. Company (3) had a surprising answer, stating: “...yes, it would be most interesting, but the company has not such notion”. Company 4, in the same industry, had a completely different approach and it was stated: “...it is not relevant. For us, quality is a principle, a culture that is shared with others. The amount of time employees spend on handover quality is not quantified. It is almost organisation’s culture”.

The organisations inquired about the costs issue do not carry out a quality costs management but they say that, they are able to identify, for each construction work, direct quality costs because they need the guarantee factor.

As to the theoretical plan applied, there is a triangulation between the three theories, with a predominance of the resources theory, followed by the institutional theory and, finally, the contingency theory.



It is now important to know how organisations see the adequate supply of their product/service considering an efficient use of resources.

Product/Service (point 7 of ISO 9001)

Concerning the argument that claims quality associated with organisation's sales (Keogh 1994), it was unanimously embraced by all, ISO quality certified companies and non-certified companies, respondents. Within the food sector, in one company (1) it was registered: *"...certification – but especially the QMS implementation – makes a decisive contribution to sales"*; the other company (2) stated: *"...quality certification is related to the market; hence, sales reflect the market value"*.

In the construction sector, company 3 clarified: *"...it is not directly, but rather indirectly linked, because we often carry out public works where the final user is different from the contractor"*. The other organisation (4) explained *"...sales and quality are closely linked, because the market requires certification."*

In these situations, there was almost like an invisible force pushing companies towards certification. The coercive isomorphism that summarises society's expectations, the stakeholders' (Phillips 2003) expectations in general, is entirely framed.

Non-certified companies from the communication sector defended this issue very well. Company 5 stated *"...this is true, indeed! Here, we just record services provision. If our programming does not have quality, it does not have audiences and the publicity, which is the financial inputs factor – does not take place."* Company (6), from the editorial communication, clarified *"...this is true, indeed! If our publications do not have quality, they do not have readers and advertising, which is a revenue input factor, does not take place."*

As to the question of whether certification could be considered a competitive advantage (Porter 1985; Senge 1994; Basu 1997; Stern 2001), the interviewees' answers were very interesting. In the food sector, company (1) clarified: *"...yes, it is possible to standardise processes and, consequently, products. It is also a competitive advantage, when communicated to the customers, because it certifies the accuracy and care of the product we launch"*. In other words, the defence of rigor in terms of meeting consumer expectations is considered a competitive advantage. The opinion of the other company (2) was assertive: *"...the market itself makes it be a competitive advantage"*.

In the construction sector, it has been stated (3) that certification is a market advantage: *"...of course it is"*. In the other company (4), the answer was given *ad contrario*, stating: *"...we would rather say that non-certification is a competitive disadvantage"*. For this company, the fact of not being ISO certified is a situation that places the company out of the market. This calls for contingency theory (Laats, 2005).

Besides, literature refers that quality certification is usually related to the product lifecycle (Stern 1991; Chenall 2003; Walsh 2006). Companies from the construction industry, referred: *"...I think that when a product is already successfully placed on the market we have to think of innovating, and quality must be inherent"*.

Quality certification appeals the institutional perspective for the mimetic isomorphism but it is also associated with the contingency of the market and the quality process itself may be considered a resource (RBV – resources based view). Thus the preponderance of the theories from the theoretical framework is as follows: resources theory, contingency theory, institutional theory.



This whole process, if viewed in terms of resources optimisation, whether human or material, necessary to obtain a product/service, may help to improve processes, but only if the prospect of continuous measurement, analysis and improvement are taken into account.

Measurement, analysis and improvement (point 8 of ISO 9001)

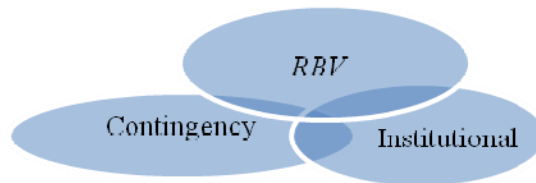
All these organisations were questioned about the use of quality as a management tool (Kotter and Schlesinger 1979; Schonberger 1986; Keep 1989; Bjornenak and Olson 1999; Lin and

Johnson 2009), only one company from the food sector (2) and another from the construction sector (4) used it.

The first (2 from the food sector) is implementing Kaizen methodology, and the second (4 from the construction sector) is implementing the BSC - Balanced Scorecard methodology. These tools are features that streamline processes.

As to whether the process quality can be defined as a quality management system, the following situations emerged: one company (1), from the food sector, clarified: “...yes, due to the fact that it has, in its metrics, some management indicators, thus allowing measuring its performance.” The other company (2) added: “...yes, it helps measurement through indicators concerning the processes that compose the Quality Management System.” In the construction sector, it was referred (3): “...the Quality Management System, establishing operating rules and procedures, facilitates management.” The other company (4) also confirmed: “...the Quality Management System, may make management easier.”

In conclusion the applicable theoretical approach considers the institutional aspect – through its mimetic and normative isomorphism, the resources based view, and the contingency.



The five topics of ISO 9001 were considered in concurrent analysis and it is important now to make a comprehensive summary of these results through a cross case analysis (Yin 2009).

Cross case analysis

The opinions obtained through interviews were framed, or not, in the associated literature and considered as to *Companies with and without ISO 9001*.

Quality Management System

Companies with ISO 9001: 88% of respondents confirmed literature regarding the changes to occur in management, the involvement of top management and the fulfilment of customers' expectations; the remaining 12% reported that the quality process frequently creates a web of rules and procedures that do not facilitate the streamlining of processes in organisations.

Companies without ISO 9001: said that only the quality process could respond to meet customers' expectations and although they have not embarked on a formal quality process (ISO), they considered to have good quality.

Management Commitment

Companies with ISO 9001: 69% of the results agreed on the induction and self-confidence of top management on the motivation for a Quality Management System. From these only 50% of respondents confirmed that ISO leads to a better definition of the structure.

Companies without ISO 9001: all respondents reported that they managed quality according to the object of their activity. Specifically as to a greater self-confidence caused by ISO quality, only a third (29%) confirmed literature.

Resources

Companies with ISO 9001: 56% of the results confirmed the ideas of ISO - employees' involvement, and the top management commitment to the organisation's sales. Under a theoretical point of view one must refer the knowledge based (Prahalad and Hamel 1990) and dynamic capability based models (Dirickx and Cool 1989; Teece *et al.* 1994). However, the knowledge on quality as a criterion for selecting new candidates in organisations (Dillard and Tinker 1996) was denied. They stated that this would be done only for the quality sector. As to the association of resources to ISO 9001, 44% of respondents did not confirm literature as to:

- the classification of quality costs as an intangible assets (Huselid and Becker 1998); decoupling situation shown by the institutional theory of Westphal and Zahajac (1994) was not identified; the need to identify quality costs by nature was not felt (Yang 2008).

Companies without ISO 9001: the perception that these entities have on quality certification and the involvement of top management and its relationship with the organisation sales is very relevant.

Product / Service

Companies with ISO 9001: for them ISO Quality, is an advantage and applies throughout the product/service life. The theoretical assumptions, like Resources (RBV) view, were confirmed: Knowledge of product/service and of the environment refers to the KBV - knowledge-based view (Prahalad and Hamel 1990) and consequent associated dynamic capability based (Dirickx and Cool 1989; Teece *et al.* 1994). Opinions revealed that there is always need to be alert to contingent or random situations that may arise and there should be the notion that the adaptation to the market dynamism (Laats 2005; Dawson 2009) is permanent.

Companies without ISO 9001: although non ISO certified, they recognise the fact that being certified is a competitive advantage. This particular opinion explains it: *"with the ISO certification, we would have other quality standards and audiences that are now our flag of success, in a higher level of demand, would probably drop..."* It is interesting to note that this phenomenon of ISO quality, depending on the market, may also have its negative side, which, under this manager's opinion, could mean the framework of the people's average cultural level.

Measurement, Analysis and Improvement

Companies with ISO 9001: 75% of the opinions confirmed the quality process helps to measure the organisation's performance. If the organisation is using some tools of management control (special resources) that act upon the inner formality – mimetic isomorphism (Levitt and Nass, 1989; Chua and Petty 1999; Lowrey 2005; Leiter 2005) the objectives will be easily reached. However, the factors - measurement, analysis and improvement are regulated by mechanisms that appeal to the institutional theory. In addition to this institutional/RBV dualism, there are unexpected or contingent elements that may occur and shift the path initially set (Laats 2005; Dawson 2009).

As to the quality associated with the organisation's current management, only 50% of respondents confirmed this. Within negative responses, one company stated that quality certification took away some agility and the other said that they had to be innovative and creative agents, regardless of it.

Companies without ISO 9001: the companies said that higher quality should translate into better results, clarifying: *"...otherwise, better, what for than for best results, but these are always financial."*

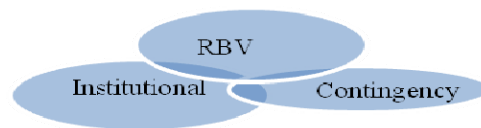
On a financial level and taking in account the economic and financial benchmarking between the surveyed companies, it cannot be said that there is a direct causal link between quality and financial performance. Indeed, when respondents were questioned about this matter, they clearly explained: *"...the financial results we have are due to the fact that we are certified in quality among others; if we were not ISO certified, they would not even be these; but there is a multitude of other factors which should be considered to explain the mentioned financial indicators"*.

And with these "other factors" one connects this research to the contingency theory, suggesting that unexpected events may affect the decision making process (Laats 2005), or even the market environment that is increasingly unpredictable (Dawson 2009).

4 Conclusions

It is now important to summarise the interpretation of these results in progress, subsequent to the aim of this research associated to the efficiency of ISO 9001, and insert them in the holistic theoretical framework according to the above mentioned criterion.

The cross analysis of results obtained by the opinions of interviews divided by the five topics considered, inserted in the theoretical scope according to the defined criteria, in synthesis, allows the final following scheme summing the RBV, institutional and contingency theories:



From the case study results an ISO 9001 characterisation was carried out on a theoretical framework approach. The resources theory (RBV) turns out to be the one that represents a more relevant framework in terms of the opinions obtained along the interviews. Knowledge based (Prahalad and Hamel 1990) and dynamic capability models (Teece *et al.* 1994; Dirickx and Cool 1989) were the most nominated. Also from the assumptions inherent to the institutional theory - mimetic, opinions confirm that the control tools existing in the organisation are mostly associated to the quality process (Levitt and Nass 1989; Chua and Petty 1999; Lowrey 2005; Leiter 2005). Shellhorn (2007) posits that everything that is intended to be managed should be measured. Resources are measurable but they must be previously implemented under an institutional rule. ISO 9001 is an institutional artefact. But all the rules and procedures may be changed at any time by unexpected events (contingency of the market).

Literature reveals that there is a connection between management performance and financial results, being the former able to be measured by the latter (Zairi 1996; Weldeghiorgis 2004). It was interesting to note, through the analysis of the interviews, that non-certified ISO 9001 companies were those advocating more strongly this link (certified companies interviewed had the notion that this link goes beyond ISO certification). This idea is still new for them, because they did not start such a process. In general the interviewed said that the higher quality of the organisation management the better level of its results. Yet it is well known (Dawson 2009), that the current market is endowed with such a dynamism and unpredictability (Laats 2005) that can bias any pattern of an organisation's optimal functioning. For ISO certified companies

the explanation of their choice was explained *ad contrario* explaining that a non quality certification would become a competitive disadvantage. As a final conclusion one could say that ISO 9001 efficiency is more relevant in companies that have a devoted belief in quality spread out through the entire hierarchy.

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Quality management pay off: a Quantitative Study in Portuguese Organizations

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Abstract

In this contribution in progress we summarize a broader research aimed at analyzing the impact of Quality Management on business performance according to the financial information data. More specifically, the impact of Quality Management on productivity, business value and increase on sales is viewed through an econometric model of analysis concerning a panel data of Portuguese companies from the agro-food and to the construction sector. This analysis has presented interesting different results and in brief revealed that it may not be deterministically ascertained a direct connection between the adoption of Quality Management and the improvement on business performance. Many other variables are committed to its success.

Keywords: *Quality Management, ISO 9001, business Performance, productivity, Portugal.*

1. Introduction

The effects of Quality Management on business performance has been widely debated in the academic literature (for a recent review see Ebrahimi and Sadeghi, 2013). As stressed by Ebrahimi and Sadeghi (2013), the impact of Quality Management practices on firm performance has been the subject of constant interest and challenge among researchers and, therefore, numerous empirical studies have attempted to investigate Quality Management –performance relationships in different contexts and from very diverse perspectives. Some of these studies have used rather objective or factual measures (i.e. accounting data), while the majority of studies have used perceptual measures obtained by surveys (i.e. based on questionnaires) to analyse the impact of meta-standards on performance.

Nevertheless, most of the research based on factual measures has been focused on the study of the impact of ISO 9001 on firm's financial performance, since data-bases of ISO 9001 certified facilities are available and this represents a sort of Klondike for researchers, as underlined by Häversjö (2000). Although many methodological concerns can be established, such as reverse causality and endogenous relations (Dick, Heras and Casadesús, 2008) thus leading to different results, in a majority of studies, a significant positive relationship is found between the adoption of meta-standards and a company's financial performance. Surprisingly, the analysis of the relationship of Quality Management and other business performance issues such as Gross Added Value and productivity have not gathered much attention in the literature. This article tries to add more empirical information about this issue doing an empirical quantitative work on Portuguese companies. For that purpose, its structure is the following: the second section has a short literature review where from some hypotheses - that will be described and analyzed - were constructed; the third section will deal with the results of the empirical quantitative work and at last, in section four, after the discussion of results the conclusions will emerge .

2. Effects of Quality Management on business performance

ISO 9001 is one of the main practices for Quality Management in organizations. There is a large consensus in literature (Dick, Heras and Casadesús, 2008) about the fact that inside the organization, the effects of ISO 9001 quality certification may be rather important. As a consequence of this process the knowledge and the increased skill capacity will emerge. This way the internal processing cycles may be eventually reduced, increasing customer satisfaction (Ito, 1995; Yang, 2008). Thus an increase in the market share of the firm may happen (Grant, Shani and Krishnan, 1994). As stressed by Dick, Heras and Casadesús (2008) causal links can be extended as follows. An ISO 9001 certified quality management system can achieve an increased emphasis on quality, leading to less waste and to a reduction of effort. These combined factors lead to an improved profitability resulting from a combination of lower cost of production, lower sales expenses and scale economies got from greater sales volume. Indeed, as underlined by Dick, Heras and Casadesús (2008), even if not all the quality benefits can be materialized, the possession of the "Quality Badge" such as ISO 9001 could lead to increased sales opportunities and so, to improve profitability just through an increased sales volume. Therefore, many authors argue that the use of this ISO justifies the performance improvement that can and should be quantified (Pun and Lau, 2002; Hendricks and Singhal, 2000; Lin and Johnson, 2004; Sun, 2000; Rao and Ragunathan, 1997). Furthermore, many other works suggest that a good financial performance is usually a result of ISO 9001 (Weldeghiorgis, 2004; Zairi and Sinclair, 1996). As mentioned before, there have been many studies analyzing the impact of ISO 9001 on business performance. Most of them have focused on companies' financial performance (e.g. Häversjö, 2000; Heras, Dick and Casadesús, 2002; Wayhan, et al., 2002; Corbett, Montes-Sancho and Kirsch, 2005; Bener and Veloso, 2008; Dick, Heras and Casadesús, 2008;

Martínez and Jimenes, 2008; Sampaio, Saraiva and Monteiro, 2012; Sitki-Ilkay and Aslan, 2012). As stressed by Sampaio, Saraiva and Monteiro (2012), despite all the studies carried out in order to analyze the impact of ISO 9001 implementation on companies' financial performance, conclusions reached so far have a contradictory nature. Some works conclude that there is a positive relationship between ISO 9001 certification and companies' financial improvement, while others do not find this evidence. As far as we know there is a lack of studies aiming to analyze the impact of ISO 9001 on business or on operational performance aspects by means of factual measures. Most of the articles from literature about this issue have been focused on perceptual measures obtained by surveys based on questionnaires. This kind of self-reported information has very well known bias such as the social desirability of the respondents (Boiral, 2011). For instance, Feng, Terziovski and Samson (2008) in their paper went beyond the measurement of the impact of ISO 9001 on indicators such as sales growth, profitability and market share and tried to analyze the impact on the operational performance. To put it in other words, the performance related to organisations' internal operation, such as productivity, product quality and customer satisfaction. The authors based their evidences on perceptual measures obtained from 613 valid responses got from companies' managers of certified manufacturing and service organisations in Australia and New Zealand. Their conclusions showed that ISO 9001: 2000 had a positive and significant effect on operational performance. Therefore, following these studies, this investigation will try to contribute to the literature with an empirical study aiming to consider the impact of ISO 9001 on a broader definition of business performance.

More specifically, concerning the variables used in the research, one must associate them to its theoretical perspective based on the dynamic capability – Teece, et al. (1994) that Dirickx and Cool (1989) named as new specific knowledge. In this sense, ISO 9001 implementation might contribute to better worker productivity (Dirickx and Cool, 1989). Consequently an embodiment of the improvement in production processes can translate an increase in business value translated by EVA - Economic Value Added (Stern and Shiely, 2001). It is convenient to remember that this improvement stems from several factors already considered in this study, which vary from the management culture (Lagrosen and Lagrosen, 2003) to the best practices established in the organization (Chenhall, 2003). Although literature reveals the indicator EVA - economic value added (Stern and Shiely, 2001) as recommended, this study will use the Gross Added Value (defined by the sum up of Sales and Services minus the Cost of the goods sold/ consumed less the costs of the supply of External Services and less the other Operating Costs). This option for the GAV has to do with the fact that the available database – *The 500 Biggest and Best Companies* (Expresso Publishing) just considers it.

So, as to the hypotheses, the first (H1) will consider the implementation of ISO 9001, in the internal process of the organizations, as being able to provide an increased productivity and added value

to the business, and will be defined through GAV. To test this hypothesis, GAV is defined as a proxy and the model analysis - AE1 – is addressed. On the other hand, as stressed by Keogh (1994), ISO 9001 might contribute to an increase on sales and a consequent increase on the market share. There are also many authors who claim that a better definition of strategies can allow greater external visibility (e.g. Schein, 1992; Argyris and Schon, 1996) favouring the image in the market. Hence, taking into account literature ideas about this issue (e.g. Häversjö, 2000; Heras, Dick and Casadesús, 2002; Dick, Heras and Casadesús, 2008) the hypothesis concerning the increase of the organization sales as an effect of ISO arises. It is a complementary hypothesis to the previous one, once it is also associated to ISO 9001 (H2). To validate this hypothesis H2 which intends to analyze the impact of ISO 9001 on the market a variable proxy was defined as the *volume of sales* and the model of analysis (AE2) was created to address it. Therefore, in terms of synthesis of hypotheses and associated models we posit the following:

H1: The adoption and certification of ISO 9001 can contribute to higher productivity and increased business value defined in terms of GAV – Model AE1

H2: The adoption and certification of ISO 9001 can be associated with the increase on sales occurred in certified organizations – Model AE2

3. Methodology

The sample to be analyzed was selected in order to grant reliability and comparability of data (Quivy and Campenhoudt, 2008; Yin, 2009) reason why a single statistical source was used. In this sense, the source of information was a database periodically published in Exame Magazine (nowadays Expresso Publishing). This database is quite well disseminated around Portuguese financial experts and comprehends the compiling of financial indicators for all the 500 Biggest and Best Business guide (this was published on 2009). Information included national companies from which the following indicators were taken: Global sales (internal and external), results - operating and net staff costs, Assets, Gross Value Added, personnel attached. The information was gathered per sector analysis. Within these sectors of activities companies that owned (or not) ISO 9001 quality certification for the period 2002 to 2009 were identified.

To get this information, many specialty magazines were considered and often, the identification of certified companies and the respective data issue, was got through some direct phone calls to companies were made. For all the considered sectors of activity the number of certified companies and respective size were taken into account. Data was obtained during the period 2002 to 2009¹, and was limited to the sectors of Construction and the Agricultural - food (agro-food) industry. It must be

¹ Guia de empresas certificadas. Edição (2009) Cem Palavras.

registered that in the field of agro-food industry there are representations from both agro industry and food distribution. These sectors were added because they are interrelated. Together they form a critical mass with a representative assessment of the large food area. This sector shows a high level of certification, reaching 52% in 2002 and 71% in 2009. The construction sector shows a significant growth in recent years, representing about 85% in 2009, a value well above the average ones recorded in Europe.

For the descriptive analysis two outcome variables were also included corresponding to alternative proxies: one for financial performance and another for non-financial performance (productivity). In the context of estimating the impact of certification on performance it was defined a model that based on a regression of Gross Value Added (as a proxy of the non-financial performance) and Sales (as a proxy of financial performance).

The variables of the sample were defined according to the assumptions and the ones belonging to the econometric model were summarized in the below table.

Table 1: Definition of the variables

<i>Variable</i>	<i>Definition</i>	<i>Unit</i>
Sales _{it}	Annual sales value i, year t	Million Euros
GAV _{it}	Gross Added Value i, year t	Euros
Current profits _{it}	Annual operational balance for company i, being the difference between operational income and expenses in period t.	Euros
Net profits _{it}	Net profit of company i, being the difference between income and expenses, including operational profits the financial charges and the extraordinary results, in year t.	Euros
Certification ISO _{it}	Binary variable identifying if company i, is certified (assuming value 1) or not (assuming value 0) in year t.	Certified company=1 Non certified company=0
Asset _{it}	Set upon f factors of the company i – able to generate financial inflows – year t	Euros
Productivity _{yit}	Work apparent productivity: ratio between GAV and the number of employees	Euros

From the database and by means of a descriptive analysis elaborated by sector of activity a more detailed perspective was elaborated. After having identified the sectors of activity with a major relevance of ISO certification – a brief description of the sample will follow.

In the construction sector and considering the 52 (N) firms on the database referred to, only 16 (31%) held ISO certification in 2002. This number has evolved considerably in recent years, standing, in 2009, 44 companies (85%). The temporal analysis (T) is 8 years (2002-2009). This data set constituted a

panel data that the sample size ($N * T$) would be 416 observations ($52 * 8$). However, the database used had some information gaps that forced resizing of the panel. Considering the dependent variables to be used in the model and the non existence of 123 observations for the variable sales, these observations were taken out in the econometric analysis. However, it was necessary to remove from the sample more 52 observations resulting from the unavailability of data for the year 2007 (missing in the database considered). Thus, the original panel data was reconfigured in an unbalanced panel with about 241 observations.

The sample concerning the sector of the agro-food industry includes a total of 38 companies with observations in the period 2002 to 2009, setting up a panel data with 304 observations. However, and similarly to what happened in the construction sector, the erroneous information in the database has eliminated 144 observations. Of those eliminated observations, 38 were a result of lack of data for all companies in the sample, for the year 2007. Thus, the unbalanced² panel data results in 157 valid observations included. In 2002, about 52% of the sample ($n = 20$) were certified, this proportion rising to 71% in 2009, with about 27 companies certified.

Both a descriptive and a correlation statistical analysis was carried out but it's not included in this article due to length restrictions and the analysis will focus on the econometric analysis that was carried out. For that purpose, it was possible to construct an unbalanced panel data with about 52 companies in the construction sector and 38 companies in the agro-industry for a period of eight years (in construction, the sample size will be approximately $52 \times 8 = 416$ and agro-industry sample size will be approximately $38 \times 8 = 304$). However, in some years the financial information was not available, and this fact reduced the size of the actual sample values shown in the tables of results and drew together an unbalanced³ panel data. Therefore, in the research an unbalanced panel was used since it does not involve significant changes in the theoretical model⁴. Moreover, the software used (LIMDEP) allows to treat the absence of information as such and not as a zero. Thus, we believe that there was no reason to lose the value of information gathered while incomplete for the entire period. The fact of working with a panel of data allows the use of multivariate regression methods more complex than the simple OLS (Ordinary Least Squares Method) or the pooled OLS (Greene, 2003)⁵. In brief, we carried out the following:

i) Pool OLS

³ Alternatively, we could have used a balanced panel. A panel of this kind implies that there is complete information for all the observations considered in this case would only be possible by eliminating some of the observations.

⁴ For further details, check Greene (2003, pp. 289-290).

⁵ As in this case, the non-availability of data over a long period discourages the use of methods of time series analysis as the GMM – Generalized Moment Method (Greene, 2003).

Pool OLS is an extension of the traditional method of least squares benefiting from the larger sample of data made possible by the panel. This extension has a positive impact on the accuracy of the estimators and the quality of statistical inference (Wooldridge, 2003). Given the assumptions for the empirical analysis and associated model (AE1 and AE2) the regression of the GAV and/or sales as a function of ISO certification and a set of control variables before mentioned was tried. The generic models will be, respectively, AE1 and AE2:

$$AE1: GVA_{it} = Z_i' \alpha + \beta_1 ISO_{it} + X_{it}' \theta + v_{it} \quad (1)$$

$$AE2: Sales_{it} = Z_i' \alpha + \beta_1 ISO_{it} + X_{it}' \theta + v_{it} \quad (2)$$

Where α is the vector of constants for each company, β_1 the regression coefficient that reflects the estimated impact of ISO certification in the dependent variable and X a matrix of control variables that include, among other things, the assets. The composite error, only considering group effects are present, is given by

$$\varepsilon_{it} = a_i + \mu_{it} \quad (2)$$

shows the error ε_{it} associated with the estimated models, decomposing it into two parts: one component is not observed and is specific to each individual (i) and another has a perturbation stochastic character μ_{it} .

According to the hypotheses particular attention shall be granted to the analysis of the estimated coefficient $\hat{\beta}_1$:

$$\frac{\partial Y}{\partial ISO} = \hat{\beta}_1 \quad (4)$$

where it represents the estimated effect of ISO on company's performance.

The choice of method pooled OLS is appropriate where the vector is actually a scalar, i.e., only contains a constant term common to all observations in the sample. However, it corresponds to a vector including non-observable components and specific individual. Thus, there is the disturbance term correlation with the explanatory variables which would have as consequence that the estimators obtained using pool OLS method would be inconsistent. This fact would be due to the violation of the classical hypothesis of correct specification model (the effect is not observed and it is not captured by the pool OLS method, constituting a problem of omission of relevant explanatory variables). In addition, pool OLS (as illustrated in the above graphic) ignores the evolution of the causal relationship estimating it over time. In other words, the method estimates pool OLS data panel, without considering the temporal evolution of the estimation.

Thus, the estimation through pool OLS, will be the best if the relationship between the variable explained and at least some of the variables, keep constant over time. It is also hoped that there are no features "individual - specific" that influence this relationship, or which due to the idiosyncratic nature, are not captured by any of the explanatory variables but only for a battery of dummy variables identifiable for each element of the sample (Wooldridge, 2003). Thus, instead of adding the information of the individual over time (and hold it in the estimation of the model) it is considered each observation in time as a different individual, returning an overall average

ii) Fixed Effects Model (FEM)

The fixed effects model (Anglo-Saxon terminology) instead of ignoring the temporal evolution of the relationship in each individual, tries to capture the idiosyncratic differences in the constant term. Thus, a sub set of regressions, that allow the estimation of a model that incorporates the average overall temporal evolution of the relationship between individual works and the information panel data, is estimated. The implementation of fixed effects model assumes that there is an observation that no component is specific to each individual. To solve the violation of classical hypothesis already mentioned, the fixed effects model implemented in a similar manner to the technique of first differences in order to remove and replace the classical hypotheses, ensures consistency of the estimators. This process involves estimating a model transformed (as set out below) as an original generic:

$$AE1: GAV_{it} = Z_i'\alpha + \beta_1 ISO_{it} + X_{it}'\theta + v_{it} \quad (1)$$

$$AE2: Sales_{it} = Z_i'\alpha + \beta_1 ISO_{it} + X_{it}'\theta + v_{it} \quad (2)$$

Since the term a_i does not vary over time, its average coincides with the very term and the transformation nulls it.

$$AE1: GAV_{it} - \overline{GAV_{it}} = Z_i'\alpha - \overline{Z_i'\alpha} + \beta_1(ISO_{it} - \overline{ISO_{it}}) + (X_{it} - \overline{X_{it}})'\theta + (a_i + \mu_{it} - (a_i + \overline{\mu_{it}})) \quad (1')$$

$$AE2: Sales_{it} - \overline{Sales_{it}} = Z_i'\alpha - \overline{Z_i'\alpha} + \beta_1(ISO_{it} - \overline{ISO_{it}}) + (X_{it} - \overline{X_{it}})'\theta + (a_i + \mu_{it} - (a_i + \overline{\mu_{it}})) \quad (2')$$

Where the variables identified with the bar represent the average. Thus, the model turned the unobserved component eliminated. The transformed variables ($\dot{VAB}_{it}, \dot{ISO}_{it}, \dot{X}_{it}$) and respective model

result in:

$$AE1: GAV_{it}^{\dot{}} = \beta_1 \left(\dot{ISO}_{it} \right) + \left(\dot{X}_{it} \right)' \theta + (\mu_{it}) \quad (1'')$$

$$AE2: Sales_{it}^{\dot{}} = \beta_1 \left(\dot{ISO}_{it} \right) + \left(\dot{X}_{it} \right)' \theta + (\mu_{it}) \quad (2'')$$

FEM seeks to eliminate the component not observed (α_i) included in the composite error v_{it} or u_{it} , re-establishing the classical assumptions necessary for OLS estimation. In particular, this procedure eliminates the term α_i which captures a set of omitted variables in the model and that could lead to the biased and inconsistent estimators, if there was any correlation between α_i and any of the explanatory variables used.

To prevent this and to get a certain consistency, the method of fixed effects transforms the model through the first differences found eliminating α_i , from the regression model.

In summary, FEM is preferable to pool OLS as an estimation of data panel because it considers the variation of each variable stratified by individual (company) and it leads to estimators that are always consistent. Compared with the standard random effects REM which is next described, the fixed effects model has the advantage that in addition to the consistency it enables statistical inference too. However, they may be less efficient if there is no correlation between the unobserved term and any of the explanatory variables.

iii) Random Effects Model (REM)

The random effects model, is based on the assumption that the term non-observed which is individual-specific, is not related to any of the independent variables used. If this starting hypothesis is true, then the estimation by FEM (fixed effects model), although consistent, is not efficient. In contrast, REM estimators (random effects model) are consistent and efficient (Wooldridge, 2002, 2003). The advantage of using REM goes through this efficiency gain, but it is a risk, in the sense that if the initial hypothesis is violated, the estimators REM are not consistent. In contrast, the estimators FEM are always consistent. The higher efficiency results from this hypothesis underlying the model REM imports a significant reduction in the number of parameters to estimate when compared to the FEM method.

On a practical way, the implementation of this method assumes the continuation of a series of steps similar to those pre-estimation as a method FEM, with the nuance behind the hypothesis concerning α_i .

$$AE1: GAV_{it} = Z_i' \alpha + \beta_1 ISO_{it} + X' \theta + v_{it} \quad (1)$$

$$AE2: Sales_{it} = Z_i' \alpha + \beta_1 ISO_{it} + X_{it}' \theta + v_{it} \quad (2)$$

As α_i is a component of the composite error in each time period and there is a correlation over time, the REM method assumes that the estimation is done using the method of Generalized Least Squares (GLS) or the Method of the minimum least square – Feasible Generalized Least Squares (FGLS) if

the variance is unknown (Park, 2006)⁶. Similarly to that performed in the previous case, the use of the method of random effects assumes the prior transformation of the model in order to eliminate the disorder in terms of correlation (Wooldridge, 2003). Thus, this transformation imports the following steps⁷:

$$AE1: \quad GAV_{it} - \lambda \overline{GAV_{it}} = Z_i' \alpha - \lambda \overline{Z_i' \alpha} + \beta_1 (ISO_{it} - \lambda \overline{ISO_{it}}) + (X_{it} - \lambda \overline{X_{it}}) \theta + (a_i + \mu_{it} - \lambda(a_i + \overline{\mu_{it}})) \quad (1''')$$

$$AE2: \quad Sales_{it} - \lambda \overline{Sales_{it}} = Z_i' \alpha - \lambda \overline{Z_i' \alpha} + \beta_1 (ISO_{it} - \lambda \overline{ISO_{it}}) + (X_{it} - \lambda \overline{X_{it}}) \theta + (a_i + \mu_{it} - \lambda(a_i + \overline{\mu_{it}})) \quad (2''')$$

This transformation leads to a multivariate linear regression model in which the problem of correlation is eliminated, allowing an efficient estimate by OLS.

iv) Pool OLS, FEM, REM – which to adopt?

As before mentioned, OLS pool method in practice results from the application of the application of this method to a sample juxtaposed for various periods. The methods FEM and REM (which in their estimation consider the temporal evolution of the causal relationship in each individual) conduct, if there are indeed effects of group that capture the idiosyncratic characteristics, to more efficient estimates.

In the case of this research, considering the defined specifications, it is expected that there is no correlation between the observed and intrinsic component of the company and any of the explanatory variables. The ultimate performance of an organization reflects, in addition to structural features, idiosyncratic aspects that sometimes are not perfectly grasped by the chosen variables created to explain them. According to this, the fixed effect models will be used. There are a set of statistical procedures and tests that contribute to a greater security in the decision making and that, as shall be seen in the results part, will confirm this option. Thus, the first test of statistical analysis implemented in this practice is the F-test or global significance. This test seeks to infer the statistical significance of the artificially set of dummies created to capture the individual-specific effects in panel data. The null hypothesis assumes that these dummies are zero and, as such, there would be no statistically significant idiosyncratic characteristics that should be taken into account in the estimation process. In case of rejection of this null hypothesis, this implies that there are indeed effects of group and thus FEM outlays more efficient estimators. In addition one might consider also the test of the Lagrange Multiplier (LM). Analogously to the F test, this test considers the analysis of the significance of the dummy model compared to the method underlying the REM (where there is no correlation between the individual-specific component and the independent variables which leads to an estimated transformed model different from the FEM).

⁶ This problem can be solved using the GLS. However, these aspects go beyond the necessarily limited range of this thesis and a more detailed analysis can be found in Wooldridge (2003, pp. 470-473).

⁷ $\lambda = 1 - \left[\sigma_u^2 / (\sigma_u^2 + \sigma_a^2) \right]^{0.5}$

Finally, to test if whether a_{it} or w_t are correlate or not, with the explanatory variables and thus opt for the method FEM or REM method, the Hausman test was performed. The Hausman test compares the fixed effects model with the random effects model, assuming as a null hypothesis that the component is not observed and specific to each individual and did not correlate with the regressors of the model (Hausman, 1978; Park, 2006). If there is evidence of correlation, the null hypothesis is rejected and one should opt for the fixed effects model because the random effects model would produce inconsistent estimators. If the null hypothesis is not rejected, then it is preferable to adopt the random-effects model because it leads to consistent estimators and more efficient than the ones obtained by the method of fixed effects (Greene, 2003). In this analysis there are theoretical reasons that support the choice of the fixed effects model - statistical tests. The relationship between quality performance does not translate a clearly defined role in the theory, so that one might say that all structural parameters that contribute to it are fully consolidated. Accordingly, and given the restrictions imposed by the available data, it is not possible to model a complete listing that captures all of these structural effects. Usually idiosyncratic aspects are captured by the effects of group, something that allows to identify individual characteristics of each company and which favor the choice of FEM or REM.

Considering the eventual inefficiency of the model, the probability of correlation between the non stochastic component of the error and any of the independent variables, would result in the non-validity of the statistical inference.

Thus a more conservative and safe approach was undertaken, selecting a method that cannot produce more efficient estimators and therefore allow statistical inference. Moreover, as already mentioned, the statistical means intended to assist in this choice, mainly Hausman – test, have a high overall statistical test, indicating that for significance levels usually taken as a reference, the fixed effects model is in fact preferable and shall be used in the estimates of the models in this research.

v) The theoretical hypotheses

It is recalled that in the present investigation the influence of ISO 9001 on the performance of the organization is to be evaluated. A model of regression considering GAV (as a proxy of management performance and non-financial performance) and Sales (as a proxy of financial performance) was defined. Thus, the generic models presented - (1) and (2) – are respectively

$$AE1: GAV_{it} = Z_i' \alpha + \beta_1 ISO_{it} + X_{it}' \theta + v_{it} \quad (1)$$

$$AE2: Sales_{it} = Z_i' \alpha + \beta_1 ISO_{it} + X_{it}' \theta + v_{it} \quad (2)$$

Based on the models above described several sub-models were estimated, using alternative control variables, in order to disguise the possible overestimation of the impact of ISO and a further

evidence as to the robustness of the results. To evaluate the non-financial performance of ISO 9001, a regression was made on three versions of model (1) trying to capture the impact of certification on Gross Value Added (GAV) and / or productivity (GAV / Workers), controlling the scale of operation of enterprises measured by the assets.

$$AE1-Mod.1: VAB_{it} = \beta_0 + \beta_1 ISO_{it} \quad (1.1)$$

$$AE1-Mod.2: VAB_{it} = \beta_0 + \beta_1 ISO_{it} + \beta_2 Activo \quad (1.2)$$

$$AE1-Mod.3: Pr odutividade_{it} = \beta_0 + \beta_1 ISO_{it} + \beta_2 Activo + \beta_3 Vendas \quad (1.3)$$

Theoretically, it is expected that the impact of ISO 9001 is positive, whether as to GAV or as to productivity. It is also expected that GAV and productivity are higher in large scale organizations because they have size to be more productive. That is, it is expected that the assets has a positive impact on the GAV and productivity due to a larger scale of operation which would enable greater economies of scale and thus greater ability to create value. Similarly, to assess the financial performance of ISO 9001, a regression on three versions of the model (2) was considered. Its objective is to capture the impact of certification on the volume of sales and assets controlled by the company's productivity. It is expected that companies with a larger scale of operation and, consequently, greater production capacity, have larger sales volume, as well as productivity should have a positive impact on the company's competitiveness and, consequently, in its sales volume.

In order to estimate the effects of ISO 9001 certification on the performance of an organization, other regression models were considered:

$$AE 2 - Mod 1: Sales_{it} = \beta_0 + \beta_1 ISO_{it} \quad (2.1)$$

$$AE 2 - Mod 2: Sales_{it} = \beta_0 + \beta_1 ISO_{it} + \beta_2 Assets \quad (2.2)$$

$$AE2-Mod3: Sales_{it} = \beta_0 + \beta_1 ISO_{it} + \beta_2 Assts_{it} + \beta_3 Pr oductivity_{it} \quad (2.3)$$

As concerns testing hypotheses, it is well known from literature that certification should influence positively the market and it is expected that the estimate for β_1 is positive for both sectors.

In model 2.3 it was included in addition to the assets, the productivity which means a way of evaluating the efficiency of enterprises and the extent to which the assets could induce workers' productivity. It has been tested as well whether this could also influence the volume of sales reflecting a higher added value.

Using the two samples (sectors of activity) as a source, the method of fixed effects selected on the basis of the taken theoretical assumptions and on the results of the achieved statistical tests (Hausman, LM, and F), the templates 1.1, 1.2, 1.3, 2.1, 2.2 and 2.3 were estimated for each sector, thus presenting the inherent results.

4. Results

4.1. Results for the construction sector

Table 2⁸ presents the estimation results for the construction sector. The model 2.1, containing one only explanatory variable - ISO certification, shows an impact estimated in more 28 million Euros than non certified companies. This impact decreases slightly when the control variable through the firm size, the combination of ISO and assets is effected (model 2.2).

As to the effect of ISO certification, it is estimated that certified companies observe an average turnover of more than 25 million Euros as to the companies that are not certified. This value is statistically significant at 5% of the estimation; it is similar also, in model 2.3, where the introduction of variable productivity proved to be not statistically significant.

These estimates confirm the theoretical hypothesis of an effect of an external motive for certification. This process seems to enhance the visibility of the company through quality and the value assigned by customers relying on quality assurance (noting that this perception is progressively promoting the development and acquisition of certified companies in the sample).

In model 2.2 it was observed (by analyzing the results of the estimation) that the firm size/ scale of operation, being the assets a proxy, is also relevant, confirming that the scale of operations/firm size is associated with sales volume.

⁸ The table shows the test of statistics that explain the option for FEM.

Table 2: Estimated results for the construction sector

		AE2			AE1	
	Model 1 Dep. Var.: Sales	Model 2 Dep. Var.: Sales	Model 3 Dep. Var.: Sales	Model 4 Dep.Var.: GAV	Model 5 Dep Var.: GAV	Model 6 Dep. Var.: Productivity
Independent Variables						
Certification ISO	27.6524**	25.2837**	25.6922**	1.79947	1.47595	2940.911
Assets		0.25237***	0.24982***		0.05762***	0.000050
Productivity			192.658			
Sales						0.000032
Constant	103.479			24.2671***		
R ² adjusted	0.83125	0.86788	0.86867	0.56603	0.59325	0.19234
Test F	496.390***	10.4120***	10.5440***	6.414***	2.693***	1.947***
Chi-square	21.349***	354.591***	353.703***	219.164***	150.554***	117.888***
LM – test	466.68***	119.06***	117.590***	210.49***	14.93***	6.62**
Baltagi-LI LM	240.14***	61.26***	63.41***	108.32***	7.68**	3.40
Hausman	1.0	10.11***	11.58***	0.2	8.85**	1.84
NT	241	241	241	241	241	241
Model	REM	FEM	FEM	REM	FEM	FEM

Notes: statistic significance *** a 1% ** 5% * 10%.

In model 2.3, the relationship of ISO 9001 with the variable sales, introducing as control variables the asset and the productivity, was recorded. As to these last items the estimated models did not point their statistical significance. As concerns the assets, the estimation results indicate that the relationship between firm size, measured by assets and sales, is positive. In this case, it is estimated that, under a *caeteris paribus* assumption, a company whose assets increases by 1 million Euros register sales increase by 0.25 million. In fact, the larger companies are the more interested in marking their presence in the most technologically advanced and demanding market segments.

As regards the estimation of the multivariate regression model created to assess the internal impact of ISO, it is observed that both in terms of GAV (models 4 and 5) and in terms of productivity (model 6) the estimation results indicate a non statistical significance of ISO 9001 at 10% significance level. This suggests that, at least in the context of the construction sector, where there are the largest companies, ISO is not a factor inducing greater productive efficiency. It is nevertheless important to clarify

that this does not necessarily imply that ISO certification process has no positive impacts on productivity. The size of firms of the sample, the fact that some companies that are not quality certified possess technological skills and expertise in the fields of construction of high specialization, these are reasons that may contribute to distort the potential impact of certification. Regarding the control variables, in Model 5, it is registered that the Assets is statistically significant. As to the this variable, we observe a positive relationship between the size (through the value of Assets) and GAV estimated at about 6 cents for each additional euro of assets, indicating that there is a significant positive relationship between the scale of operation/size and the GVA which may possibly explain the exploitation of economies of scale.

As to the results of estimation of model 6, the use of productivity as an alternative dependent variable did not result in a better adjustment. On the contrary, this model 6 presents a low quality adjustment (also in the case of models 4 and 5 quality adjustment was not high) resulting in a lower adjusted (chi square) R², enabling the ability group explanatory model and variables, individually, to be considered statistically insignificant.

In brief and according to the above estimates, one can conclude that ISO impact is more visible on the external side of the organization than on the internal one. The market seems to demand quality requiring it as a matter of assurance. Larger companies that operate in markets with higher levels of demand assume certification process as a requirement. Thus this process, in these companies, does not mean a big gain on efficiency (internal effect). Moreover, the model 6, after introducing the control variable sales whose high correlation with the independent variable assets makes it hard to get a consistency within the estimators.

4.2. Results for the sector of the Agro-food

Table 2 summarizes the results for the Agro-food industry. The results of the estimation done from the fixed effects model for this industry sector denote a good quality adjustment with a (chi square) R² adjusted presenting high values in several models. As to ISO 9001 there is a significant positive relationship between the certification of companies in the food industry and its sales volume. Specifically, the model estimates that, under *caeteris paribus* assumptions, a certified company gets more 30.7 million Euros in sales than a company which is not certified. This is a higher absolute value than the one registered in the construction sector. The external visibility or assurance arising from a certification are highly valued in this particular market. Considering the assets, model 2 shows that, the relationship between certification and sales remain relevant, and it is estimated that any certified company enables more 29.7 million in sales than a non certified company. Besides, companies with a greater scale of

operations have higher sales volume, but the relevance of the assets as an explanatory variable assumes lower values than the verified in the construction sector.

Table 2: Estimated results for the Food sector

		AE2			AE1	
	Model 1 Dep. Var Sales	Model 2 Dep. Var. Sales	Model 3 Dep. Var. Sales	Model 4 Dep. Var. GAV	Model 5 Dep.Var. GAV	Model 6 Dep.Var. Productivi ty
Independent variables:						
Certification ISSO	30.705**	29.727**	10.5447	10.7968*	0.3745	-0.01092
Assets		1.09247* **	0.72082* **		0.18726* **	0.000131* **
Productivity			25.9504			
Sales						0.0000276
Constant				16.487** *		62896.07* **
R ² adjusted	0.80321	0.925978	0.979268	0.870336	0.955900	0.959766
Test F	36.095***	51.851** *	51.552** *	25.666** *	24.698** *	95.94***
Chi-square	394.234** *	448.442* **	448.857* **	345.795* **	341.624* **	542.153** *
LM – test	266.68***	248.19** *	247.64** *	193.81** *	200.71** *	16.02***
Baltagi-LI LM	192.84***	179.77** *	179.07** *	140.15** *	145.14** *	11.58***
Hausman	1.52	9.76***	9.95**	2.26	9.85***	1.02
NT	157	157	157	157	157	157
Model	FEM	FEM	FEM	REM	FEM	REM

Notes: statistic significance: *** a 1% ** 5% * 10%.

In model 3 it was introduced the variable productivity in order to analyze if the better efficiency of firms influences the volume of sales. It was found that not only it was not significant in this sector (as happened in the construction sector) as well as the model presents little interest as to its explanatory capacity. The estimation results of Model 3 reveal that certification is no longer significant, decreasing the explanatory power of the variable assets. The gains in (chi-square) - R2 are marginal and probably they do

not reflect the best adjustment but, they mean, the statistical effect of the degrees of freedom reduction due to the introduction of an additional variable.

As regards the estimation of the multivariate regression model to assess the internal impact of ISO 9001, it is observed that for all certified companies evidencing sales value close to the average or above the sector average, the impact of ISO on GAV is significant (model 4) considering a significance level of 5%. It is also estimated that ISO will have a positive impact on GAV of around 1 million Euros. In models 5 and 6 (the latter uses as an alternative the dependent variable productivity) ISO is not significant at a 10% level, though in this model 5 significance is reached for a level of 15%. Regarding the control variables, the assets working as proxy of company size, is statistically significant at 1%, and really estimated a significant positive relationship between assets and GAV. In model 6 it was introduced the control variable Sales but the high correlation of this variable with the variable Asset jeopardizes the consistency of the estimators. The choice of model of fixed effects and variable effects is due to the tests of Hausman and Lagrange, similarly as performed for the construction industry.

5. Discussion and conclusions

The estimation results above described show some differences across sectors. On one hand, it is observed that ISO 9001 has a positive external effect observed in the volume of sales in the Agro-food industry. Moreover, the tight control and hard regulation in force about this sector of activity make it somehow critical to this particular market, estimating an impact relatively larger, in absolute value, in this sector than in the construction one. However, along the period under review in the construction sector, one must refer the growing number of certified companies in the sample. Internally, the combination of the process of quality to performance in both sectors is less clear. In the construction sector as to quality certification, using as proxies the variable ISO 9001 and as consequent performance - GAV and productivity - it is observed that ISO is not statistically significant. In the agro-food sector, certification is relevant to a significance level of 10%, and just in model 3/ GAV/ISO 9001 (what does not happen in the construction sector).

In brief, in the case of the construction sector the econometric model evidenced a positive impact of certification on sales, therefore H2 was confirmed. On the contrary, the impact of ISO 9001 certification on performance – considering GAV and productivity – was not statistically relevant (H1 cannot be accepted). As to the Agro-Food sector it was evidenced that ISO 9001 certification has a significant effect on sales, confirming H2 and, similarly, it was evidenced that certification was also relevant at a significance level of 10%, but only as referred to GAV, then H1 was only confirmed in part.

In other words, it was confirmed that ISO 9001 certification has a positive effect on sales volume and it should be noted that in the Agro – food industry, this effect is more significant than in the construction one. As to the level of internal performance using GAV and productivity, it is observed that ISO 9001 is not statistically significant, GVA in the agro-food sector, where the certification is relevant, but, at a significance level of 10%. Productivity is not statistically significant in both sectors. Along this study it was mentioned that it would be interesting to see if the increased sales motivated by ISO 9001 corresponded to increases in net profits of the organization. One must refer that this hypothesis has been tested by means of analysis of the selected database, but the results were inconsistent. So it seems that it may not be said from this empirical study, that ISO certification is directly related to the net profit of the organization. Therefore, this study revealed mixed results and in brief it evidences that it may not be deterministically ascertained, that there is a direct connection between ISO 9001 certification and the improvement of business performance. It depends on many other variables besides the ones mentioned along this research.

6. References

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Internalization of TQM in Spanish Manufacturing Firms: an Exploratory Study

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Abstract

This paper aims to analyze the internalization of Total Quality Management (TQM). For that purpose, the work summarizes some of the conclusions of an extensive exploratory fieldwork based on both in-depth interviews of general managers, middle managers and employees as well as on intensive participant observation that was carried out in a set of Spanish organizations. In the paper it is underlined that the concept of internalization of TQM models/standards (e.g. ISO 9001, EFQM, MBNQA) is a clearly relevant one, since organizations do not adopt it homogenously. The conclusions of the paper may be of interest both for academic and professional spheres of activity.

Keywords: *Total Quality Management; internalization; ISO 9001; EFQM; qualitative study.*

1. Introduction

Within the Total Quality Management (TQM) paradigm, ISO 9001 is one of the most influential contributions that there has been to date. Despite many scholars raised contentious issues about the relationship between ISO 9001 and TQM that the most recent versions of the standard suggest, some recent research has evidenced that those version (e.g. ISO 9001:2000 and the subsequent version) seem to fit better with TQM [1].

By late 2009, 1,064,785 ISO 9001 certificates had been authorized in a total of 178 countries all over the world. China is the country with the largest number of certificates in the world (having a total of 257,076 by the end of 2009), followed by Italy (with 130,066), Japan (68,484) and Spain (59,576).

Despite the fact that most studies into the adoption of both TQM "in general" and ISO 9001 "in particular" assume homogeneous adoption, a set of studies are now beginning to emphasize the practical differences existing in adoption of them. This is an interesting and fertile line of study which, that can contribute much towards clarifying the differences that have been pinpointed in previous studies on their impact on business performance. Therefore, this paper aims to analyze this issue for the specific case of the Spanish companies, that operate in a country that is on the top of the world's ranking if the data are relativized taking into account the economic dimension of each country.

For this purpose, the remainder of this paper is arranged as follows. Following this introduction, the paper shortly presents the theoretical framework via a review of the literature available on the subject, and the main research question. The following section describes the methodology of the research. Some of the results of the extensive field work carried out are then summarized, and the paper concludes with a short summary of contributions and implications for further research.

2. Literature review, purpose and research question

In the specific academic literature field of TQM that deals with ISO 9001, there are many studies that have tended to analyse the ISO 9001 adoption process (for a recent review see Kim et al. 2011). The majority of them assume homogeneous adoption. Nevertheless, more and more studies are now beginning to emphasize the heterogeneity in the adoption of ISO 9001.

Christmann and Taylor [2] study the substantive and symbolic adoption of ISO 9001 in 170 Chinese companies. Substantive adoption is associated with certified companies that features practices prescribed by the standard that overlap into daily routines. Conversely, such practices are not used in daily activity in the case of symbolic adoption. Similarly, Jang and Lin [3] studied the "depth of implementation" of ISO 9001 in 441 Taiwanese companies. Likewise, Lee et al. [4] explore the patterns with which ISO 9001 was implemented in 45 service organisations in the Macao Special Administrative Region, in the People's Republic of China. they examine the performance outcomes and contextual factors which are associated with different ISO 9001 implementation patterns. With the quality management principles of ISO

9001 as variables, the authors develop an empirical taxonomy based on data from certified organisations. In short, the authors established two markedly different ISO 9001 implementation patterns among sample organisations: a set of organisations that implemented the principles of ISO 9001 just to the extent that certification can be obtained, and another set of organisations that were highly committed to implementing the principles to levels beyond the standard requirements. There are also other interesting pioneering works in the academic literature [5].

Nevertheless, there is a clear knowledge gap in this field and empirical studies are necessary. Firstly, as [2] and [6] point out, due to the increasing importance of context dependence, research should explore the sources of variation in the adoption of TQM in cross-country studies with different cultures and political environments. Secondly, in the majority of the aforementioned studies, Internalization in a closed manner, in contrast to that proposed in specialist literature to reduce the subjective bias. Thirdly, as there would seem to exist a decoupling in the adoption of TQM [7], these types of question/approach would experience even more difficulties in detecting any variation in the internationalization of the standard. In short, in the majority of those studies, the people who are inquired into the field work are solely interlocutors with managerial posts, i.e. people with a certain interest in the ISO 9001 adoption process, and the results obtained in this way may be subject to considerable bias owing to the fact that they can tend to offer an over-positive view of the standard adoption process.

Taking into account these shortcomings detected in the empirical literature existing on the subject, this article aims to analyze the internalization of TQM based on the ISO 9001 standard in Spanish companies. Specifically, an attempt is made to respond to the following key research question: What are the specific factors or elements that best contribute to the internalization of TQM /ISO 9001?

3. Empirical method and field work

An empirical exploratory study was designed with a view to responding to the question raised. It was decided to use a qualitative study methodology, owing to its suitability when analyzing the complex process involving TQM adoption, and because it facilitates greater penetration and understanding of the subject being studied [8].

Table 1. Main features of the organizations analyzed

	<i>Case 1</i>	<i>Case 2</i>	<i>Case 3</i>	<i>Case 4</i>
<i>Status</i>	Plc	Cooperative	Plc	Ltd
<i>Size</i>	25	80	40	35
<i>Sector</i>	Machine-tools	Machinery construction	Anchors & hardware	Accessories car industry
<i>Date certf.</i>	1998	1996	1995	1995

Source: put together by the authors based on case studies.

The field work was developed over a very long period (between September 2006 and January 2010), and had three components. Firstly, a series of semi-structured in-depth interviews were conducted with general and middle managers and employees from the organization which revolved around a semi-structured script. Alongside this, intense participant observation work was carried out via a continued series of visits to the organizations being studied, in the course of which a very important set of evidence was gathered from both the analysis of documentation related to the quality management system available in the different areas of work of the companies concerned and in non-structured consultation with personnel accessible in them that followed no specific pattern. Thirdly, the organizations analyzed made a very broad-ranging set of documentation available for research related to the quality management system for their in-depth analysis.

Manufacturing companies with at least seven years' experience in the implementation and certification of ISO 9001 took part in the study. The work was confined to four case studies because, although the number could have been increased, it became clear as the field work was being carried out that increasingly fewer ideas were being gathered, thus giving rise to theoretical saturation phenomena.

4. Results

For reasons of space, a detailed analysis of the evidence obtained throughout the field work cannot be included in this section.

In short we'll say that following the iterative segmentation process, categorization and verification of the information, we obtained seven main factors and 22 subfactors that categorize better the substantive versus ceremonial adoption of ISO 9001 (see Table II).

The cases analyzed clearly illustrate the fact that very heterogeneous situations exist in the adoption of ISO 9001. In the cases of the companies 2 and 3, adoption of ISO 9001 may be considered to be deeply-internalized, given that its adoption affects the day-to-day running of organizations. Conversely, in cases 1 and 4, adoption of the standard has been of a formal

nature, with far more limited influence and even with a superficial or ceremonial touch to them.

Table 2. Main inferred evidence for the categorization of ISO 9001 internalization

	Cases			
	1	2	3	4
1. Reorganization towards management according to processes				
Improvement and reorganization prior to defining QMS	**	****	*****	-
Fold-out map of processes	**	****	*****	*
Reassignment of responsibilities	*	****	*****	*
3. Involvement of middle management in QMS				
Specific middle manager coordinates QMS	*	****	****	**
Drive towards transversal maintenance of QMS	-	***	****	-
Presence of external consultancy firm	****	*	*	****
Periodic meetings with employees	-	****	****	-
3. Features of QMS documentation				
“User-friendly” documentation	-	*****	****	-
Periodic modification of QMS documentation	-	***	****	-
Employee participation modifying documents	-	*****	***	-
Accessibility of documentation in the workplace	*	****	****	**
4. Qualifications and involvement of employees				
Use of terminology related to QMS	-	****	****	-
Presence of Improvement Groups for QMS	*	*****	****	-
QMS documentation consultation by employees	-	****	***	-
Training in QMS for employees in their jobs	-	***	***	-
5. Coetaneous implementation of other improvements with ISO 9001				
Technological improv. (e.g. new computer system)	-	***	*	**
Other management improvements (e.g. QM tools)	-	*****	***	*
6. Active participation of employees in audits				
In internal audits	-	*****	****	-
In external audits	-	***	***	-
Extra work for employees to prepare external audits	***	-	*	***
7. Extension of ISO 9001 model implemented				
Extension of the scope of ISO 9001	*	*****	**	-
Move towards other TQM models (e.g. EFQM)	-	**	****	-

Source: put together by the authors based on the field work carried out. Note: level of each factor evidenced in the case study: non-existent; *, very limited; **, limited; ***, moderate; ****, high; very high, *****.

Among other factors, the importance of the features of the QMS documentation was ascertained in the study. Firstly, the importance of its user-friendliness and extent of adaptation to the specific needs of the companies was proven; secondly, the major importance of the accessibility and availability of this documentation in the employees’ workplace; and thirdly, the conclusion was drawn that participation by employees in preparing/modifying the QMS documentation is a very important factor when categorizing the internalization of ISO 9000 in the cases under consideration.

Thus, it was also ascertained that in companies in which QMS has been highly internalized, personnel without managerial duties in the company either take part or have taken part in

drafting and/or modifying the system's documentation. For instance, in the course of direct observation, it was clearly noted in Cases 2 and 3, that operative procedures regarding QM, job instructions, the parts and forms are made available to all the employees from the company. Likewise, there were several cases where an improvement in the procedures carried out was requested by employees themselves. In these cases, unplanned consultations were witnessed on various occasions regarding operative procedures concerning quality and job instructions by company employees, owing to some procedural doubt. These consultations were, in turn, a source of doubt and analysis leading to subsequent modification and improvement of such documentation.

It was also noted in the specific analysis that this documentation was very well-adapted to company needs in the Case 2; for instance, some very simple photographic instructions are made available to users to help clarify points, and they are well-accustomed to using them. On many occasions, for example, the employees refer to them according to the document traceability code.

Conversely, in Cases 1 and 4 they possessed documentation related to very conventional QMS, with very general procedures and job instructions. From an analysis of the internal documentation, it was ascertained that in the case of these organizations, this involved very general documents which in many cases had not been adapted to the internal contingencies and realities of the organization. From the observational participation carried out, the conclusion was also drawn that the work behaviour of middle managers and employees often deviated from that prescribed in the documents.

Another major element in distinguishing types of behaviour with regard to adoption of ISO 9000 is that which refers to the implementation of other improvement tools related to TQM of a very diverse nature (e.g. cause-effect graphs, control graphs, 5S methodology). In Case 2, for instance, by way of a complement to the implementation of ISO 9000, an implementation programme of a workplace organization methodology (5S) was also set in motion in the general warehouse, which had the support of an independent body for the purpose of fostering this type of initiative. The programme proved very successful – at least that is how it is defined by the people interviewed who, in many cases, refer in general terms to “improvements in quality” (Employee in Case 2), when referring to the adoption of such initiatives. In contrast, ISO 9000 did not entail the adoption of other tools or systems aimed at improvement in the other organizations analyzed.

On the other hand, the widespread and active participation of employees without managerial competences in internal and external audits was also a prominent factor. Internal audits can be used by companies for the improvement of processes; they can be planned at least once a year, and more often in weak areas or areas where problems still exist. In our study it was ascertained that these audits constituted a key factor in the internalization of the standard.

For instance, in cases 2 and 3, it was ascertained from direct observation that in-depth internal audits are carried out every six months – audits in which most employees take part. This internal audit was viewed in the company as an important internal examination in the course of which improvements and the contribution made by each group towards improvement of the system as a whole. In cases 1 and 4, the situation was diametrically opposed to the above, as the employees pointed out to us that they did not take part actively either in internal audits, or even in external ones:

“The first time we had an ISO audit, I was given time off. I was told it was better that way, that there were problems dealing with the audit. (...) The truth of the matter is that audits are pretty stressful. But well, once they’re over, everything calms down again” (Employee at Case 1).

Indeed, it was ascertained that once the confidence of different members of the organizations consulted has been gained, external audits are prepared while failing to adhere to the basic rules of compliance with a QMS as far as filling in and controlling the documentation pertaining to the system is concerned – in the case of organizations that have adopted ISO 9000 on a very superficial or ceremonial level. In such cases, on dates when an external audit was approaching, it was very common for a very significant number of employees to have to take on extra work under the supervision of the person in charge of the QMS and the external consultancy service in order to prepare them. For example, the existence of a huge number of formats was also ascertained that were not being used on a day-to-day basis, although these did not appear in the records from other financial years.

5. Conclusions

From the evidence obtained in the case studies carried out, it could be ascertained that if the adoption process of TQM models is analyzed from a standpoint that takes into consideration the opinion of some of the main the main internal stakeholders of the organizations (management, middle managers and employees), the purpose of the study is shaped into a complex process which makes it difficult to rely on homogeneous guidelines for adoption. It is

clear that the recipient organizations play an active role in the adoption of such management models.

Specifically, in our exploratory analysis it was ascertained that adaptation to similar institutional pressure of organizations that had adopted TQM is very heterogeneous. TQM (e.g. EFQM, ISO 9001) tends to be adopted in organizations in such a way as to be adapted to the various needs and internal contingencies of the organizations. Even when organizations adopt these types of standard responding to a similar pressure, they are not passive, and they adopt them in a very different way owing to the fact that companies interpret them according to their own internal regulations, their resources and needs. This results in heterogeneous organizational behaviour.

For practitioners, the study also has certain managerial implications. Managers could use the factors and sub-factors we have evidenced in the exploratory work to benchmark their internalization or the depth of adoption of TQM in their organisations. Likewise, these results should encourage managers considering adoption of TQM to think of it as a heterogeneous and complex process, where certification is not an end in itself and where internalization of the standard is what makes the difference in obtaining better operational and business performance.

Looking to the future, we should refer to the need to make advances in knowledge related to the real incidence of superficial, symbolic or ceremonial cases of TQM adoption. This line of study is a very thought-provoking one, owing both to its profound academic and professional implications for the different interest groups involved and the management of those companies that have been certified, certification and accreditation bodies and, in particular, for public decision-makers themselves.

As should be clear, the conclusions drawn from this paper are preliminary ones, due to the obviously exploratory and explanatory nature of their objectives and the use of a qualitative study methodology. Despite the limitations referred to above, or perhaps encouraged by them, researchers who are interested in this line of work may perhaps make advances in understanding the internalization process of both TQM, in general, and EFQM and ISO 9001, in particular, by basing their work on some of the contributions obtained from this work.

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Social Responsibility Assessment Approach through TQM Principles

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Abstract

The aim of this paper is to provide a social responsibility assessment approach using the total quality management principles, more in-depth, the model is proposed for the United Nations Global Compact.

Through a literature review, a model for external assessment is provided with the objective of improving the transparency of the social responsibility tool. Relationships of the model and the total quality management principle are also analyzed.

Future research is needed to validate the model as well as to define the motivations and characteristics of companies applying these tools.

Keywords: *Global Compact, Corporate Social Responsibility, TQM, Assessment.*

1. Introduction

Companies around the world have begun to realize that their investors are not only interested in financial performance. Greed and exploitation have been tied with compassion and sustainability (Tschopp, 2005). Therefore, due to globalization, it has become necessary to promote solutions to common problems (such as efficiency, security and justice in trade, production, and distribution of products and services), and share technological advances and good management practices to safeguard the interests of consumers and users of products and services.

There are several definitions of corporate social responsibility (CSR), but according to The European Commission (2001), it can be defined as “*a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with*

their stakeholders on a voluntary basis” (other definitions can be found in WBCSD, 2000, De la Cuesta et al., 2003, Kliksberg, 2004, Dahlsrud, 2006, Jamali, 2007, Crowther and Aras, 2008, Reverte, 2009, Kanjia and Chopra, 2010, ISO, 2013).

Companies can also decide if these practices are formalized or not. Several management tools exist to formalize them, such as management systems (ISO 14001, EMAS, SA8000, AA1000), guidelines (ISO 26000), reports (Global Reporting Initiative), models (EFQM) and principles (Global Compact), among others. Formalizing them, companies can prove their commitment to CSR, but not necessarily their compliance with them, that can be demonstrated applying self-assessment tools or third-party audits. When performed appropriately, they can help in improving the organization’s management but they are not free of criticism (see e.g., Heras Saizarbitoria et al., 2013).

The existing literature analyzing the relationship between total quality management (TQM) and social responsibility found evidence of their interdependency, as the majority of them argued that they both have the same roots or philosophy and that one enriched the other (see e.g., Edgeman, 2000, McAdam and Lambert, 2003, Ghobadian et al., 2007, Ramos Zancas et al., 2008, Tarí, 2011).

Thus, the aim of this paper is to provide a social responsibility assessment approach using the total quality management principles. In fact, the model is proposed for a specific social responsibility tool, the United Nations Global Compact.

2. Methodology

The methodology used for this work is based on a literature review of major academic databases in the field of Corporate Social Responsibility, assessment model and United Nations Global Compact.

Different databases such as Web of Knowledge, Ebsco Host, Scopus and Google Scholar were used. In parallel were also used search engines such as Springer Link, WileyInterScience, Emerald, and Science Direct.

The key words used were: Global Compact, Corporate Social Responsibility Management systems, Management tools and Audit.

In order to provide current information, this literature review also contains information from different organizations websites such as United Nations (UN), International Organization for Standardization (ISO), AccountAbility (AA), Social Accountability International (SAI), European Commission (EC), Global Reporting Initiative (GRI) and Forest Stewardship Council (FSC).

All types of papers were considered both theoretical and empirical. The results obtained of this stage are presented next.

3. Literature review

Relationship between TQM and CSR

Tari (2011) analyzed the relationships between QM and SR and suggested that the parallels are mainly seven, described briefly: (1) both seeks to optimize behavior, (2) quality commitment improves product and services which is an ethical value; (3) both means 'doing the right things right', (4) both focuses on organizations' responsibilities to stakeholders, (5) for both employees need to be motivated and managed through quality tools, (6) their elements overlap: integrity, care, equity, etc.; (7) general frameworks exists to manage both of them (a similar analysis can be found in Raiborn and Payne, 1996, Martín-Castilla, 2002, Isaksson, 2006). Similarly, Ghobadian et al. (2007) concluded that TQM and CSR have the same common roots and that the former can be the vehicle for CSR diffusion (see also, Hazlett et al., 2007).

From another point of view, Ramos Zanca et al. (2008) argued the three possibilities to improve quality management: through integration, through excellence and through the dialog with the stakeholders. The second way implies TQM and the different models implemented and it consists on adding the environmental and social aspects to these models (examples can be found in Edgeman, 2000, McAdam and Lambert, 2003).

Regarding assessment tools, Kok et al. (2001) proposed a four-level self-assessment approach to audit social responsibility using the methodology of business excellence models such as EFQM. The model consists on: (1) ad hoc policy –no policies exist, (2) standard policy – compliance with law, (3) planned policy –attention is given to aspects related to society, (4) evaluated and reviewed policy –ethical awareness aspect. van Marrewijk et al. (2004), proposed an EFQM-based assessment tool with a combined focus on corporate sustainability and organizational excellence, that is, a shareholder-oriented approach and a stakeholder-oriented approach that will help organizations to increase their performance levels and enhance their organizational excellence and corporate social responsibility (similar approach can be found in Zink, 2007, Parast and Adams, 2012).

United Nations Global Compact

The United Nations Global Compact (UNGC) was created in 1999 by Kofi Annan, then General Secretary of the United Nations. The UN defines Global Compact as "*a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption. By doing so, business, as a primary driver of globalization, can help ensure that markets, commerce, technology and finance advance in ways that benefit economies and societies everywhere*" (UNGC, 2013). It is an initiative with the support and participation of multinational companies, global trade associations and civil society organizations (Cetindamar

and Husoy, 2007). Since then, the UNGC has become an international network of organizations, which contribute to dialogue, learning and projects that give practical meaning to the Ten Principles (see table 1) of the Global Compact (Kell, 2005, UNGC, 2013). The initiative seeks to combine the best properties of the UN, such as moral authority and convening power, with the private sector’s solution-finding strengths, and the expertise and capacities of a range of key stakeholders.

Table 1. The UNGC Ten principles

General items	Definitions
Human Rights	1. Businesses should support and respect the protection of internationally proclaimed human rights; and 2. Make sure that they are not complicit in human rights abuses.
Labor	3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; 4. The elimination of all forms of forced and compulsory labor; 5. The effective abolition of child labor; and 6. The elimination of discrimination in respect of employment and occupation.
Environment	7. Businesses should support a precautionary approach to environmental challenges; 8. Undertake initiatives to promote greater environmental responsibility; and 9. Encourage the development and diffusion of environmentally friendly technologies
Anti-corruption	10. Businesses should work against corruption in all its forms, including extortion and bribery.

Source: UNGC (2013).

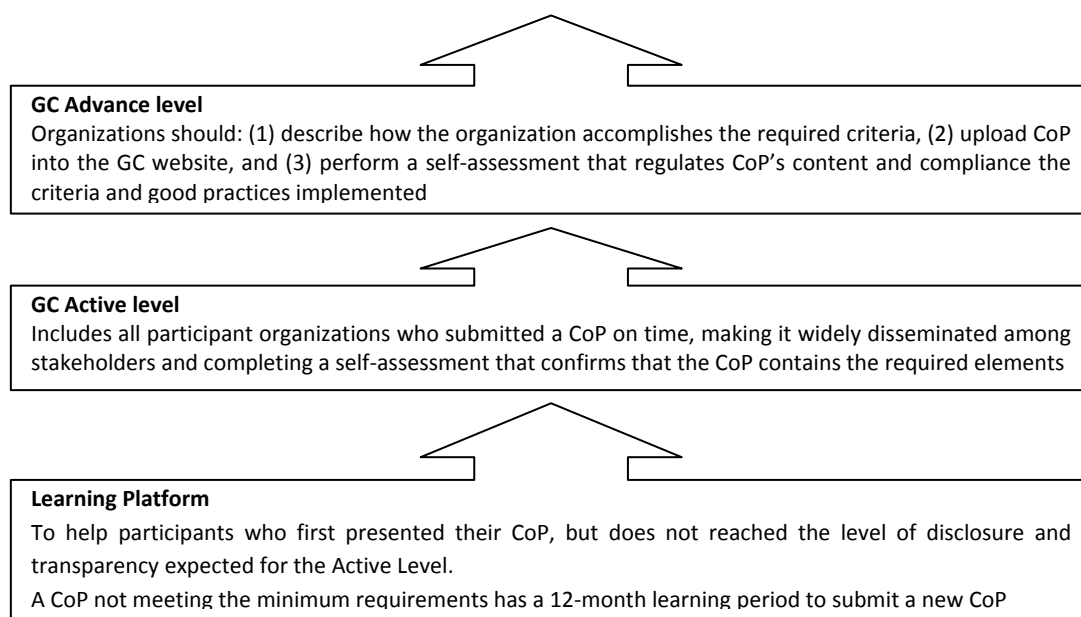
To participate at the Global Compact, organizations must sign an application (by the CEO and the board, or equivalent) and send it to the General Secretary of the United Nations, evidencing their commitment to integrate the principles of the UNGC to their organizational practices, organizational culture and business strategies and must integrate further in its annual report (e.g. sustainability report) a description of how the company has applied the UNGC principles in their daily practices and how it supports the development of its long-term objectives through them. Finally they must publicly support the Global Compact and its principles through press conferences, speeches, etc. These organizations are expected to make a regular annual contribution to support the work of the UNGC headquarters (established fees vary depending on the amount of annual revenues).

After the company has been added to UNGC, is required an annual Communication on Progress (CoP), with the aim of communicate to stakeholders the progress made by the organization regarding compliance with the ten principles. CoP should include a description of

measures taken and results achieved. The absence of this annual communication would result in removing the organization from the Active participants list.

The Global Compact has developed several tools as programs and models; however, it is important for this study to focus on 'The Differentiation Program' and 'The UNGC Management Model'. The Differentiation Program categorizes organizations depending on the development in progress regarding implementation of the ten principles in their organizational practices. Categorization is on three levels, shown in figure 1.

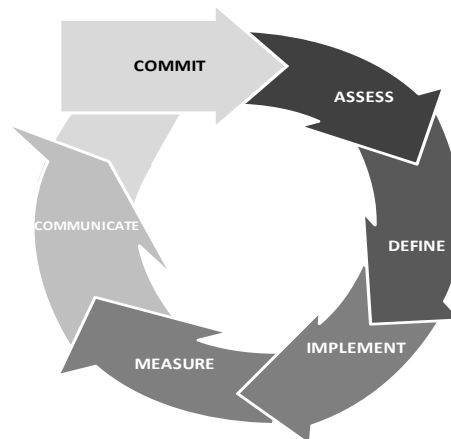
Figure 1. Differentiation program levels



Source: Own elaboration.

The Global Compact Management Model (see figure 2) seeks to support the efforts of organizations to include corporate sustainability through the integration of the GC commitment into their culture and practices. The model guides companies through all the processes.

Figure 2. UNGC Management Model



Source: UNGC Management Model (2012).

Assessment

Several reasons such as economic globalization, technological advances and business complexity have intensified the use of internal and external controls. According to Karapetrovic and Wilborn (2000), an audit is an independent and documented system, its objective is to obtain and verify the audit evidence, objectively examine the evidence comparing with audit criteria and inform the results.

The aim of the audit is to verify compliance and it requires knowing two important points (Karapetrovic and Willborn, 2001): (1) the level of performance required by the audit, and (2) if the current level of organizational performance is closed the required performance.

An internal audit is performed to improve organization's management efficiency, while an external audit is an opinion based on the information gathered in the organization. The audit opinion along with information collected are useful for the board and stakeholders decision making, (as it is considered as an impartial point of view), allowing them to evaluate organizational performance. The audit specifications that provide the tools for adopting CSR practices are listed in table 2.

For the Global Compact, since its inception, it has developed tools to facilitate the incorporation of the ten principles to the daily practices of organizations, but one of them, the UN Global Compact Management Model is the only one who proposes a particular structure for implementing these practices and its continuous improvement.

The UNGC is not a regulatory instrument, so it does not exercise oversight functions, does not impose criteria and evaluates the behavior or actions of companies (O'Rourke, 2003, Kell,

2005). The Global Compact is a voluntary initiative as the rest of CSR tools, which is designed to encourage and promote organizational changes, fostering innovative solutions, but does not encourage a particular organizational behavior or regulates the organization actions (UNGC, 2013). According some authors (see e.g., Deva, 2006, Arevalo and Fallon, 2008) this lack of regulation has a negative impact on the credibility of the initiative. Therefore a modification on the Global Compact Management Model and The Differentiation Program is proposed and presented in the next section.

Table 2. Audit systems of CSR tools

Tools	Characteristics
ISO 26000	As a guide, it does not contain any audit information.
SA 8000	Contains established audit parameters: <ul style="list-style-type: none"> a) the audit Components b) Time Synchronization c) Recommendations to gather evidence and d) Translations
ISO 14001	It also contains post-audit recommendations. The organization shall ensure that audits are conducted at planned intervals to determine whether the management system meets the established plan and to provide results to the board.
FSC	The parameter an audit should contain are: <ol style="list-style-type: none"> 1. Audit: <ul style="list-style-type: none"> a) Pre-audit b) Application and consultation process c) Main Audit 2. Independent Review and Report, and 3. Certificate, annual audit and public summary.
EMAS	Audit is considered as an essential part of it system, as it is considered as a credibility factor that the organization is verified by an external auditor. The EMAS tracking system for implementation is the "Plan-Do-Check-Act"; audit is included in the Act section.
EFQM	Self-assessment approach
GRI	Parameters that an external audit must comply to use GRI guidelines: <ul style="list-style-type: none"> a) Skilled auditors b) To be systematically implemented, documented and to have defined procedures c) To evaluate data veracity contained in the report d) To evaluate how they have applied GRI guidelines to obtain results and e) Results should be publicly available
AA1000	It does not refer to any audit process; it notes that organization can use any tool for that purpose, not being required certification.

Source: Adapted from ISO (2004, 2009), SAI (2013), FSC (2010), EMAS (2009), EFQM (2013), GRI (2012), AA (2003).

4. Results

According to Wilenius (2005), in order to adopt CSR practices, an organization needs to: (1) make a commitment (through an annual report), (2) specify objectives to achieve, and (3) implement a management system containing indicators that allow stakeholders to observe social responsibility organizational behavior. Steps 1 and 2 to the GC adhesion process, however is Willenius (2005)'s step 3 the one not applied but necessary in the process of joining the Global Compact.

UNGC specifies not being an evaluation tool, not to provide a seal of approval or certification or make any judgment on the performance of participating organizations, for that reason two assessment tools are proposed:

1. External assessment, therefore we suggest to modify the design of the Global Compact Management Model, including audits under "Measure" section.
2. Using a model that helps to increase UNGC reliability and certifies the information published by participating organizations (see figure 3)

The proposed model (based on the structure of Franceschini et al., 2010) is based on parameters already established for joining and staying on the UN Global Compact, as well as in The Differentiation Program, where review assessments have been added ensuring the accuracy of information provided to UNGC headquarters (through CoP).

According to the model, after presenting CoP for the first time (CoP₀) following the parameters set by the UNGC, an assessment should be conducted. If the assessment determines compliance of CoP₀, participant will upgrade to GC Active Level, over a year. The following CoP₁ should be presented and retry the external assessment. If this determinates compliance one more time, participant will upgrade to GC Advanced Level. Due to continuous improvement within the organization, following CoPs will be presented in three years' time, and each of them will have an external assessment. During this period, internal self-assessment should be performed at least once a year. If one of the CoPs does not comply with the UNGC requirements, then the organization will be classified in the Learner Platform for one year, to meet the requirements and pass the external assessment.

organization will be upgraded to the Active Level for one year, when it will present the CoP₂. If the assessment is positive, the organization will be upgraded to the Advanced level and will be evaluated every three years. If this assessment is negative, CoP₂ does not comply, the organization will also have to leave the UNGC for a year.

This model implies an increase of time and especially of costs; however it can help in providing the UNGC with reliability of the published information and commitment to social responsibility practices. In fact, to publish the sustainable report as well as an internal and external assessment is putting the UNGC at the same level as the EFQM model or EMAS implementers, although it is assessing the management rather than the content (as it is done in Kok et al., 2001, van Marrewijk et al., 2004, Zink, 2007, Parast and Adams, 2012).

5. Conclusions

The aim of this paper is to provide a social responsibility assessment approach using the total quality management principles, more in-depth, the model is proposed for the United Nations Global Compact. Based on a literature review, the model proposed provides a guideline to ensure the UNGC reliability. The following conclusions can be posed.

First, several tools exist to formalize social responsibility practices within organizations and this phenomenon will probably become a problem in the near future. Only those tools able to demonstrate the commitment and involvement of organization, as the EFQM model or management systems, and the integration of social practices into the organization management, will survive.

Second, the proposed model aims to reduce the non-transparency of the UNGC and avoid the criticisms it receives for the participants' management and control (Deva, 2006, Arevalo and Fallon, 2008). At the same time, the model tries to ensure the validity of the information provided and the processes applied within the organization to reach the objectives of the UNGC. The model is based on the assessment approach of other tools, specifically the EFMQ model as there are evidences that between total quality management and social responsibility synergies exist (see e.g.. Tarí, 2011).

The main limitation of this study is the data bases availability, as some important papers could be missed for this reason.

Future research is focused on testing empirically the validity of the model within UNGC participants. Some results are expected, such as those companies with experience in implementing management systems requiring third-party audits will be more likely to accept the assessment model (Castka and Balzarova, 2008a, 2008b, Tarí Guilló and García Fernández, 2011), or this could condition which tool choose. Those companies against the proposed

model could be those for whom the image is more important than the social responsibility practice, then acting as a filter to know the motivation to implement this tool.

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Does TQM Fit to Any Sector? The Case of the Health and Social Services Sectors

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Abstract

In recent years, the implementation of TQM has clearly gone beyond the industrial sector and has started to have a growing repercussion on some service sectors in many European countries, such as those of health and social services. In this contribution the influence of the Quality Management paradigm is analyzed for the health and social services sectors. From the research carried out, the conclusion on occasions drawn is that the paradigm "one size fits all" has certain shortcomings which must be taken into account by the different agents involved in the process of improving these services and which are of growing importance in modern-day society.

Key Words: TQM, Quality Management, ISO 9001, service sector, health and social services sectors.

1. Introduction

In the literature regarding health care management, it is stressed that the paradigm of quality has in recent years become one of the strategic elements in which the transformation and improvement of health care systems is based (Øvretveit, 2003; Grimshaw *et al.*, 2003). The influence of this paradigm has also extended to the area of social services, further proof of the major inter-relation existing between these two sectors. Indeed, as is often stressed by specialists in the field, the boundaries between health care and social services prove difficult to define, and have been the subject of long-standing dispute

(Twigg, 2000). This is also a discussion that includes different details according to the welfare system existing in each country and the traditional regulatory framework of each country or region which derives from such a system (Esping-Andersen, 1996).

As in many other sectors, the spreading of the paradigm of quality has been based on the rise or the implementation of ISO 9000 international standards and of the Excellence Model of the European Foundation for Quality Management (EFQM). For example in Spain, the influence of quality management has been very noteworthy in the case of health care and social services. As stressed in the aforementioned works, there has been a major boost on the part of public administrations in setting different plans and programmes in motion, and there are many organizations which have obtained recognition for quality and excellence in terms of management. Thus, various health organizations have in recent years been deemed worthy of some type of recognition in the form of EFQM itself (Sánchez *et al.*, 2005). Nevertheless and despite the greater use of these quality systems and models in the field of health and social care, no studies have been carried out with the aim of rigorously analyzing their results either via this field or via the general field of studies as regards quality management. As Øvretveit (2003), one of the most renowned experts in this field, highlights, there is little research assessing the effectiveness of quality strategies in the health sector. This author also points out the difficulty involved in establishing causation, as has been highlighted by different authors, for a study of the results of quality management in general (Heras, 2006).

Furthermore, for Øvretveit (2000) a further debate involves the appropriateness of applying “industrial” quality strategies to health care, and the means by which they are best translated or adapted could form part of a line of study into already traditional management in which the adoption and implementation of management tools is analyzed. This is a line of thought in which, based on a critique of the notion “one size fits all” or “one-business-model-fits-all” underlines the complexity of processes involving the generation and dissemination of knowledge related to business management, and the importance of active processes involving the adaptation and reformulation of new ideas as these are received in different institutional and cultural environments (Westphal *et al.*, 1997; Hofstede, 2001; Albizu and Olazaran, 2006).

2. The concept of *quality* in the health and social services sector

In literature about quality management, most scholars have tended to focus on the definition of the term *quality* (e.g. Dale, 2003). However, it is in our opinion very important to qualify the definitions made regarding these terms according to the sector of activity we are dealing with. For instance, the differences existing within the concept of quality of products and services have been analyzed in depth,

which has often been defined as meeting or exceeding customer expectations (Parasuraman *et al.*, 1994).

Along these same lines, in the opinion of specialists there are many different distinguishing elements in terms of the scope and content of the concept of quality in the health and social services sector in relation to other service sectors. Among other matters, reference could be made to the specific customer features, the features of the service being provided or the responsibility taken on by professionals who work in the health and social services sector (Donabedian, 2002 and 1996; Sacanell, 1994). In this sense, perhaps the concept of quality of care constitutes the key – a genuine reference point of the literature in this sector. Donabedian (2002) includes one of the most referenced contributions in this field, according to which three main components of the aforementioned quality of care may be distinguished: the *technical component*, which gives rise to the term *technical quality* as an expression of the adaptation between the care provided and advances in science and the qualification of professionals; the *interpersonal component*, as an expression of the importance of the patient-health care professional relationship; and the *component corresponding to the environment*, as an expression of the importance for care of the framework within which it is carried out, which has been referred to as “the amenities.”

As Reed *et al.* (2000) point out, in the sector subject to study, there may be a gap between procedural control and quality of life as experienced by those who use and provide care home services, as well as the risk of imposing frameworks which do not reflect the concerns and priorities of care homes and the residents who live in them or the cultural and social variations in national contexts. Along these same lines, Porter and Tanner (1996) suggest that caution in these developments in the sector is necessary, as external quality audits can degenerate into bureaucratic procedures, to limit themselves to assessing control of procedures with little attempt to explore quality improvement opportunities.

Therefore, perhaps the concept of quality of care constitutes the key – a genuine reference point of Spanish literature in this sector. Donabedian (2002) includes one of the most referenced contributions in this field, according to which three main components of the aforementioned quality of care may be distinguished: the *technical component*, which gives rise to the term *technical quality* as an expression of the adaptation between the care provided and advances in science and the qualification of professionals; the *interpersonal component*, as an expression of the importance of the patient-health care professional relationship; and the *component corresponding to the environment*, as an expression of the importance for care of the framework within which it is carried out, which has been referred to as “the amenities.”

The importance of the technical component of quality of care is the key to understanding the field of health care and social services. As specialists in this field point out (Donabedian, 2002; Sacanell, 1994), the fact that there are situations in which the wishes or demands of the patient/resident cannot be met has had to be taken into account, because they could even imply counterproductive circumstances for the person who requests them. Because of this, it has had to be taken into account that an assessment of quality of care in certain situations has needed to be made by professionals and technicians in the subject — thus the concept of “technical quality”— because it is unlikely that patients would have the technical know-how needed to pass a judgement about the maximum benefits that could be achieved by welfare.

Likewise, Donabedian highlights what the key terms related to the quality of care are (Donabedian, 1980): inputs/structures, process and outcomes. In the specific sector of caring for the elderly, the quality of care might also be defined according to these key terms (Vaarama, 2004):

- inputs/structures – well-trained, multidisciplinary personnel, personnel’s motivation towards constant improvement of quality, evidence based and validated standards
- process – responsiveness to needs and preferences of the client, support to autonomy and independence, the clients’ right to dignity, client centredness in planning of services, client participation, empowerment
- outcomes – effectiveness of care, continuity of care, client satisfaction, support to quality of life of a client.

Other authors who refer to the field of health care distinguish three dimensions of quality (Øvretveit, 2000): *Patient quality*: whether the service gives patients what they want; *Professional quality*: professionals’ views of whether the service meets patients’ needs as assessed by professionals (outcome is one measure), and whether personnel correctly select and carry out procedures which are believed to be necessary to meet patients’ needs, (process); and, finally, *Management quality*: the most efficient and productive use of resources to meet client needs, without waste and within limits and directives set by higher authorities.

Furthermore, specialist literature in this field stresses the fact that in this sector, in addition to users of the services, there are clearly a number of different groups with something to say about how the service provided should be defined. In other words, the term “customer” proves difficult to limit, as it may include relatives, professionals, public authorities and society in general. In short and as stressed in the case of public services in general, there are other groups with a legitimate interest in quality apart from those who are immediately using them (Qureshi and Henwood, 2000). It can also be stated that the

warmth of environments, social and affective relations, communication processes between people, the right to privacy and other similar factors are qualitative aspects which, as Donabedian (1980) pointed out, are of great importance in the sector.

In short, we can therefore confirm that this is a very complex matter to analyze which requires a major systematic reflection that evidently goes beyond the aims of this brief contribution. Nevertheless and perhaps initially avoiding the reflections mentioned, the main models of quality in our environment which have been implemented in this field have been based on the ISO 9001 and EFQM standards and general models of quality which, to a greater or lesser extent, have been adapted to the specific service provided in residential care homes for the elderly, with lesser attention having been paid to the specialist models of quality from the sector which have a certain tradition in other countries, such as the United Kingdom (Reed *et al.*, 2000; Heras, *et al.*, 2008). We are referring to models which focus on measuring service quality or quality of care.

3. From general TQM models to sectorial specific quality models

Among the specific models for the health sector, in which we should differentiate between very different traditions of approaches according to regions, there are assessment models and also indicator models. Among the best known general assessment models, special mention should be made of the Joint Commission on Accreditation of Health Care Organisation Scheme (JCAHO) and the Kings Fund Organisational Audit (Øvretveit, 2001). In the field of social services and specifically in that of residential care services for the elderly, there are also models specializing in improving the quality of the welfare provided. Of special note is the person-centred model “Homes are for living in” (HAFLI; Department of Health, 1989), the “Multiphase Environmental Assessment Procedure” (MEAP; Moos and Lemke, 1979), “Inside Quality Assurance” devised by the for Environmental and Social Studies in Ageing (CESSA, 1992) and “Quality in Action” devised by the Norah Fry Research Centre (NFRC, 1996). The HAFLI model – perhaps the most ambitious one – starts from the philosophy that the aim of residential care homes for the elderly goes beyond keeping residents well looked after, fed and clean. The aim of these homes is for the residents to live in the home (Department of Health, 1989). HAFLI was developed as a code of practice for inspection units, proprietors and managers of homes. It underlines principles of care based on dignity, the right of self-determination and individuality. The model is based on six basic values: Privacy, Dignity, Independence, Choice, Rights Fulfillments.

More recently, another interesting sector-orientated quality management system has been developed: “Qual A Sess”; this model was developed by German and UK organisations to assess the quality of care in care homes and mechanisms to improve the quality of care through the development of action plans involving residents, families and staff in the process (Reed *et al.*, 2005). The “Qual A Sess” system

integrates some characteristics of HAFLI with EFQM excellence model. For their developers the system creates a process that involves residents, relatives and staff in the assessment of the home's current performance and in the development of action plans to promote improvements in the quality of care and service provision (Reed *et al.*, 2005). It is interesting to underline the fact the Qual A Sess system differs in the UK and German versions of the system in reflecting the cultural and structural situations in the respective countries. Moreover and in the context of calls for EU-wide harmonization of standards, it is worth mentioning "E-Qalin, European quality-improving, innovative learning in residential care homes for the elderly" project, a project which is still in its draft phase that is supposed to develop a European Quality Certificate self-assessment model; it is based on the PDCA, and in the words of those who are developing it, it is comparable to EFQM, but translates TQM to its field and is more specific (Bader *et al.*, 2006). Within the field of standardization, special mention should also be made of the contribution made in Spain by AENOR, the national standardization and certification entity which in 2000 published the UNE 158001, the first European specific Management System Standard for the residential care home sector for the elderly.

Clearly, the ultimate goal of both the models defined in this article as being generic and the specific models is to improve the service provided to users although, as we shall see, by focusing on and assessing different aspects, they may also be able to improve different aspects. In the health sector, these two types of model have not been considered exclusive and in many are increasingly being used together (Øvretveit, 2001). However, in other sectors such as the sector subject to scrutiny in this article, it would appear that generic and specific models have not been implemented in a complementary way, but rather, in an exclusive one. Nevertheless, only very recently has it appeared to be possible to deal with any possible divergence existing between advances related to quality and the quality in terms of welfare provided in this sector of activity. In short, it was established that both from the professional and academic standpoints, no special attention has been paid to analyzing the suitability of general models for quality management (e.g. ISO 9001, EFQM) which emerged for the industrial sector, in the specific field mentioned.

4. Conclusions and final reflections

For some specialists in the sector of health and social services, the application of quality systems and models in the health and social services sector has helped to improve the quality provided to the customers or final users. In contrast, in the opinion of other researchers, the effort made in applying the conventional TQM systems and models has not been reflected in the quality of the service. According to some authors, the notion that there exist quality assurance standards applicable to all types of sector may be dispensable to the extent that one should ask oneself which quality assurance standards apply

to each sector. The theoretical and professional discussion and reflection regarding the health care sector would seem to be relevant once the first steps towards the implementation and adoption of the aforementioned systems and models have been taken in the sector.

We conclude that a bursting onto the scene of generic quality assurance models such as ISO 9001 or the EFQM model in the health and social services sectors can provide their best contribution to administrative and management processes, given that their *supposed* effectiveness and efficiency is not so clear in the area of improvement of quality in terms of care for residents – an area where there exists a long tradition of study based on knowledge gained by practitioners and scholars from different disciplines (medicine, nursing, gerontology, and social work, etc), which should not be looked down on, but rather, integrated. As has been stressed by many researchers, this new orientation towards a more business-like approach in the health and social services sector is an opportunity to raise professionalism and customer-orientation, but as several authors were already criticizing quite a few years ago, there continues to be evidence of the fact that the specific features of the sector are not always taken into account (Evers *et al.*, 1997; Porter and Tanner, 1996).

In short, in our opinion from the academic field of research standpoint, an in-depth analysis should be continued to try to ascertain whether generic TQM models – in other words, those which are not geared towards a specific activity, but rather are of universal application and may in principle be applied to any type of activity – are adapted suitably to such special areas of activity, or whether, conversely, it proves necessary to study the field of specific models and standards in depth – in other words, those models which are geared towards a specific activity. In our opinion, the TQM models must be linked at all times to the management quality of organizations which provide services such as that of residential care for the elderly, the quality of health care provided to residents and the *quality of life* of all the people involved.

5. References

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Model for Evaluating and Improving Internal Communication in an Organization According to the Principles of TQM

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Abstract

In this article, we describe a model designed for evaluating internal communication in an organization according to the principles established for Total Quality Management. This model, which has been assigned the name of "COMINT", has been developed from two models of recognized prestige, the EFQM Excellence Model (for Total Quality Management) and the SERVQUAL method for evaluating the quality of services. The criteria and sub criteria of the enabler agents of the EFQM excellence model were used to determine the different aspects that must be communicated internally in an excellent organization, whereas the SERVQUAL model was used as the evaluation methodology. The present article describes the most relevant aspects of the development and use of this model in relation to its implementation in a public organisation and the creation of improvement measures that this organisation needs to put into practice.

Keywords: *Communication; Quality management; EFQM; Organizational communication; Internal communication.*

1. Introduction: Evaluating internal communication in a Total Quality Management setting

Internal communication, one of the two elements of organizational communication, has in recent years evolved to become one of the most effective and influential management tools at the heart of any organization. Taking *organizational communication* to mean that which occurs in an organization or company and affects or involves its constituent members, several authors (Hage, 1970; Irving, 1994; Garnett, 2000) consider it as a whole, where internal communication and external communication are two sides of the same coin.

Although internal and external communication have apparently been taken into consideration on equal terms in studies of organizational communication, greater importance has been given to the former in relation to organizational development. Irving and Tourish (1994) think that present trends consider internal and external communication to be equally relevant, even though internal communication is of vital importance for the evolution of the organization. For this reason, their vision integrates both aspects of communication. In a later work, the same authors (1995) add that organizations must deal with both external and internal communication separately, while considering both aspects as inevitably united, in order to organize communication in an integrated and strategic way. In short, they consider them as complementary and that both are needed to develop a strategy of communication in an environment of unified, quality management.

Accepting internal communication as a key factor in organizational development, many authors (Stayer, 1990; Clampitt, 1993; Tourish, 1996; Elías, 1998; Tourish, 1998) coincide in considering it to be a decisive element in the existence of organizations, being in addition an extraordinary agent of change which allows organizations to adapt to the variable demands of the environment. These days, organizations recognize this clearly-identified function of "telling the organization what the organization itself is doing" as a fundamental factor in improving effectiveness and efficiency. In the opinion of Calabrese (2004) and other authors (Farace, 1977; Krone, 1987; Eisenberg, 1993; Contractor, 1997), internal communication forms part of the process created by the management team through which the corporate values (for example the corporate mission) are transmitted to the human resources, the purpose being to guarantee that these values are made known to, and take root in, the entire company. The importance of this is clearly reinforced, in our view, with the implementation of quality assurance systems, such as ISO 9000 or Total Quality Management models, which spell out the importance of transmitting certain values such as leadership or customer orientation.

Taking *quality* as one of the most important demands in the organizational environment, Townsend (1965) also thinks that internal communication must be considered an essential tool for managing an organization, to the same degree as quality, since good communication means corporate goals can be attained.

However, if internal communication is of such importance in bringing about improvements in the quality of an organization – among other things – how can we or how should we evaluate it? In the first place, it is evident that for internal communication to develop satisfactorily, we need to monitor the approach, application, evolution and attainment of objectives which, in turn, makes a particular evaluation or audit process inevitable. As Hargie and Tourish (1993) state in relation to this process, by using audits to check the state of organizational communication, the weaknesses are found and can then be improved whilst also improving the functioning of work places and the organization in general. As far as the most useful methods for carrying out an audit are concerned, the same authors think that both formal and informal methods, whether qualitative or quantitative, are equally useful, depending on each particular situation.

According to Harnesk (2004), however, evaluating internal communication in an organization is not an easy task since there are various influential and interacting factors. By measuring quantitative parameters, a limited amount of information on what is really happening can be obtained, while at the same time, qualitative data can be obtained through, for example, different attitudinal studies; but these do not give a complete picture either.

Having got this far, we must ask ourselves the following question: are there any models for evaluating internal communication? Naturally, there are: we can highlight models or techniques used by various authors (Roberts, 1973; Downs, 1977; Hecht, 1978; Goldhaber, 1979; Calabrese, 2004), however, none of these models found in the literature are based on the principles of Total Quality Management. This is why we need to ask further questions: Why bother to have good communication processes in the organization, if we do not use them to propagate the ideas advocated in Total Quality Management models? What use is it, if the leadership of an organization clearly understands the fundamental concepts of Total Quality Management and yet fails to communicate them correctly to the rest of the company?

For these reasons, we need to develop a model for evaluating internal communication in an organization based on the principles of the Total Quality Management; a model that enables us

to evaluate the deviation from the organizational goals and then to deal with these shortcomings.

In this article, we describe the design, implementation and evaluation of such a model. It is of our own design and uses the EFQM (European Foundation Quality Management, 2003a) as the model of Total Quality Management, since this is the most popular model in Europe – where this study takes place – and the notion of gaps from the SERVQUAL model (Zeithaml, 1993) as its evaluation methodology. Before entering into the details of the model proposed in this article, we shall very briefly describe these two reference models.

2. Total Quality Management. Use of the EFQM model

In the first place, we must bear in mind that Total Quality Management is not simply a system but something much broader; it is a whole philosophy and a series of established principles designed to steer the organization towards the benefit of everyone participating in it. It is, therefore, a cultural change, which implies a total commitment with regard to quality and the involvement of everyone in the continuous improvement in products and services through the use of scientific and innovative methods (Dale, 2003). Without doubt, improving internal communication must be a fundamental part of this continuous improvement.

In order to promote awareness of the fundamental concepts of Total Quality Management and to help to understand and apply them, different specific models have been developed all over the world, which have led to the creation of some of the most prestigious Quality Management awards. At the European level, the most important of these models is the one issued by the European Foundation for Quality Management, known as the EFQM model.

Figure 1. Fundamental Concepts of Excellence (European Foundation Quality Management, 2003a).

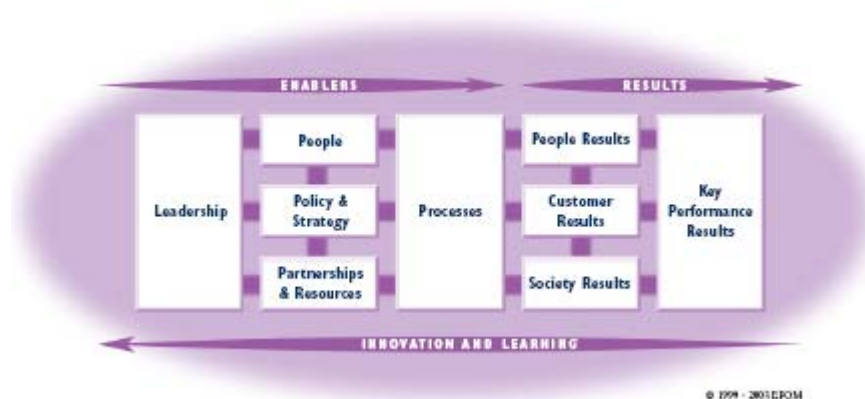


Briefly, since it is widely known, EFQM model is a flexible excellence model of quality management that can be applied to large and small organizations, from either the public or private sector. It is also the basis of the European Quality Award granted annually by the EFQM Foundation (European Foundation Quality Management, 2003a). It does not give specific instructions as to how the organization should be run, nor which tools, methodologies or systems must be applied, it simply attempts to encourage organizations to act according to 8 general principles, see Figure 1, which serve to steer management towards Excellence.

Based on these principles, the model seeks to achieve Excellence in the organization using the following premise: *"Excellent results with respect to Performance, Customers, People and Society are achieved through Leadership driving Policy and Strategy, that is delivered through People, Partnerships and Resources, and Processes."* (European Foundation Quality Management, 2003a).

Each of the elements mentioned in this premise, shown in Figure 2, constitutes a criterion that will help define the requirements of an organizational system that needs modifying in order to adapt management in terms of Total Quality. The nine requirements or criteria necessary to evaluate Total Quality Management in an organization and its progress towards Excellence are derived from this premise and they are divided into two main classes: *enablers* and *results*. Enablers allude to causal factors and cover how the organization carries out key activities – i.e., how the organization obtains results – whereas *results* indicate what has been achieved and what is being achieved by the organization, i.e., the results obtained by the enablers.

Figure 2. Scheme of the EFQM model of Excellence (European Foundation Quality Management, 2003b).



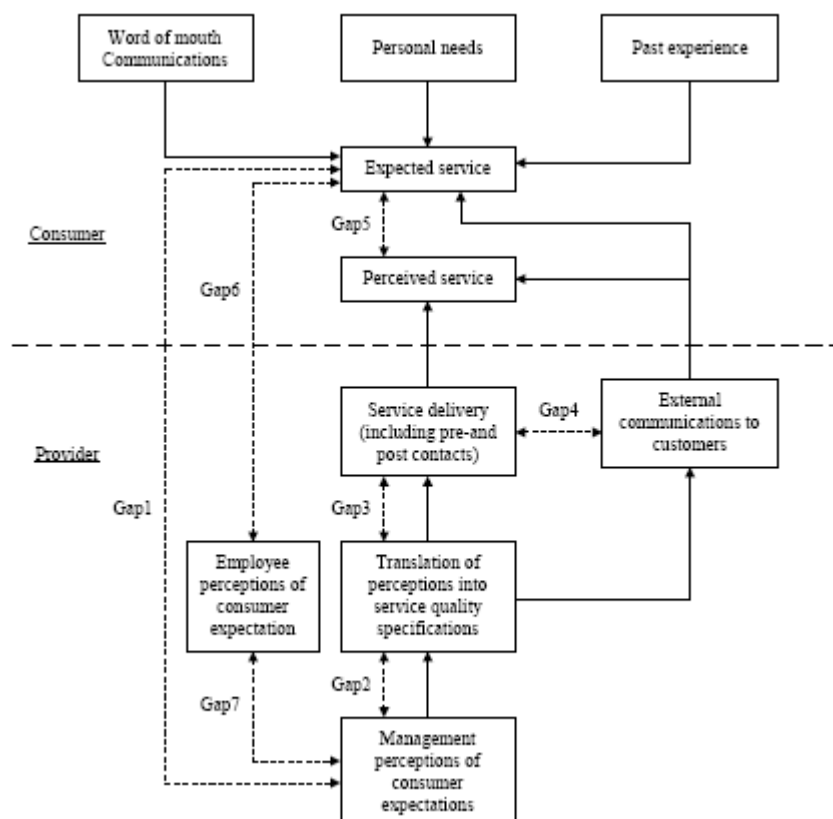
Each criteria has a specific weighting in the model, which means the organization can be evaluated with respect to each one. In order to carry out this evaluation, each item of each sub-criteria of each specific criterion must be analyzed.

3. Reference Structure. Use of SERVQUAL model

Our model needed to be based on a well-known and widely-validated frame of reference and so we used the SERVQUAL model for evaluating services proposed by Parasuraman, Berry and Zeithaml (1985).

The SERVQUAL model evaluates the quality of service offered by a particular organization (Zeithaml, 1993). Although there are many other models designed with the same objective, (for example Gröngroos, 1990), none have become as popular as SERVQUAL, which why it has been used in all kinds of service sector organizations such as, for example: health services (Vandamme, 1993; Sewell, 1997; Camilleri, 1998), education (Anderson, 1995; Pariseau, 1997; Galloway, 1998), industry (Jannadi, 2000; van der Wal, 2002) or the financial sector (Arasli, 2005), among others.

Figure 3. Conceptual Model of quality of service. (Zeithaml, Parasuraman & Berry, 1993).



However, we used the structure of this model in our investigation not for its approach to evaluating service quality, but rather, for its methodology of evaluating discrepancies or deficiencies between different concepts, which the authors call gaps. Briefly, the SERVQUAL model is based on the following concept: providing high-quality service means balancing client expectations and client perceptions and minimizing the differences between them. Thus, this model evaluates the expectations and the perceptions of the clients and determines the difference between them so that this "gap", or deficiency, or, in effect, this lack of quality in the service, can be analyzed. This same idea reflects the principal proposition in our investigation, which is to evaluate the shortcomings in communication as the difference between the sending and the reception of the message communicated.

From this basic idea, Parasuraman, Berry & Zeithaml, in different works (Parasuraman, 1988a; Parasuraman, 1988b; Parasuraman, 1994) develop a model of gaps, see Figure 3, which enables different factors related to service quality to be evaluated. In a similar way, the model we describe below in this article, attempts to distinguish various aspects that require consideration in the case of internal communication being deficient or of reduced quality, as well as any effects this may have.

In this way, while the SERVQUAL model can help to determine where the shortcomings in service quality are taking place and their importance, our model will allow us to establish where the shortcomings in the internal communication of an organization are taking place, their importance and, in effect, what actions to take.

4. Design of the COMINT model for evaluating internal communication

The EFQM Excellence model and the SERVQUAL service quality evaluation model comprise the design base of our model, called COMINT, whose purpose is to evaluate internal communication in a particular organization.

The criteria and sub-criteria of the enablers of the EFQM model determine the different aspects that must be communicated internally in an excellent organization. Using these aspects, or items of information, we evaluate the gaps in the communication itself, as in the SERVQUAL model for evaluating service quality. We have designed different questionnaires for the staff of the organization in order to carry out the evaluation.

4.1. Basis of the model and questionnaires

To evaluate internal communication in an organization, it must first be understood that the communication process consists of a *sender* who sends information and a *receiver* to whom

the information is directed. The quality of the internal communication depends on how much of the information that is sent is received. Thus, we must analyze the sending of the information as well as its reception, evaluating any gaps that exist. On the other hand, in order to relate the effect of the quality of the internal communication on the global quality of the organization, we need to analyze the impact that this communication may have on the organization and what to do about it. In other words, communicating well is not the only important factor; communicating information that steers the organization towards Total Quality Management is just as important.

Taking this into consideration, our survey includes all the items we considered important to get the information needed to evaluate internal communication in an excellent environment. It is divided into three independent but related questionnaires that cover the different areas considered in the communication process: *sending*, *reception*, and *action taken*. The latter questionnaire, which relates communication to organizational quality, evaluates what the organization does in response to each communicated aspect, that is to say, whether action is taken with respect to the information. In some measure, it attempts to analyze whether the communication of the various aspects analyzed results in the organization taking action on them.

Each of the three questionnaires is designed with the aim of evaluating each area independently, using the content of the EFQM model as our reference. The criteria and sub-criteria corresponding to enablers serve as the basis of the different questions for each area, all of which are valued by means of the Likert scale [1.5]. The survey is made up of three questionnaires corresponding to the three areas under consideration:

- Questionnaire 1: Sending the message.

These questions specifically concern how the information contained in the EFQM model is sent, that is to say, how the sender transmits the information that, according to the criteria and sub-criteria of the EFQM model, is essential. By way of an example, this questionnaire is reproduced in the appendix.

- Questionnaire 2: Reception of the message.

Here the questions analyze the degree to which the information (that the EFQM model says must be communicated) is received, that is to say, the correct reception of the information related to the criteria and sub-criteria of the EFQM model. Naturally, any other type of information that does not contribute to improving organizational quality,

i.e., any information not included in the EFQM model, is not considered. This questionnaire is analogous to the one in the appendix 1, but in which *sending* of the communication is replaced by *reception*.

- Questionnaire 3: Action taken.

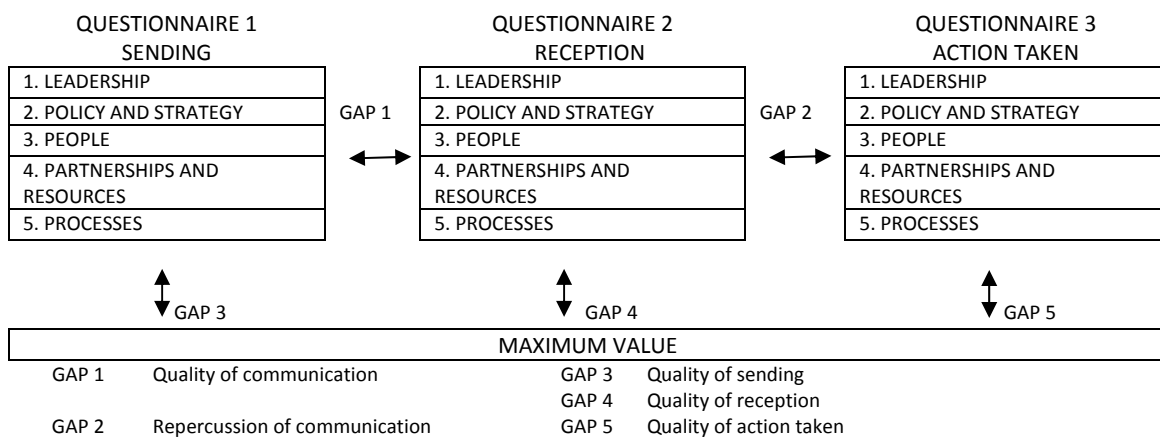
Finally, the last questionnaire attempts to analyze to what extent action is taken as a result of any communication established, and whether this influences the development and improvement of the organization in line with the EFQM model (strategy, objectives, improvement plans, etc.).

Each of the three questionnaires contain questions relating to questions in the others. This can be seen, for example, in the following questions, based on criterion 2 of the EFQM model, taken from each of the questionnaires, which attempt to evaluate the communication of needs and expectations of staff. (The people surveyed have to rank their agreement with the statement on a scale of 1 to 5).

- Questionnaire 1 - SENDING (Crit. 2A). I transmit my needs and expectations to my superior.
- Questionnaire 2 – RECEPTION (Crit. 2A). I know the needs and expectations of my subordinates.
- Questionnaire 3 - ACTION TAKEN (Crit. 2A). The needs and expectations of the personnel influence the policy of the organization.

From the above description, we can represent the model used in a diagram, see Figure 4, which shows the gaps that will be analyzed later.

Figure 4. Diagrammatic representation of model for evaluating internal communication. (By authors)



Subdividing the survey into these three different questionnaires and addressing the different gaps, responds to the need to establish a comparison between how the information is sent, how it is received and the influence it has on the action taken by the organization, in exactly the same way that the gaps in the SERVQUAL model do. The importance of the model, therefore, resides in its three parts which, when compared, have to enable us to evaluate the internal communication of the organization on the basis of the content of the EFQM model and its enablers. In this way, each gap, calculated as the difference between the values gathered in one part of the survey and those gathered in another, give us an idea of the quality of the communication. In this sense, we get the following:

- "Gap 1" or "Quality of the communication": Taking the effectiveness of the communication to mean the difference between what the sender *sends* and what the receiver *receives*. The value of "Gap 1" indicates this effectiveness by comparing the values obtained for each criterion.
- "Gap 2" or "Repercussion of the communication": Nothing is gained by communicating information if the organization does not subsequently take any action to make improvements or find solutions. The discrepancy between reception of the communication and action taken is evaluated by means of "Gap 2".
- "Gap 3" or "Quality of the sending": This evaluates the degree of information that is sent with respect to the ideal, i.e., what should be sent, according to the EFQM criteria.
- "Gap 4" or "Quality of the reception": This evaluates the degree of information received with respect to the ideal.
- "Gap 5" or "Quality of the action taken": With respect to all the action that could be taken, this gap evaluates what really it is carried out.

4.2. Plan of Communication

Given the importance of internal communication and the characteristics required for its management, it cannot be limited to taking particular courses of action that never yield results; that add to costs but bring no benefit. It has to respond, then, to a rigorously established scheme which plans the scheduling of the actions to be taken and the goals to be achieved. For

that reason, it must be periodical, be provided for by the people responsible, aim for quality not quantity and find the best support on each occasion. Consequently, internal communication must manifest itself in a plan adapted to the specific circumstances of the company, which has to be inspired and supported permanently by the management team (Garrigós, 1996).

For any organization, the Communication Plan is an instrument used to direct all communication in the organization, to coordinate communication initiatives with strategic targets and the resources available, as well as achieving the participation of the people involved. This demonstrates the importance of this program in an organization, this is why we must not forget the task of monitoring and following up the communication plan with various instruments (questionnaires, interviews, etc.).

In relation to the Communication Plan, the COMINT model is of use in obtaining a general evaluation of the communication process, while at the same time detecting possible strong and weak points in the internal communication of an organization, since it is clear from the criteria and sub-criteria of the EFQM model itself, that there is a significant gap in these areas. Taking these weak points into consideration, it will be necessary to establish various courses of action to be taken within the framework of the Communication Plan in order to promote and to establish the bases for the development and improvement of the internal communication.

5. Practical application of model

5.1. Empirical study

Using the model and the corresponding questionnaire, we carried out an empirical study in a governmental organization in Spain, the INSS (*Instituto Nacional de la Seguridad Social*). This study consisted of applying the model and questionnaire to one of the 52 provincial delegations of this organization with the aim of evaluating the quality of its internal communication. The survey was answered by 136 people who make up the entire staff of the delegation analyzed. The three parts of the survey were administered on three different days, with the aim of avoiding errors in filling out each questionnaire, as well as reducing the time required to do so. Because of the kind of organization we were studying and the functions assigned to the personnel, the population was divided into different groups. Using the chain of command that affect such groups, we established the typical relationships within the organization so that, as far as communication was concerned, the flows of information

correspond to this same hierarchical order, bearing in mind the main directions of the ascending and descending flow and that other additional flows of lesser importance exist.

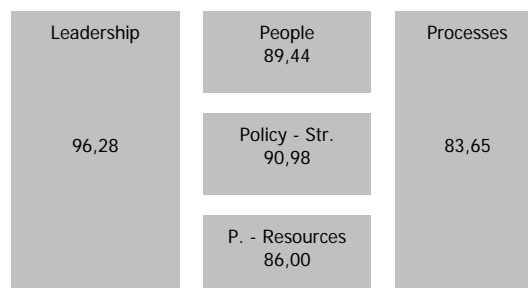
Taking into account the existing groups and the established flows, in order to evaluate the communication in the organization by means of our model, it was considered necessary to differentiate the questionnaire according to the group being surveyed. (Questionnaire A was directed to the groups that occupy higher positions in the hierarchy, i.e., staff that have subordinates as well as superiors; Questionnaire B was directed to the groups that occupy lower positions in the hierarchy, i.e, staff that do not have subordinates). In this way, we were able to consider the possible flows of communication of each group in order to carry out the evaluation of the communication.

5.2. Analysis of the data

Once the data was gathered from the questionnaires filled in by the personnel of the provincial delegation, we carried out an exploratory analysis with the aim of analyzing the data relative to internal communication according to our model. The data gathered was segmented according to the different groups existing and then analyzed and interpreted.

Firstly, we analyzed the global data of the evaluation by criteria, i.e., the results concerning the opinion of all the people surveyed, independently of the group to which they belonged. These data provided global results on the quality of sending, reception and action taken with respect to communication based on the different criteria of the EFQM model. A value for the quality of these factors was obtained which made it possible to represent the results in our model and to get global values for the gaps to establish discrepancy between the actual and the ideal situation. Using the gaps detected, the courses of action to be taken were devised.

Figure 5. Diagrammatic representation of “Gap 1: Quality of communication” calculated for the managers group. (By authors)

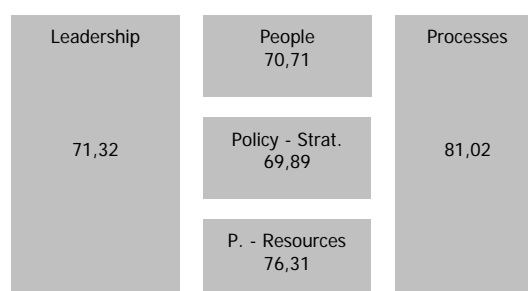


To get more detailed information on the quality of the communication in addition to the general performance for the whole delegation and, bearing in mind the different groups and their flows of communication, the data brought together by the model was analyzed further, considering each group in more detail and dealing with communication in relation to each group and the groups in contact with it. As an example, and in line with the diagrammatical representation of the EFQM model, Figure 5 below shows one set of results obtained for quality and effectiveness of the communication ("Gap 1: quality of the communication") calculated for the *managers*.

According to these results, it could be considered that for the *managers*, the effectiveness of the internal communication with regard to aspects related to *Processes* is somewhat lower than it is for *Leadership*. It can also be seen that the aspects related to processes that take place in the organization are not communicated as effectively as other aspects are. What aspects of *Processes* affects this result? To answer this question we need to look further into the sub-criteria and items of the questionnaire. For example, the fact that complaints made by clients are not made known widely enough is one of the main weaknesses of communication in the organization, as far as *Processes* are concerned. With these results, the Communication Plan would have to focus on analyzing the reason behind this reduced effectiveness in communicating these aspects, so that action could be taken to improve it.

In the same way, if we look at "Gap 3" or "Quality of sending" for the *managers*, see Figure 6, it can be seen that this group calculates a high value for sending information related to the *Processes* of the organization. Thus, a comparison of both gaps shows that although the value for the quality of the communication of these aspects is not very high, what is high is this group's value corresponding to sending. It is possible to deduce from this that the problem is not so much in the sending, but more in the reception of these aspects on the part of the group to which this information is directed. In some way, an incorrect communication is detected, reflected in a smaller effectiveness in the reception of these aspects.

Figure 6. Diagrammatic representation of "Gap 3: Quality of sending" calculated for the *managers* group. (By authors)



Similarly, each one of the aspects shown in the different diagrams of the gaps were analyzed. In response to them, suitable actions were taken, the aim being that, in the next evaluation, the results would be much better. It should not be forgotten that improving the aspects of internal communication that appear in the model will bring about improvements in the level of quality in the organization according to the evaluation of the EFQM model.

5.3. Conclusion of the practical application

Using the data gathered from this practical application carried out in a provincial delegation, the internal communication can be analyzed globally, taking the whole delegation into consideration, or separately by groups, focusing on the effectiveness of the processes involved (sending, reception, action taken) and the flows of communication between the different groups.

Given the success achieved in this first practical application, the model is currently being applied at the global level, in all 52 provincial delegations of the same government organization. Since this involves administering the three questionnaires of the survey, with an average of 40 questions per questionnaire, to a sample of about 2,500 individuals, we shall be using specialized software for Websurveys in order to carry out the surveys electronically.

6. Conclusions

From our experience, the model we have developed appears to be of use not only for analyzing the quality or effectiveness of internal communication in an organization, but also for identifying areas of improvement and therefore the specific actions that need to be taken. This was clear from the moment the organization where we carried out the empirical work decided to extend the method to its 52 delegations nationwide. From the results obtained, it is possible to draw conclusions about the quality of an organization's internal communication in a general way, by taking communication to be the result of the processes of sending and reception, or else by considering each of these processes independently in order to identify more accurately which of the two presents the greater problem.

On the other hand, the model is also useful in that it provides the possibility of segmenting the study population into different groups (managers, support personnel, etc.) so that the quality and effectiveness of the communication processes can be analyzed with respect to these

groups, bearing in mind the communication flows that take place in the organization. This should allow the communication analysis to focus on those groups that have the worst factors in terms of the process of sending or reception, which will in turn lead to the appropriate action being taken.

Furthermore, having been based on the principles that define an excellent organization, the model offers the possibility of analyzing to what extent internal communication – and the quality of such communication – influences the actions taken in the organization, especially those that directly affect Total Quality Management. In other words, it can find the specific areas where the quality of communication must improve in order to increase the Total Quality of the organization.

By analyzing all of these aspects, we can identify the strong and weak points of an organization's internal communication, and thus adapt the organization's Communication Plan so that improvement measures are devised that affect those aspects that have the worst results. In short, the model described here is a useful tool for identifying aspects of the processes of internal communication that may need improving, which in turn enable actions to be devised and taken that can resolve these communication defects and contribute to their continuous improvement.

Finally, two further points need to be made: the first is that the model is original since, as has been said, no model of similar characteristics has been located in literature. The second is that it does, however, have its limitations. The principal limitation stems from our concern to obtain a model that includes each and every one of the aspects of any type of organization whatsoever, as is the case with the EFQM model. This means that the number of items analyzed is very large, and the three questionnaires take up a great deal of time to fill in, approximately half an hour each one. For this reason, in the coming revisions of the model, with the aim of making it easier to apply the survey, we believe it would be beneficial to considerably reduce the number of variables analyzed, through an in-depth analysis of the relationships between the variables identified in previous studies.

7. Appendix

QUESTIONNAIRE FOR EVALUATING COMMUNICATION

1. SENDING THE COMMUNICATION

ANSWER:	Completely disagree	Neither agree, nor disagree	Totally agree	
	1	2	3	4

1. LEADERSHIP

1. I communicate to my subordinates the mission and vision of the INSS.	1 2 3 4 5
2. I communicate to my superiors the perception that I have of their management methods.	1 2 3 4 5
3. I communicate to my subordinates the hierarchical structure and the distribution of responsibilities.	1 2 3 4 5 1 2 3 4 5
4. I communicate to my subordinates the results of the managers' relationship with clients and society in general.	1 2 3 4 5
5. I promote the spread of the idea of a culture of excellence among my subordinates and collaborators.	1 2 3 4 5
6. I inform my subordinates of any changes produced in the D.P. (<i>Delegación provincial</i>)	1 2 3 4 5

2. POLICY AND STRATEGY

1. I communicate my needs and expectations to my superiors.	1 2 3 4 5
2. I communicate to my subordinates what the management indicators are (indicators of results, internal performance, learning, etc.).	1 2 3 4 5
3. I communicate to my subordinates the results of the management indicators are (indicators of results, internal performance, learning, etc.).	1 2 3 4 5
4. I communicate to my subordinates information relating to the public image of the D.P.	1 2 3 4 5
5. I inform my subordinates about the performance and best practices of other D.P.s or other units of this D.P.	1 2 3 4 5
6. I communicate the success factors of the D.P. to my subordinates.	1 2 3 4 5
7. I inform my subordinates about the content and any updating of the process map of the D.P.	1 2 3 4 5
8. I inform my subordinates about the plans, aims and goals of the D.P.	1 2 3 4 5

3. PEOPLE

1. I communicate to my subordinates the substance of the policy and strategy of Human Resources.	1 2 3 4 5
2. I encourage the participation of my subordinates in generating ideas for improvement in Human Resources management.	1 2 3 4 5
3. I communicate to my superiors my opinion with respect to the Human Resources management plan.	1 2 3 4 5
4. I communicate to my subordinates the results of their evaluation (responsibilities, abilities and knowledge).	1 2 3 4 5
5. I communicate to my superiors my training needs.	1 2 3 4 5
6. I inform my subordinates of the learning and training opportunities that the D.P offers.	1 2 3 4 5
7. I periodically communicate to my subordinates the aims and results of the training carried out.	1 2 3 4 5
8. I communicate to my subordinates what their responsibilities are.	1 2 3 4 5
9. I encourage the involvement of my subordinates in the continuous improvement of their work.	1 2 3 4 5
10. I encourage communication between my subordinates within the D.P.	1 2 3 4 5
11. I inform my subordinates about internal communication policy and related plans of action.	1 2 3 4 5
12. I inform my subordinates about the D.P.'s policy on bonuses, recognition and personal attention	1 2 3 4 5

4. ALLIANCES AND RESOURCES

1. I inform my subordinates about interactions and agreements established between the D.P. and other organizations.	1 2 3 4 5
2. I inform my subordinates about the management and maintenance of buildings, equipment and materials.	1 2 3 4 5
3. I communicate to my subordinates the security regulations for computers and	1 2 3 4 5

data protection levels.	
4. I inform my subordinates about aspects of ergonomics, security and hygiene that may affect their work, as well as any improvements carried out.	1 2 3 4 5
5. I inform my subordinates about the management, use and maintenance of materials and services (water, electricity, telephone, etc.).	1 2 3 4 5
6. I inform my subordinates about how information and communication technology can improve internal communication.	1 2 3 4 5
7. I provide my subordinates with the means to promote internal communication in D.P.	1 2 3 4 5

5. PROCESSES

1. I communicate to my subordinates information on the work processes in which they are involved.	1 2 3 4 5
2. I encourage my subordinates to participate in the design of the new work processes in which they will be involved.	1 2 3 4 5
3. I encourage my subordinates to identify and propose improvement measures in work processes in which they are involved.	1 2 3 4 5
4. I communicate to my subordinates any changes in the work processes in which they are involved.	1 2 3 4 5
5. I communicate the opinions of clients concerning the services offered by the D.P.	1 2 3 4 5
6. I encourage my subordinates to improve the services we offer in response to the opinions of clients.	1 2 3 4 5
7. I communicate complaints from clients to the departments or people involved.	1 2 3 4 5
8. I encourage my subordinates to come up with new ideas to improve relations and communication with clients.	1 2 3 4 5

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The Future of the TQM Paradigm

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In recent years, the Total Quality Management (TQM) paradigm has successfully taken root in our business environment. All types of public and private organizations have become involved in the dissemination of TQM. The promotion of TQM and Excellence continues to receive major public sector support. However, the quality *movement* is not without its problems as far as its mid- and long-term development is concerned.

Among other problems, there is the fact that Quality Management in general is focused on improving operative effectiveness and efficiency, which means the need to establish a strategic overview of a specific firm or company is often neglected. As Michael Porter points out in his work, the concepts of operative effectiveness and strategy are often confused. Operative effectiveness (on which Quality Management has clearly had a bearing in our environment) is, according to Porter, a major source of difference in profitability between competitors. However, operative effectiveness is necessary but insufficient, and should not take the place of strategy.

It might be argued that TQM has had a bearing in particular on customer satisfaction and operative efficiency although, conversely, it has not focused so much on providing guidance on strategic business competition, understood as the process of discovering new approaches designed to win customers from established companies or to attract new customers on the market. The search for approaches to secure new or better customers is becoming increasingly related to the concept of *innovation*.

On the other hand, we need to bear in mind the confusion existing between the concepts of *quality* and TQM. Meeting customer requirements and achieving improvements in customer satisfaction are key factors for companies, although these particular facets of the term *quality* are not the only ones that have to be taken into consideration for sustainable economic development. Indeed, although businesses operating in an economy or a specific sector may be providing a response to the requirements or expectations of their customers with their products and services through quality, it is possible that neither their products nor their services (or even their current customers) are of the kind of quality (in terms of the level of

attributes necessary in such products and services) required to generate the added economic value that will in turn ensure sustainable, long-term economic development in a particular country or region.

In short, we are talking about the need to stress the importance of the *quality* of a product or service, understood as the set of attributes that make up that product or service. Based, for instance, on product design and innovation, such attributes are factors that give a particular product or service the capability to provide greater added value to the companies that produce it, and, by extension, to the business and social sectors and the economy of a specific geographic area as a whole. Also needed is a close, objective review of certification intensity results and achievements in Quality Management. Such a review should also look into the interpretative abuse and the over-confidence we have shown in this particular area: however many certificates or awards are granted, however many improvements such tools may bring about in terms of customer satisfaction with product or service quality, businesses in a region or a country's economy may still experience major problems with sustainable economic growth in the long term if the quality of their products or services is low on the necessary global attributes. Broadly speaking, the scarcity of such attributes will almost certainly lead to low levels of added value.

Another challenge facing the quality paradigm or movement is whether it can outlive passing trends and achieve genuine long-term continuity. The promotion of the Quality Management and Excellence culture is not without its risks; the paradigm can change, and so can trends affecting the tools used to improve business management and promote competitiveness. Indeed, as interviewees have pointed out on numerous occasions, many of the players involved already seem to see the paradigm as saturated, and now favour the new *paradigm of innovation*.

Although new management paradigms may be necessary, either because they highlight details that the others overlook or even because there is a psychological need for conceptual renewal (the need to renew motivation via a commitment to something new), it is also true (as some agents with a longer track record have commented, not without a measure of scepticism) that the newest new thing is too often just the old one served up with different trimmings.

A few words need to be said about the conceptual content of the term at the heart of the new paradigm: *innovation*. Indeed, apart from the traditional content related to the creation of new products or services and new processes, some reference is made to the promotion of innovative organizations based on management models capable of generating facilitating

environments for creativity, while at the same time developing systems enabling ideas to be transformed into products and services as efficiently as possible – concepts, in our opinion, perfectly compatible with the ones transmitted through Quality Management. This idea is beginning to take hold in a variety of quarters, in the form of *organizational innovation*.

In our opinion, constructing a new management paradigm that seeks to promote or foster in opposition to the previous paradigm, or which is based on the actual destruction of its predecessor, is a dangerous development, particularly as such promotion is much more rewarding and far less frustrating if it is positive and focuses on how the new vision complements and builds on what went before.

This is an issue that needs to be looked at closely by public players involved in industrial policy-making (understood in the broadest sense of the word as the set of activities aimed at raising the competitive capacity of companies). The fact that some of the players involved – especially those in public administration – appear to be in favour of a clean break with what has gone before is a cause for genuine concern.

We also feel that the mimetic introduction of management concepts under the influence of changing management trends, or even pressure from certain interest groups, should be replaced by a pragmatic or incremental approach towards improvement in business; in other words, an approach based on bringing management practices into line with cultural norms and the economic and social restrictions existing in a particular situation and place.

In recent years, the Total Quality Management (TQM) paradigm has successfully taken root in our business environment. Within the European Union all types of public and private organizations have become involved in the dissemination of ISO 9001, EFQM and other management tools and models associated to TQM and Business Excellence, However, the quality *movement* is not without its problems as far as its mid- and long-term development is concerned. In this book some research findings related to these issues are presented.

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