

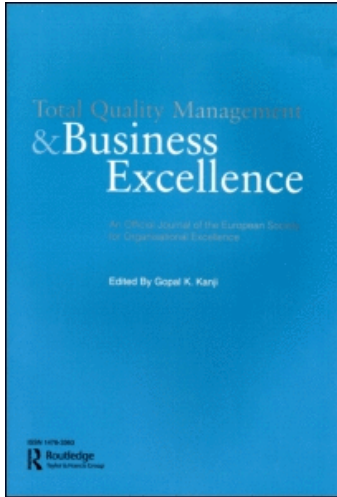
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The impact of ISO 9001 standard and the EFQM model: The view of the assessors

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The aim of this article is to evaluate the impact of both the ISO 9000 standard and the European Foundation for Quality Management (EFQM) self-evaluation model, the total quality management model most employed in Europe. In order to directly compare the results obtained by the two models, we analyse them together in the same temporal frame, using the same methodology, but in a new way, utilising a sample of independent assessors of quality management models. To this end, we first performed a number of objective analyses of data regarding the impact of the models, data obtained from the ISO and EFQM international organisations themselves. We then conducted a survey of 107 experienced and independent quality-management assessors, followed by a personal interview of various stakeholders involved in the adoption of the models. The results obtained pertain to the different motivations of organisations for implementing ISO 9000 standards and the EFQM model, the obstacles detected in this implementation, the degree to which both are actually adopted and the results of the models. In this article, we also highlight the differences in the way that the two models are adopted.

Keywords: quality management models; ISO 9000; EFQM; motivation; performance; self-assessment; assessors

1. Introduction

Over the last few years, a paradigm of quality management has been successfully forged in our business world. There are basically 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 (QMSs),¹ and on the other, the also successful diffusion of total quality management (TQM) models. Specifically in Europe, the European Foundation for Quality Management (EFQM) has promoted a self-evaluation model.

There are many studies to be found in the literature regarding the impact of both frameworks. For example, Karapetrovic, Casadesús and Heras (2008) name 115 empirical studies that employ surveys aimed at analysing the impact of ISO 9000 standards around the world. To these, we should add those based on case studies, or the analysis of commercial databases (e.g. Wayhan & Balderson, 2007; Heras, Dick, & Casadesús, 2002; Corbett, Montes-Sancho, & Kirsch, 2005). On the other hand, in parallel to these are all the studies focused on the impact of TQM models, the EFQM model among them (for a literature review see Sila and Ebrahimpour, 2005 and Heras, 2006).

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However, just as Karapetrovic et al. (2008) affirm, these studies have one main problem: the difficulty of comparing the results obtained. As there is no agreement regarding the methodology to be used (including attributes to be measured, variables, scale of measurement, etc.), it is difficult to compare the results obtained between studies, and therefore difficult to draw far-reaching conclusions. In fact, we have found very few exceptions that lend themselves to comparison (e.g. Martínez-Costa, Martínez-Lorente, & Choi, 2008) and generally only among authors who repeated their experiments years later, such as Casadesús and Giménez (2000) and Casadesús and Karapetrovic (2005a, 2005b). Moreover, in our review of the literature, we found no study that performs a comparative analysis of the impact of both ISO 9001 and EFQM management frameworks, and as a result, it is difficult, if not impossible, to compare their impact directly.

This study aims to fill these voids found in previous research by analysing – using the same methodology and at the same time – the impact of QMSs according to the ISO 9000 standard and the EFQM self-evaluation model, the latter being the most widely implemented in Europe, where our fieldwork was carried out. We will be able to compare the results obtained in a totally new way. In line with the literature review, this study focuses its analysis on the points of view of QMS assessors and not of the firms themselves, where focus is generally placed on the opinions of quality managers. This provides us a more neutral vision from the outset, as the assessors have no clear incentive to distort their responses as quality managers have, as several authors have already pointed out (Vloeberghs & Bellens, 1996; Heras et al., 2002; Wayhan, Kirche, & Khumawala, 2002; Wayhan & Balderson, 2007), and more broadly, due to a greater knowledge of the ‘quality culture’ in their area than the person responsible for a single firm.

Therefore, in the next two sections, and on the basis of the data facilitated by the organisations themselves – ISO (International Standard Organization) and EFQM – the impact of both models is analysed in the most objective way possible: number of certificate holders, sectors, etc. Following this, in subsequent sections we present the results of the empirical studies conducted on more than 100 QMS assessors.

Finally, based on the results of the survey and the subsequent personal interviews with various assessors, we present the conclusions of this study.

2. The impact of the ISO 9001 standard

The first management standards related to the area of quality management to achieve relatively widespread importance were the standards used to implement quality assurance systems (QASs) in the military (e.g. the NATO standards regarding quality assurance, known as the ‘Allied Quality Assurance Publication’, is one of the pioneers), although the most common were standards promoted by the large multinational consortiums in the automobile industry (such as Ford’s Q101). In the middle of the 1980s, however, a phenomenon, initially only European, began to emerge with some force: the diffusion of ISO 9000 standards as a base for firms to implement and certify a management system related to the area of quality management.

The family of ISO 9000 standards were created by ISO, the main international body for normalisation. The first version appeared in 1987, and was revised in 1994 and again in 2000. The 1987 and 1994 versions of the standard named the management systems whose implementation guidelines they governed a QAS, while in the 2000 version the implemented system came to be generically known as a QMS. The next version of this standard is due in November 2008, although its content is not likely to differ much from the current version.

Having reached this point, it should be stressed that the ISO 9000 standards do not refer to the fulfilment of an objective or the attainment of a determined result. In other words, they are not standards that measure the quality of goods or services of a firm, but rather establish the need to systemise and formalise a series of procedures, a whole series of business processes: being ISO 9000 compliant means having implemented a QMS that draws together in standardised and documented procedures the basic processes for the production of the good or service that the client purchases. In short, this management tool is based on systemising and formalising tasks to attain conformity in the fulfilment of specifications established by the client. It must also be stated that the implementation of this type of standard or regulation is voluntary, although it may become a de facto obligation in certain sectors. In this respect, studies that have analysed firms' motivation to be certified place special emphasis on the role of 'prescriptor' or opinion leader played by the large automobile, energy and telecommunications firms, who saw the ISO 9000 standards as a form of assuring a certain level of quality – in the sense of systemising and formalising the key processes of the firm – in its suppliers and subcontractors, without reducing their production levels (see, e.g. Heras, Arana, & Casadesus, 2006).

On a worldwide level, these standards first spread through the EU countries, acquiring great importance in the UK. It is no coincidence that this standard had its origins in the BS 5750 standards, developed in 1979 by the British standardisation body, the British Standards Institution (BSI). It must also be remembered that EU institutions, especially the European Commission, intensively promoted the adoption of this standard by European firms, in the harmonisation processes established to create the single European market in 1992 (Tsiotras & Gotzamani, 1996; Crowe, Noble, & Machimada, 1998).

By the end of 2006, there were 897,866 ISO 9000 certificates issued worldwide in a total of 170 countries (Table 1). The total number of certificates for 2006 shows an increase of 123,999 (+16%) with respect to 2005 (ISO, 2007). By continent, we can see that Europe continues to have the lead with regard to the total number of certificates, containing almost half the certificates issued in the world (specifically 46.24%), a lead which has dropped by 2.5 points in comparison with 2005. Within the EU there has been outstanding growth in the new countries incorporated in May 2004, in what can be seen as a clear attempt to adapt their firms to integration requirements; Poland, for example, stands out with 2622 certificates in 2001 and 8115 by the end of 2006. Spain, the country which is the focus of the empirical study conducted for this article, must be

Table 1. International diffusion of ISO 9000 standards in the main economic blocs.

	1997	2001	2005		
			<i>N</i>	IC GP	IC exports
USA	18,581	37,026	44,270	0.20	0.41
Japan	6487	27,385	53,771	1.38	0.84
European Union	135,984	253,488	344,705	1.48	2.47
China	5698	7413	143,823	1.82	1.76
World total	223,299	510,616	776,608	1	1

Source: Compiled by the authors, based on various executive reports on ISO 9001 worldwide statistics, published by the International Standards Organization (ISO).

Note: Up until 2000, it deals with ISO 9001, ISO 9002 and ISO 9003 certificates, and from 2001, ISO 9001 certificates. IC GDP: Certification intensity as a ratio of the percentage share of the number of certificates issued worldwide and the percentage share in global GDP in 2005 measured in current dollars (World Bank). IC Export: Certification intensity as a ratio of the percentage share of the number of certificates issued worldwide and the percentage share in total global exports in 2004.

highlighted as one of the countries in the EU, indeed in the world, with the highest growth in ISO 9000 certificates issued; in fact, according to the ISO itself, at the end of 2006 it was fourth in the ranking of total certificates issued (57,552), preceded only by the giant China (126,259), Italy (105,799) and Japan (80,518), but in front of other great world powers such as Germany (46,458), the USA (44,883), India (40,967) or the UK (40,909). If we compare the data for certificates issued to the size of each economy, it is seen that Spain occupies, along with Hungary, the Czech Republic, Italy and Slovenia, the position of leaders within the EU-27 with regard to certification intensity, this measured as the number of certificates and their participation in the GDP of the EU (Heras, Arana, Camisón, Casadesús, & Martiarena, 2008).

With regard to the distribution of certificates per sector worldwide, according to the latest available data, from 2005 (ISO, 2007), it should be highlighted that the greatest share corresponds to the sectors of construction (13.62%), metallurgy (11.4%), the electronics and optical equipment sector (9.41%), machinery construction (7.38%) and the commercial sector (7.24%). With regard to its growth in share from 1993 to 2005, it is worth noting the rise experienced by the health service sector (with a growth of 75.3%), the education sector (61.6%) and the sector which encompasses public administration, defence and social services (where growth has been 41.4%).

As far as distribution by sector over time is concerned, in the countries comprising the EU-27 for the period between 1997 and 2003, the growth experienced by the service sector is noteworthy, given that in the five sectors with most growth, four correspond to this area: education (which has grown 63.4%), other social activities (60.9%), hotels (28.8%) and the sector of public administration, social services and defence (37.1%), although its share of total certificates issued continues to be limited.

In the USA, certain service sectors have also experienced a strong growth in share, such as hotels and education, which have practically doubled their presence, although their overall weight is still quite marginal. A growth in the service sectors also stands out in Japan, although if we take into consideration the weight of total certifications by sector, the significant growth experienced by the construction industry has been outstanding (approximately 40%).

If this sectoral evolution is analysed for the three large world blocs in terms of three large basic sectors – industry, construction and services – the generalised growth experienced in certifications in the service sector can perhaps be seen more clearly, as well as the reduction, also generalised, of certification within industry, although less so in the USA, a geographical area where certification is centred very much on the field of industry (66% in 2003).

By contrast, in the EU-27, the significant weight of the spread of ISO 9000 certifications in the service sector has been outstanding, where 40% of certifications were concentrated in 2003, close to the 44% of the share in the area of industry.

Certification continues to be low in the US construction sector – perhaps due to it being a sector quite closed to international competition and therefore not forced to implement standards as a result of outside pressure – while in Europe, and especially in Japan, there has been a strong growth in certification within this sector, as is shown.

3. ISO 9000: a success story hard to duplicate

From a global perspective, the successful spread of ISO 9000 standards seems to be related to the very dynamics of the globalisation process in western countries, and of its main players, the multinationals: if standardisation initially emerged to restrict the

anti-economical diversity of components, parts and supply, in the current economic environment, in which the externalisation and relocation of business activity are strategic, angular elements, there must be preference for a certain homogeneity in the systems of business management to favour these processes, and management standards can help to accomplish this. Specialists in this area show that in the absence of a global regulating power, the task of designing, implementing and fulfilling standards tends to be assumed by diverse regional or global organisations of a non-governmental character, in areas that have traditionally been regulated by the public authority (Brunsson & Jacobsson, 2000; Abbott & Snidal, 2001; Neumayer & Perkins, 2005).

From the perspective of organisational analysis, there is no clear consensus among specialists in the field regarding the main explanatory reasons for the large-scale spread of these standards and the heterogeneity with regard to their degree of penetration in industrialised countries. Neumayer and Perkins (2005) stress the fact that, broadly speaking, two groups of motivations exist that cause the firm to implement these types of standards and have them certified: on the one hand, internal motives relating to efficiency (efficiency motives), which is to say, to improve performance, productivity and profitability, and on the other hand, external or institutional motives, related to social pressure for them to adopt these management practices.

Among external institutional pressures stands out the coercive pressure of clients in sectors where client negotiating power is high; according to some authors, the warning from the big multinationals, mainly in the automobile industry, was very clear: 'obtain the certificate or stop doing business with us' (Zuckerman, 1998). In the manufacturing sector, specifically, these standards have become an authentic prerequisite for participation in numerous tenders and bids for international projects (Karapetrovic, 1999).

Many studies at the international level have analysed the motivations and results of the implementation of these standards. In Table 2, we present the conclusions, in a very summarised way, of some of the leading studies carried out in recent years related to the principal motives for firms in different countries to implement ISO 9000 standards, and based on the opinions of the managers of these firms.

As can be observed, there is no consensus regarding the conclusions of these studies; some underline the external motivation (pressure and demand from clients, pressure from the competition and questions of image, among others) as those that cause firms to implement these standards, while others cite the influence of internal factors.

On the other hand, many different studies have attempted to analyse this question from a more collective viewpoint, through the use of macroeconomic data corresponding to the countries that implement these standards, in order to describe the conditioning factors underlying the greater or lesser inclination of countries to seek certification. In the case of the ISO 9000 standards, for example, these studies show that there is a positive correlation between the number of these certificates and macroeconomic variables, such as size of direct foreign investment, the propensity to export to the EU or the public spending of the country (Guler, Guillén, & Macpherson, 2002; Neumayer & Perkins, 2005).

4. EFQM model: another European successful story

Created in 1998 by 14 of the biggest European firms and following in the footsteps of American industry, the EFQM model is used to evaluate firms according to the development of their TQM philosophy and system. Thus, it established a frame of reference which allows organisations to evaluate themselves according to determined criteria grouped into facilitators and results (Camisón, Cruz, & González, 2006).

Table 2. Overview of studies on motivation to implement the ISO 9000 standard.

Study	Country	Sample size	Internal motivations	External motivations	Main motivations
Taylor (1995)	UK	682	X	X	Quality improvement and client pressure
Hardjono, Ten Have and Ten Have (1997)	EU	500		X	Client demand, competence and modern trend
ISO 9000 Survey (1996)	Singapore	363		X	Client pressure
Carlsson and Carlsson (1996)	Sweden	114	X		Start path towards total quality management
Idris, McEwan, and Belavendram (1996)	Malaysia	247	X		Improve management and path to TQM
Buttle (1997)	UK	1220	X		Improve profitability and process
Jones et al. (1997)	Australia	272		X	Client demand
Nottingham Trent University (1998)	UK	5000	X		Improve firm efficiency
Leung, Chan and Lee (1999)	Hong Kong	500		X	Client demand
Lipovatz, Stenos and Vaka (1999)	Greece	111		X	Client demand
Huang et al. (1999)	Taiwan	376	X	X	Improve work procedures and public image
Escanciano, Fernandez and Vazquez (2001)	Spain	749	X		Improve product and internal work practices
Casadesús, Ciménez and Haras (2001)	Spain	502	X	X	Improve firm efficiency and client demand
Singels, Ruel and van de Water (2001)	Holland	192	X		Improve firm competitiveness
Boulter and Bendell (2002)	UK	1066	X	X	Improve product and commercial motivation
Martínez-Lorente and Martínez-Costa (2002)	Spain	442	X		Improve internal efficiency
Llopis and Tarí (2003)	Spain	106	X	X	Image quality and improve process management
Salaheldin (2003)	Egypt	83	X	X	Improve efficiency, exports and foreign investment
Pan (2003)	Far East	2951	X	X	Improve quality and corporate image
Magd and Curry (2003)	Egypt	38	X	X	Improve efficiency and pressure from competition

Source: Compiled by the authors, based on the publications shown in the table.

According to José Ignacio Wert, the former President of the EFQM, in 2006 30,000 European organisations were using the EFQM self-evaluation model (Wert, 2006). This is the only general reference found regarding the use of the model, since there is not much quantitative material available.

Contrary to what is happening with the international standard ISO 9000, it is much more difficult to carry out a descriptive analysis of how widespread use of the EFQM self-evaluation model is, since it is not a certification-oriented reference, and there are therefore no unified records of firms applying this model.

In matters such as this, the only possible way of analysing usage of the EFQM self-evaluation model consists of analysing the evolution of different acknowledgements awarded on the basis of this model, both those of the European Foundation itself as well as, if possible, different national and regional awards presented in Europe. Besides the data regarding acknowledgments received, it would also be interesting to obtain data about the companies who apply for this type of recognition.

Before conducting the first analysis regarding usage of the EFQM model in the European arena, we will briefly refer to the complex scheme of acknowledgments currently in force from the EFQM.

Firstly, there are the 'EFQM Excellence Awards', which are the main prize, previously known as the 'European Quality Awards'. These are the awards the European Foundation presents annually, and they constitute the maximum recognition awarded by this institution. This acknowledgment is awarded in three different fields: 'Large Organizations, Business and Operational Units', 'Public Sector' and 'Small and Medium-Sized Organisations'. Each year an organisation obtains this maximum acknowledgment for each of the aforementioned fields (called 'Excellence Award Winner'), and below this there are two other awards, the 'Excellence Award Prize' and the 'Excellence Award Finalist', this latter being a special mention for organisations that reached the final stage but did not achieve the levels of the other awards.

Besides these annual awards, the Foundation also employs a system of acknowledging 'Levels of Excellence', which is organised in two levels: 'Committed to Excellence' (C2E), awarded to organisations that score less than 400 of the 1000 points the model awards and demonstrate commitment, having implemented a process of self-evaluation and improvement activities with tangible results; and 'Recognised for Excellence' (R4E), for organisations scoring over 400 points.

According to the data available from the EFQM Foundation, between 1992 and 2006, close to 1000 European acknowledgments were granted in the different fields (this figure includes both 'EFQM Excellence Awards' and 'Levels of Excellence', in both of its fields).

Figure 1 presents the 'EFQM Excellence Awards', that is to say, the maximum level of acknowledgments, awarded per country from 1992, the year the awards began, until 2006, the latest year available. As can be seen in the graph, the countries with the highest number are the UK (44), Spain (33), Germany (26) and Turkey (21).

Similarly, Figure 2 presents the international awarding of 'Levels of Excellence' acknowledgments, both in its C2E and R4E fields. In this case, more or less the same countries can be found sharing the top positions.

In the comparison of European countries, Germany stands out in terms of acknowledgments received, above all if this is compared with the intensity of German ISO 9000 certification, which in 2005 stood at 0.59, far below the other high-scoring countries in the European ranking, led by Hungary (3.40), the Czech Republic (2.36) and Italy (2.23).

Spain, where subsequent fieldwork was carried out, is at the forefront of the European Union, like its ISO 9000 certification, with acknowledgments awarded by the EFQM. We

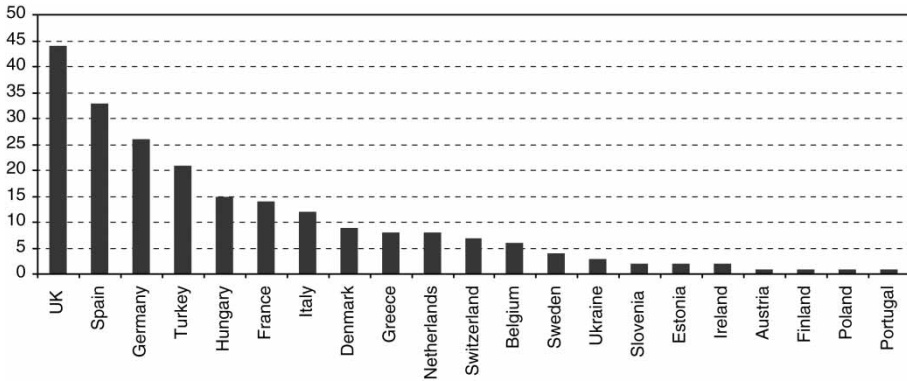


Figure 1. Distribution of 'Excellence Awards' presented during the period 1992–2006 by country of origin of the recognised organisations. Source: Compiled by the authors, based on information obtained from Club Excelencia en Gestión (2007).

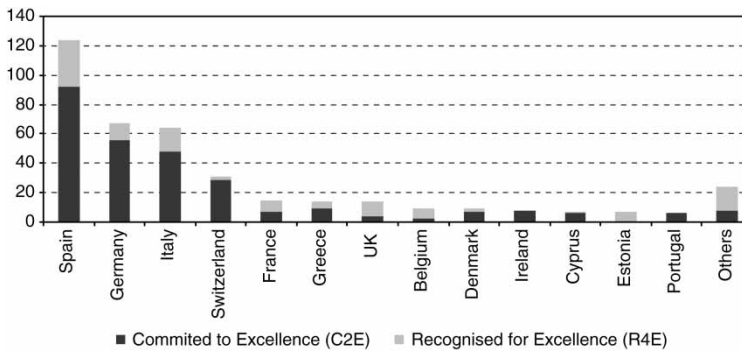


Figure 2. Distribution of 'levels of excellence' acknowledgements for 2006 by country of origin of the winning organisations. Source: Compiled by the authors, based on information obtained from Club Excelencia en Gestión (2007).

can infer from this that it is also one of the countries which has had a higher take-up rate for the EFQM self-evaluation model.

As Figure 3 demonstrates, the great majority of acknowledgments have been awarded to firms not belonging to the manufacturing or production fields (including construction firms in this term). The weight of organisations in the manufacturing and production fields is only around 25%, and the rest of the acknowledgments have been awarded to firms in the service sector, specifically 51.6% to organisations the EQFM classifies as 'Services', and 23.5% to organisations classified as 'Public sector', which is mainly composed of educational organisations, private and public health services, as well as dependent bodies of the various public administrations providing public services.

It is interesting to compare this distribution of awards by sector with the other two most recognised international awards in the field of TQM, namely the Malcolm Baldrige Award, awarded in the USA, and the Deming Prize, awarded in Japan.

The Malcolm Baldrige Award is presented to organisations across five categories: manufacturing, services, small businesses, education and healthcare. Having analysed the trajectory of Malcolm Baldrige Awards presented from 1998 to 2006, we have been able to establish that the category of manufacturing has received the most awards (36.62%),

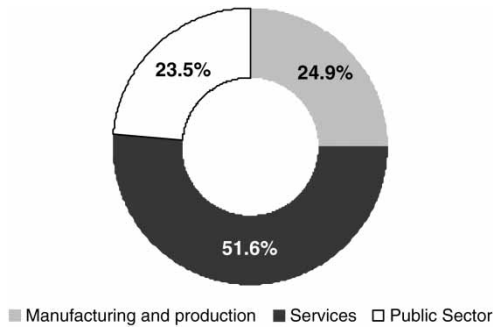


Figure 3. Distribution by sector of all acknowledgments awarded by the EFQM. Source: Compiled by the authors, based on information taken directly from the database of firms acknowledged by the EFQM.

followed by the small businesses category (23.94%) and services (21.12%). With a more specific analysis, there is no significant difference between the total percentage of award-winning organisations belonging to the industrial sector (52.11%) and the service sector (46.48%).

On the other hand, the Deming Prize is awarded to individuals or firms that have been outstanding in their work of promoting quality management. There are three categories: for firms or divisions of firms, for individuals and for units operating in quality control. Industrial firms have claimed an overwhelming majority of the prizes: 182 out of a total of 193 prizes awarded between 1951 and 2006 went to firms in the industrial sector. It must also be borne in mind that, in its beginnings, the prize was limited to Japanese firms, although lately, it has been broadened to include international firms in response to the interest these have shown in the prize. However, the category for individuals remains restricted to Japanese candidates.

5. Objectives and fieldwork

The specific objective of this exploratory study is to analyse the impact of the most relevant phenomena related to quality management and their influence on the performance of organisations. In accordance with this, the study had two principal fields: on the one hand, the process of implementing QMSs based on international standards, specifically the ISO 9000; and on the other, the adoption of TQM models, in particular, the EFQM self-evaluation model.

The work undertaken would not be new if, as can be gathered from our review of the literature (Table 1), it were not for a couple of peculiarities of the study. First, both frameworks of quality management are analysed at the same time. In another respect, the fieldwork has been aimed at quality management professionals, specifically assessors of quality management models, rather than the organisations themselves. These assessors had experience in the implementation of standards and models of quality management. Specifically, we used the assessors of Euskalit, the Basque Foundation for Excellence, one of the main promoters of quality management in one of the most intensely certified regions (Heras et al., 2008) of Spain and which has accumulated many international prizes from the EFQM foundation: 19 of the 27 Excellence Awards that EFQM had conceded to Spanish organisations were given to those in Basque (Heras et al., 2008). This is a very interesting approach because the large majority of empirical studies

found only focus on the opinion of the quality managers of each organisation, for which reason, *a priori*, the results obtained may be very different. In addition, it was believed that the assessors would offer an independent viewpoint of the results obtained, so that the comparison between the standard and the model might be truly valid. Furthermore, it was also considered possible to obtain interesting first-hand information from two large groups of agents involved in quality management: firstly, information from industrial and service firms which, according to the information provided by Euskalit, had used or were beginning to use the EFQM model (the majority of assessors hailed from this background), and then, from consultancy firms, comprising both firms and freelance agents involved in this process. In addition, the study had not been conducted previously, and with the cooperation of Euskalit, was carried out in a very satisfactory way, with an acceptable rate of response.

The main quantitative fieldwork was based on a survey, designed mainly with open questions, considering the characteristics of the survey sample. They were asked to offer summaries regarding the motivation, problems and incidence rates of the ISO 9000 management system and the EFQM self-evaluation model.

The fieldwork was carried out between February and April 2007. The survey was sent to a total of 204 assessors, who had conducted at least one external evaluation during 2006. Of these assessors, those related to the fields of education, health, non-profit organisations and public services were not included. This filter was applied due to the objectives of the study being to obtain a perspective of the phenomenon of quality management implementation in the industrial and service sectors, and not to focus on the education and health sectors, which operate under markedly specific conditions, since most of the organisations that have adopted both ISO 9001 and EFQM are public or semipublic organisations.

The backgrounds of the assessors consulted were distributed among the following sectors: 115 dealt with industrial firms (44% of the total), 93 the consultancy sector (35%) and the remaining 56 (21%), the service sector as a whole.

After two rounds, 107 valid responses were collected, which represented a response rate of 40.53%, very acceptable for this type of study, and specially in Spain, where the response rates used to be quite low, as shown by several researchers in the management field, since there is not a strong tradition of collaboration of firms with researchers (del Brío, Fernández, & Junquera, 2002). It carries a sample error of 7.32% for a reliability of 95% ($p = q = 0.5$). Of all responses received, 46 (43%) came from industrial firms, 32 (30%) from service firms and 29 (27%) from the consultancy sector.

This descriptive study was complemented by a series of in-depth interviews with different agents involved in the spreading of quality systems and TQM models: members of quality promotion agencies, representatives of business associations, cluster representatives, consultancy firms, certifying organisations, government representatives and representatives of the main trade unions in the region.

This additional fieldwork was undertaken between October 2006 and May 2007. Close to 40 agents were contacted, all of whom were either directly or indirectly very much involved in the promotion of quality management. Finally, 24 agents participated in and provided contributions of great interest to the objectives of this study, particularly with regard to critical analysis of the results obtained.

6. Empirical results

As with the pioneering study on the impact of the ISO 9001 carried out by Vloeberghs and Bellens (1996), which has been used as a reference in countless later studies

(e.g. Casadesús & Giménez, 2000), this empirical study has focused on the motivation for, the obstacles to, the rate of adoption and the results of implementing the aforementioned models in organisations.

6.1 Motivation for implementing the ISO 9001 standard and the EFQM model

First, we shall analyse the principal motivations highlighted by those surveyed with regard to the process of adopting both management systems.

Figure 4, based on the percentage of responses highlighting the indicated factor or a similar one, shows the most important motivations for implementing the ISO 9001 and the EFQM model. A certain parallel can be observed between the motives which lead to the implementation of one system or another: the motives which lead to implementing the ISO 9000 are the same as those which lead to the adoption of the EFQM. In this graph, we can also see that the majority are internal rather than external motivations. Specifically, the motivation related to improving systems, efficiency and internal control at the firm is quoted most often as being the most important. Nevertheless, the second and third most quoted are of an external character: the demands of clients and improving the public image of the firm. These results do not differ much from those described in previous studies where the firms themselves were consulted (see, e.g. Vloeberghs & Bellens, 1996; Buttle, 1997; Jones, Arndt, & Kustin, 1997; Huarng, Horng, & Chen, 1999; Poksinska, Dahlgaard, & Eklund, 2003; Heras et al., 2006), even if the use of different variables makes direct comparison difficult.

However, another series of factors has been considered in a very different way to those tracked in previous studies (based on Ruzevicius, Adomaitiene, & Sirviadaite, 2004). This is the case of improvement in the quality of the goods and services sold by the firm, frequently quoted in the aforementioned studies, but of little value in this study. Along the same lines, the factor related to progress towards total quality, which commanded considerable weight in many studies, does not particularly stand out here, perhaps due to the thorough revision of the ISO 9000 standards in 2000 and the general growing consideration of it as a standard related to TQM (Heras, 2006).

On the other hand, the majority of motives that lead organisations to use the self-evaluating model created by the EFQM are internal. As can be observed in Figure 4, aspects related to improving the planning capability, management and internal control of the organisation are the most frequently quoted. Far behind are factors related to the

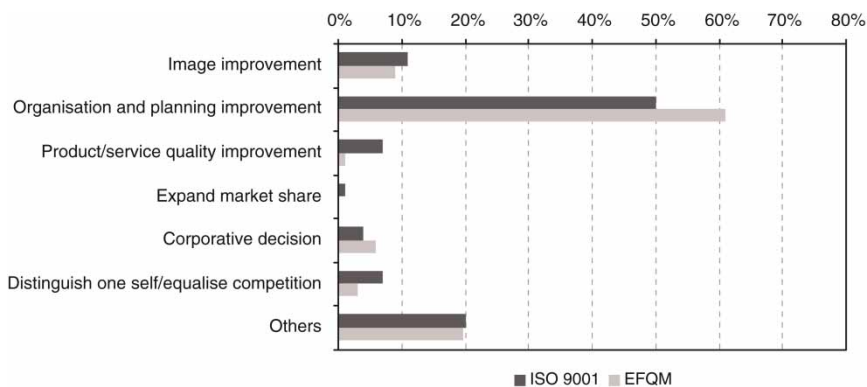


Figure 4. Motivation for implementing ISO 9001 standards and the EFQM model. Source: Own data.

participation of workers, group work, motivation and communication, as well as other factors related to staff management within the firm. Motives related to improving the firm's public image are also to be found far behind. Once again, we can note the little value attached to the motivational factor dealing with improvements in the quality of goods and services sold by the firm.

Analysing the motivations given by people in industry and the service sector, there were no differences worth noting in either the case of the ISO 9001 standard or the EFQM self-evaluation model.

6.2 Obstacles to implementing the ISO 9001 standard and the EFQM model

With regard to the main obstacles the people surveyed said they encountered in their work implementing ISO 9000 standards and the EFQM model, Figure 5 shows that the opinions offered differ greatly depending on the quality management to model which they refer. As with the previous graph, this one presents the percentage of responses that highlight the indicated factor, or one similar, as the most significant obstacles in each system.

Thus, in the case of the ISO 9001 standard, the difficulty posed by the bureaucratic demands that still accompany the implementation and use of the standards are noteworthy, despite the revision and reduction of requirements during the review of the standard in 2000.

Many of the people surveyed also highlighted the low levels of motivation and involvement that managers of the respective firms have shown towards these management standards. This factor is very difficult to detect in any of the previous studies, as the firms themselves responded to the surveys. Also mentioned, though to a lesser degree, was the low level of employee motivation and involvement in implementing and maintaining the system. Problems related to integrating standards into the day-to-day running of the firm without it being seen as extra work, as well as the obstacle of inertia and the resistance to change, also deserve to be mentioned.

The opinions collected regarding the use of the EFQM model were much more heterogeneous, a point reflected in the significant 'others' factor in Figure 5, which captures a whole a variety of opinions. In any case, we must draw attention to the frequency with which those surveyed referred to the problem of the lack of organisational resources to



Figure 5. Principal obstacles to implementing ISO 9001 standards and the EFQM model. Source: Own data.

work with the EFQM model; specifically, they highlighted the time and training needs of the model. Another frequently mentioned obstacle related to the quality of the external consultancy and assessment service that firms receive.

Among the other factors cited less frequently but with considerable emphasis, we must highlight the difficulties that some of those surveyed experienced in the organisations with regard to people assimilating the principles and criteria of the model; in other words, difficulties in interpreting '*the language of the model*'. As happened with ISO 9001, the lack of awareness among the management and employees of the firms was also pointed out by several assessors as something that complicated their work considerably.

Another obstacle to the spread of TQM and excellence emphasised by those surveyed – and afterwards mentioned by some of the interviewees – relates to the difficulties organisations have in establishing a new management paradigm for people that must take into account, in both the strategic plan and the operational plan, the basic principles of the philosophy in question (such as, for example, the participation of employees). Problems with labour relations and collective negotiation do not help to overcome this obstacle.

Finally, two other aspects viewed as obstacles are related to the complexity of self-evaluations and the time required to write the report as specified by the directives of the model.

6.3 Internalisation of the ISO 9001 standard and the EFQM model

The objective here was to find a new way to analyse the degree to which these models were adopted or internalised by firms in which the assessors work, and so it was considered best to use as a reference the degree to which some of the quality improvement tools most often associated with the area of quality management were used (Tari & Sabater, 2004). Specifically, we are referring to a very heterogeneous set of tools and techniques, some of which have been labelled under different terms (Dale, 2003), such as, for example, the 'seven basic tools of quality' (Ishikawa, 1976).

As can be observed in Table 3, the majority of the tools considered have quite a high degree of use. Without any doubt, the outstanding features are the use of client satisfaction surveys, internal audits, process management, flow diagrams, the presence of improvement groups and conducting staff surveys. All of these had a systemised use of over 60%. Contrarily, the use of Six Sigma and the failure mode and effect analysis (known by the initials FMEA) are noteworthy due to their scarcity.

However, detecting the possible existence of significant differences according to the organisations' motivation to implement these management systems is most important. In this respect, Figures 6 and 7 represent the degree of use of quality tools and techniques according to the firm's motivation to use the reference model of the ISO 9001 standard or the EFQM model, in the opinion of those consulted.

In general terms, a greater degree of use of the different tools and techniques is detected in cases where the firm is motivated to introduce these models by external factors. In the case of the ISO 9001, this fact is especially notable for process management tools, the staff satisfaction survey and the setting up of a suggestion system, but also, though to a lesser degree, for the use of tools and techniques of a more operational character, such as cause-effect diagrams or the client satisfaction survey.

As regards the degree of tool use as a motivating factor in implementing the EFQM model, it must be pointed out that, in this case, the same effect was noted. In other words, firms using the models for internal reasons are generally the ones that use the TQM tools and techniques to a greater degree. It is worth noting, as underlined in the

Table 3. Use of quality techniques and tools.

	Never (%)	Occasionally (%)	Systematically (%)
Statistical process control	40	38	22
Failure mode and effect analysis	52	33	15
Control sheets and graphs	21	19	60
'Poka yoke' mechanisms	51	31	18
Quality cost control	32	18	50
Six Sigma	82	14	4
Internal audits	11	8	81
Pareto diagrams	31	48	21
Flow diagrams	7	27	66
Cause-effect diagrams	30	49	21
5S methodology	26	33	41
Benchmarking	14	58	28
Process management	8	21	71
Staff satisfaction surveys	17	20	63
Client satisfaction surveys	1	10	89
Suggestions system	6	36	58
Improvement groups	6	31	63

Source: Own data.

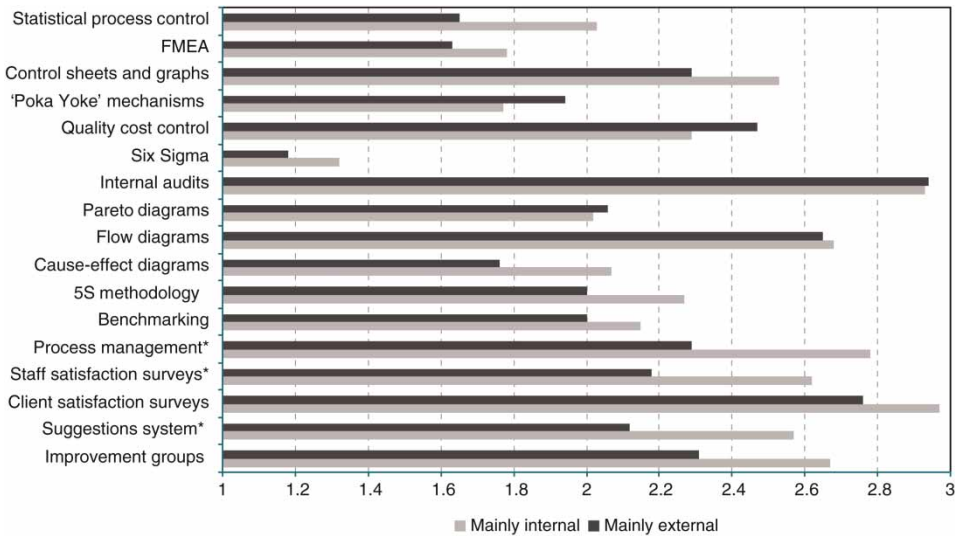


Figure 6. Use of quality techniques and tools according to motivation to implement ISO 9001 standards. Source: Own data, from survey information. Note: Degree of use ranked as 1 never, 3 systematically. 'Mainly internal' means more internal than external motivations have been mentioned, and 'mainly external' the opposite. *Significant statistical differences at 95%.

previous case, the greater use of the client satisfaction survey and the use of a suggestion system and process management, all important tools in the field of quality management.

6.4 Impact of ISO 9001 and EFQM on the organisations' performance

In this section, we present responses relating to the evaluation of the effect of ISO 9001 and EFQM use on the firms' results. Thus, as illustrated in Figure 8, we can see that in

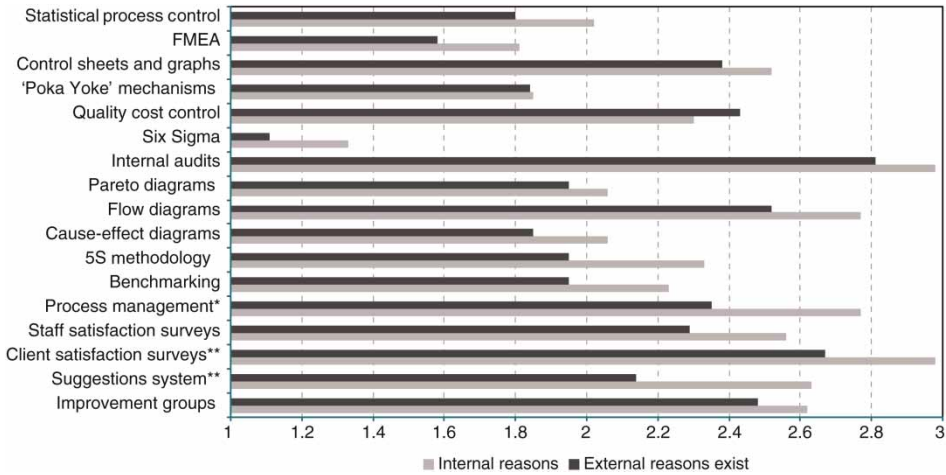


Figure 7. Use of techniques and tools of quality according to motivations to use the EFQM model. Source: Own data, from survey information. Note: Degree of use ranked as 1 never, 3 systematically. 'Mainly internal' means more internal than external motivations have been mentioned, and 'mainly external' the opposite. *Significant statistical differences at 95%. **Significant differences at 99% using the Mann *U* test.

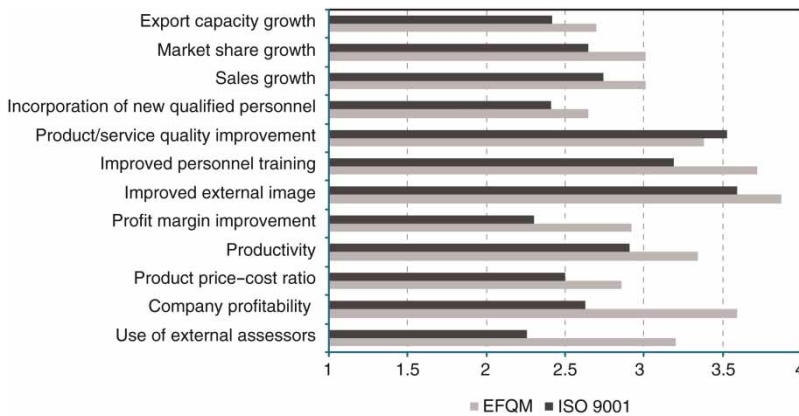


Figure 8. Comparative results for ISO 9001 and EFQM. Source: Own data. Note: Values awarded to each factor by those surveyed on a Likert scale of 1–5, from greater to lesser effect.

the opinion of those surveyed, the main result of the implementation of ISO 9001 and the EFQM model is improvement of the firm's external image, followed closely by an improvement in the goods and services being sold by firms. The improved staff training and improved productivity are also noteworthy. Likewise, it is worth noting the low values given to other factors that typically figure highly in the literature (Heras, 2006), such as growth in export capacity for firms that implement and obtain standard certification, or improved sales margins.

The evaluation awarded by those surveyed to the cited factors according to the firms' background in industry or services also differs: what stood out was the greater weight given by those surveyed from the industrial sector to improved staff training (a positive difference of 16% above the average), the price-cost ratio of the product (14% differential), the improvement of the firm's external image and the incorporation of more qualified

personnel (differentials of about 10%). On the other hand, the industrial firms place less value on results related to the greater use of external assessors (valued 22% lower), and the influence of the implementation of ISO 9001 on the profitability of the firm (10% lower).

Regarding the evaluation of the EFQM self-evaluation model, we must emphasise the weight that those surveyed awarded to the factor related to improvement of the firm's external image, as occurred in the case of the ISO 9001. In second place lies the factor of improved staff training and the improvement in the quality of goods and services being sold by firms, followed closely by the factor related to improved productivity.

Regarding the evaluations awarded to the cited factors according to the firms' background in industry or services, the EFQM model, as with the ISO 9001, displays some notable differences: the evaluation by people from industrial firms differs from that of people from service firms by an average of 10%. Specifically worth noting are the differences in the higher evaluation given by people in the industrial field to the factors of increased market share (18% higher), productivity (17% higher) and the price-cost ratio of the product (16% higher).

In the comparison of evaluations awarded to the results of the ISO 9001 and EFQM, we must highlight the better average evaluation received by the European self-evaluation model. Specifically worthy of attention is the better evaluation offered by those surveyed on the impact of the EFQM on improving firms' profitability, followed closely by the more positive evaluation differential given to the EFQM model for the factor regarding improvements coming from the use of external consultancies in conjunction with the models. By contrast, the effect of improving goods and services is the only factor where the ISO 9001 receives a higher average evaluation than the EFQM.

With the aim of finding possible significant differences, we have also analysed how evaluations of the results vary according to the motivation shown by those surveyed in implementing and using the ISO 9001 and EFQM self-evaluation model in their organisations.

Regarding ISO 9001 standard, it must be emphasised that, as Figure 9 indicates, the average evaluations awarded to the different factors by those people whose firms had implemented the international standards for internal motivation reasons (such as improved internal efficiency) are generally higher than those of the people who stated that the firm had implemented the system for external motivation reasons (such as client demand or public image).

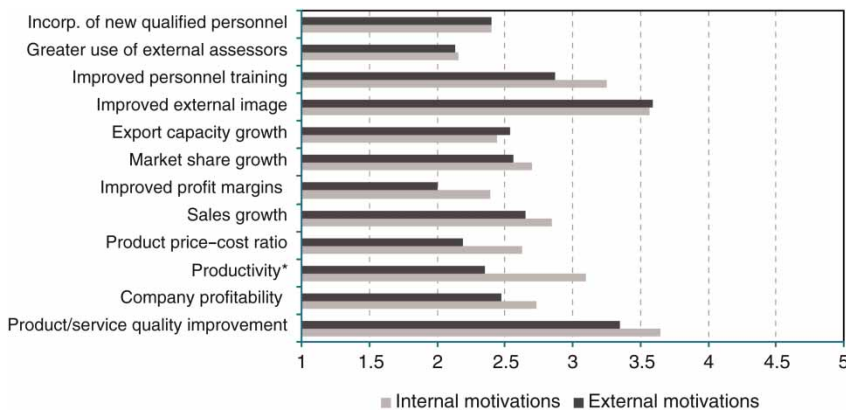


Figure 9. Evaluation of the results of implementing ISO 9001 standards according to motivation to implement them. Source: Own data, from information obtained in survey. Note: *Significant statistical difference at 95% using the Mann *U* test.

Only in one case was a statistically significant difference recorded – the case related to the difference in the evaluation of the impact of the ISO 9001 on the firm's productivity.

In the case of evaluations received for the EFQM model, we also observe that people who stated that the firm had adopted the self-evaluation model for some internal reason evaluated the results they received more favourably than the people who stated that the motivation for adopting the EFQM model came from external sources. It must be emphasised that in no case was it possible to detect statistically significant differences.

In summary, we shall show that, of the evaluations collected in the survey, it is clear that both the implementation of the ISO 9001 standard and the EFQM self-evaluation model have had an outstandingly positive influence on the firms of the people surveyed. To our understanding, we must highlight the influence these management models have had on the planning and management capabilities of the organisation, as well as their internal efficiency. On the other hand, also worthy of note is the lesser influence attributed to factors related to a sales growth, improved export capacity, improved profit margin, or an improved price–cost ratio in the goods or services being sold; all factors strongly related to the competitive capacity of the firm. We would also highlight the higher evaluation awarded to the results of the EFQM model, and the similarly higher evaluation awarded by people whose firm adopted the model due to internal motivations.

7. The opinion of the stakeholders on the adoption of ISO 9001 and EFQM

Having concluded our description of the survey, we would now like to present a summary of the most noteworthy contributions from the personal interviews carried out with agents involved in the promotion of the main quality models, in other words, with the contributions of the stakeholders of this paradigm: members of quality promotion agencies, representatives of business associations, cluster representatives, consultancy firms, certifying organisations, government representatives and representatives of the main trade unions in the region.

In general, the interviewed agents evaluated the benefits of introducing the ISO 9001 standard and EFQM model very favourably, citing the effect of improvement on the firms' competitive capacities. The influence of the ISO 9001 stands out for how it improved the internal efficiency of the firm in terms of organisation and planning and, to a lesser degree, in the increased level of employee involvement.

In the case of the EFQM self-evaluation model, we must highlight the influence of this model's principles of action in changing firms' management systems, and even the cultural shift it produced in some.

It is generally understood that the models have improved firms' competitiveness because, among other reasons mentioned, thanks to these models, clients' requests are handled with greater efficiency and effectiveness, within a shorter timeframe than competitors, and because the improvements obtained in the management and structuring of the firm also contribute to this end.

There were also contributions that underlined enduring weaknesses and threats. In the opinion of some of the people interviewed, there are a number of directors and managers who do not observe improvements from the introduction of the ISO 9001 standard and the EFQM model, and that work carried out in this area is basically, 'a waste of time'. 'However', it was stated, '[the firms] have acquired management and organisational habits thanks to these models and have forgotten how they came to employ them in the first place'.

In this respect, agents interviewed who came from a consultancy background contributed concrete evidence of the improvement in management system capabilities: 'If it

was very strange 15 years ago to see road maps in an industrial company, nowadays it is strange not to see one', states one consultant with considerable experience in the industrial sector. 'There have been big improvements in systemisation and organisation, and this has spread throughout the firms, even those not ISO 9001 compliant; they feel the onus is on them to comply' declared another experienced consultant.

In the specific case of the EFQM model, emphasis is generally placed on the fact that the influence on the firms' improved operational and economic results was unfortunately only seen over the long term, since the model needs time to mature. In the opinions of the people interviewed, this materialises in various forms of reticence for some of the firms in this field.

It is also emphasised that the influence of these models varies greatly depending on the motivation of the firms. For example, it is demonstrated that within the service sector, firms that implement the ISO 9001 due to client demand, 'do not deal with factors that improve their management', and in a sector 'where there is not a close relationship with the client [we interpret this in terms of explicit requirements established by the client] "pretend" implementation is more frequent than in sectors where integration of the tool occurs at a deeper level'.

Others who were interviewed stressed the heterogeneity of the models' results according to the sector variable. Thus, for us they highlighted the fact that in the health sector, for example, it has been discovered that advances in management have, to a large extent, produced results in the area of quality: 'The ISO standards and EFQM model made hospitals see that they are firms; with clients, suppliers, etc'. In the opinion of these people, the improved management in this field has spread extensively, above all in areas of work where procedure plays an important part.

8. Conclusions

Based on research carried out with the participation of more than 100 EFQM assessors, a set of normative conclusions can be arranged under the following subheadings.

Regarding the motivation to carry out the implementation:

- *Motivations of organisations to implement the international ISO 9001 standard are diverse in nature; there are both internal and external motivations as has been previously shown in the various international studies referred to above.* Specifically, the most relevant argument is internal motivation related to improvements in systemisation, efficiency and internal control within the firm. The external arguments are client demand and improving public image.
- *Motivations to become involved in the world of total quality management, through the use of the EFQM model, seem to be generally internal, with factors related to improving planning and management capabilities and the internal control of organisations standing out.* On the other hand, factors related to improved worker participation, group work, motivation and communication, which to our understanding should be essential to the EFQM model's successful adoption, are significant due to the low level of importance attached to them.

With regard to obstacles detected:

- *The main obstacles to implementing ISO 9001 standard relate to the bureaucratic workload it generates for some organisations and also the lack of motivation and involvement that this seems to generate.* It is important to emphasise this despite the

reduction in the amount of required documentation introduced for the 2000 version. The low motivation and involvement of managers in firms regarding these standards are all too common features in one of the first empirical studies where the firms themselves were not consulted.

- *The obstacles experienced by organisations using the EFQM model are, among others, related to the lack of resources to work with the EFQM model, and the complexity of the model itself, even if the responses received were much more heterogeneous than in the previous case.*
- The complexity of the EFQM self-evaluating model is, according to those surveyed, directly related to difficulties in assimilating its principles and criteria.

With regard to the degree to which the two models are internalised:

- *The use of the different quality tools and techniques is greater in industrial organisations than in firms in the service sector.* Though this may occur with tools which are more suitable to an industrial setting, such as the 'poka yoke' error detection mechanism, or the Failure Mode and Effect Analysis, it is also detected with other types of resources, such as Pareto diagrams and cause-effect diagrams, flow diagrams or process management.
- *The type of motivation that leads firms to use the reference models also influences the degree of use of the tools, with the result that it is the firms using both models for internal reasons that generally use them to a greater degree.*

And finally, with regard to the results obtained regarding implementation:

- *Implementation of ISO 9001 standard has had as its main result improvements in the efficiency and internal control of the firm, especially in improvements in the decision-making process and as a consequence, an important reduction in the amount of improvisation.*

Reference is also made, though to a much lesser degree, to the satisfaction, guarantee or trust offered to the client and the commercial and competitive advantages stemming from the capacity to access new markets or client bases.

It is worth noting how organisations in the industrial sector place greater importance on improving systemisation, efficiency and internal control, while on the other hand, organisations in the service sector place it on the commercial advantages included in the standards.

- *The use of the EFQM model has resulted in an improved view of the firm as a whole, improved internal efficiency and an improved decision-making process. It has also had a notable influence on leadership, motivation and internal communication.* In fact, the firm improves its planning and management capacity, which, in the theoretical terms used by Porter (2003), could be called the 'efficient operation' of the firm. Also worth noting is the effect of employees' greater involvement or improved attitude to work, improved teamwork and shared leadership, and improved communication and motivation.
- *The adoption of the ISO 9001 standard for internal reasons is related to a more favourably evaluation of performance.* This would reveal the relationship existing between the factors that lead a firm to adopt the standard and the results obtained from its adoption, something that has been also showed by previous research based on the opinions of quality managers (e.g. Huarng et al., 1999; Martínez-Costa et al., 2008).
- *The use of the different quality tools and techniques is greater in industrial organisations than in firms in the service sector.* Though this may occur with tools which

are more suitable to an industrial setting, such as the ‘poka yoke’ error detection mechanism, or the Failure Mode and Effect Analysis, it is also detected with other types of resources, such as Pareto diagrams and cause-effect diagrams, or process management.

- *The type of motivation that leads firms to use the reference models also influences the degree of use of the tools;* with the result that it is the firms using both models for internal reasons that generally use them to a greater degree. Organisations that implement ISO 9001 standard for internal reasons evaluate the results more favourably. This would demonstrate the relationship existing between the factors that lead a firm to implement the rules and the results obtained from its implementation.

To our understanding, further empirical studies are necessary to analyse the drivers, the internalisation and the performance of both ISO 9001 and EFQM models. In the case of the EFQM self-evaluation model, it would be very interesting to use empirical data from the external evaluations carried out by the independent assessors of the model, for which purpose it would be important to establish active networking among the researchers in the field and the quality management promoting bodies such as Euskalit.

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Note

1. It is common to speak of ‘ISO 9000 standards’ or the ‘ISO 9000 family of standards’, as used in this article, to refer to the set of standards of the same series, although in the 2000 version the only standard that includes a model for implementing a certifiable management system is the ISO 9001 standard. The situation is that in the 1987 and 1994 versions, as well as the ISO 9001, there were also the ISO 9002 and ISO 9003, which also included certifiable management models, and hence the plural used previously is still maintained. In a less strict sense, the terms ‘ISO 9000 standard’ or ‘certification conforming with ISO 9000’ are also used, when it should correctly be referred to as ‘ISO 9001 standard’ and ‘certification conforming with ISO 9001’ (in the current series, the ISO 9000 standard does exist as such, but as a standard for definitions and terminology).

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