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From ISO quality standards to an integrated management system: an implementation process in SME

Patrizia Garengo* and Stefano Biazzo

Department of Industrial Engineering, University of Padua, Via Venezia 1, 35131 Padua, Italy

The effective implementation of an integrated management system (IMS) is increasingly recognised as essential for all types of organisations facing today's turbulent and competitive environment. Literature stresses that most companies could benefit from moving from the mere adoption of the International Standards Organisation (ISO) quality standards to the implementation of an IMS linking strategy and operations by means of an interrelated set of management tools. However, despite the wide range of investigated issues, scholarly literature still mainly focuses upon large organisations, and although much progress has been made in recent years, many questions on how an IMS could be implemented in small- and medium-sized enterprises (SMEs) remain unanswered. In order to contribute to this research gap, this paper investigates the process characterising the effective implementation of an IMS in a leading SME and the main factors enabling the changeover from the adoption of ISO quality standards to the implementation of an IMS. The implementation process identified here is synthesised in a framework which can support the understanding and the implementation of an IMS in SMEs.

Keywords: performance measurement and management system; small and medium enterprises; management system; Balanced Scorecard

1. Introduction

The implementation of International Standards Organisation (ISO) quality standards is an important activity for many organisations and has become a widespread phenomenon around the world (Zutshi & Sohal, 2005). However, companies have difficulty in dealing with separate management systems covering quality, operations, environment, financial and other issues, and ensuring that they align with the organisation's strategy. The need for integrated management systems (IMSs) is increasingly seen as a part of the organisation's management portfolio; however, different definitions are adopted while investigating this issue. The management system is hereby defined as an integrated set of managerial processes and tools that a company uses to develop its strategy, translate it into operational actions, and to monitor and improve the effectiveness of both (Kaplan & Norton, 2008). The increased importance of the strategic dimension of a management system represents the top breaking element that differs from traditional systems, that is, a system defined as a set of detailed methods, procedures and routines established to carry out a specific activity, but not linked to a company's strategy.

In the last 25 years, the need for integrating a strategy design with its actual implementation called for a strategic dimension in management systems with models that would balance the existing opposing pressures between effectiveness and efficiency, in the

*Corresponding author. Email: patrizia.garengo@unipd.it

short and medium terms. Measuring and managing performances then becomes a process that goes along with the identification of the company's strategy, as well as an explicit part of its own definition and redefinition. Failing to balance the tensions between strategy and operation is pervasive and is known as one of the main determinants of a company's low financial performance. Moreover, literature stresses the potential benefits that organisations obtain from integrating their different systems into a single management system, especially small- and medium-sized enterprises (SMEs), generating cost reduction, increasing flexibility and efficiency, etc. (Zutshi & Sohal, 2005). Despite this recognised relevance, not enough studies investigate how a comprehensive management system should be designed and implemented to create a wide and integrated set of managerial processes and tools suitable for SMEs' needs.

In order to bridge the research gap, we investigated two main research questions:

- (1) How can SMEs implement an effective IMS?
- (2) What are the main enablers of the successful implementation of an IMS in SMEs?

To study these research questions, we carried out the research process synthesised in Figure 1. Firstly, we summarised the literature background with special attention to the studies of management systems for SMEs and the factors affecting the adoption of these systems in small and medium organisations; secondly, we outlined the research methodology approach to maximise the validity of our research. Thirdly, we deeply

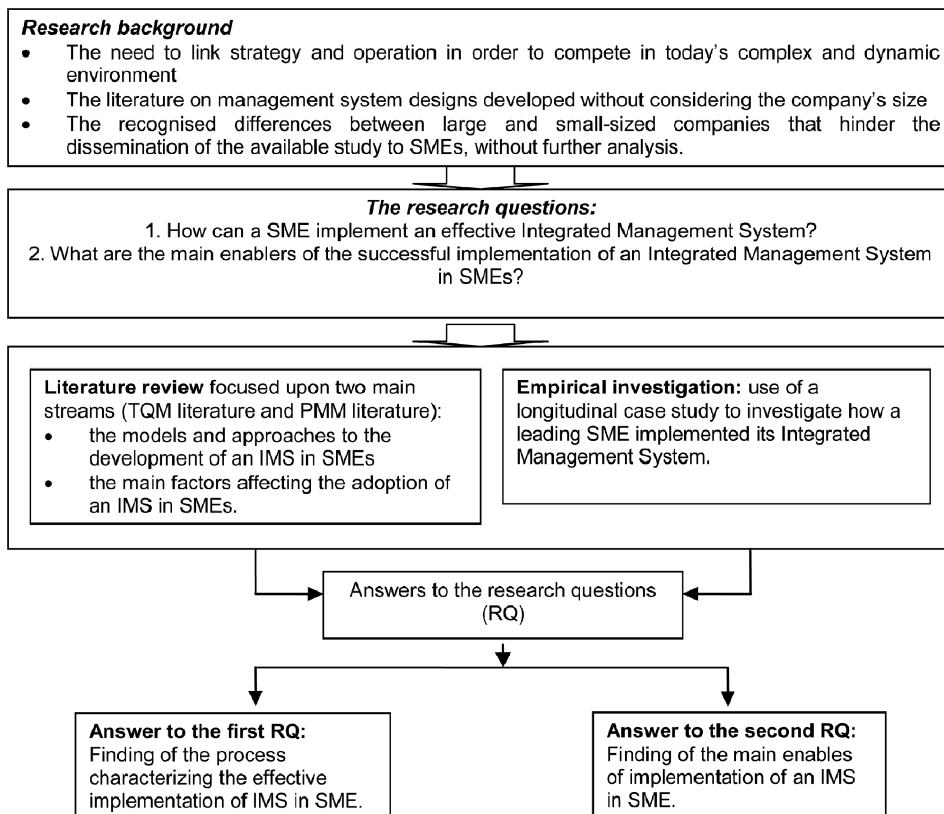


Figure 1. A synthesis of the research process.

investigated the process followed by a leading SME, which successfully implemented its IMS. Lastly, we identified a group of factors enabling the successful implementation of an IMS, that is, a system able to support the improvement of managerial practices and the achievement of better performance.

2. Literature background

Ever since the 1960s, scholarly literature has pointed out the key role of management systems to link strategic planning and operational control (see, for instance, Anthony, 1965). However, for many years, the focus was solely on large organisations and we had to wait until the 1980s to find research that also involved small and medium organisations. In those years, two main research streams started investigating the implementation of a management system with attention to SMEs: total quality management (TQM) literature and performance measurement and management (PMM) literature developed some models; PMM literature also investigated the factors affecting management systems in SMEs by highlighting the differences between large and small–medium organisations. In investigating these two research streams, we combined elements of systematic literature review (Denyer & Tranfield, 2008; Rousseau, Manning, & Denyer, 2008) with the authors' previous knowledge of the field developed over the past 15 years. Keyword searches were employed using predefined search strings (such as 'management system', 'performance measurement', 'performance management', 'strategic planning', 'management control' and 'strategic control', 'managerial development' – and the same strings adding the SMEs word) to identify articles published in specific management databases (such as Business Source Premier, Web of Knowledge, Emerald Insight, Scopus and Science Direct). In addition, we chose a number of journals that addressed a broad range of managerial problems. These included the *International Journal of Operations and Production Management*, *International Journal of Management Reviews*, *Total Quality Management and Business Excellence*, *Sloan Management Review*, *Harvard Business Review*, *The Accounting Review*, *Strategy and Leadership Journal of Business Strategy*, and *Journal of Economics and Management Strategy*. The contributions of the two research streams are summarised below.

2.1 The TQM literature

The introduction of the ISO 9001:2000 standards and the diffusion of Quality Awards gave an important stimulus to managerial development in SMEs (Hansson & Klefsjö, 2008; Gotzamani, 2010). In 1987, the ISO released the ISO 9000 series of quality standards and they immediately received global recognition (Renfrew & Muir, 1998; Stenzen, 2000; Zutshi & Sohal, 2005). They were soon followed by the ISO 14000, the release of the environmental standards series, along with models promoting the integration of the two norms (ISO 14001, 1996; MacGregor Associates, 1996; Puri Subhash, 1996; Karapetrovic & Willborn, 1998). For some years, the TQM approach was adopted by SMEs as the main reference for the implementation and improvement of a management system (Ghobadian & Galleary, 1996; Yusof & Aspinwall, 2000a, 2000b; Lee, 2004). Though ISO standards were adopted to improve managerial practices, literature recognised that those standards could not effectively guide the implementation of an IMS. The two series presented difficulties when it came to merging them into a single family of standards (ISO/TAG 12, 1998; Martínez-Costa, Choi, Martínez, & Martínez-Lorente, 2009), and the integrated procedures – introduced to reduce documentation and the number of

procedures – were not able to meet the need of organisations to reflect their business as a whole. To get rid of those weaknesses, Quality Models such as the European Foundation for Quality Management (EFQM) model for Business Excellence and the Malcolm Baldrige Award Model proposed a total quality approach to improve management systems all through the organisation. The quality models are widely known as models for business improvement, but they do not specifically address the integration of management systems across all activities and they fail to link strategy and operations (Wilkinson & Dale, 1999; Karapetrovic & Jonker, 2003). Moreover, a review conducted by Yusof and Aspinwall (2000a, 2000b) revealed that previously developed implementation frameworks were far from suitable and did not fit the SME context. Some studies highlighted that, when SMEs introduce the ISO standards or implement guidelines for taking part in Quality Award Programmes to meet the need for organisational development, they often experience their weakness as management systems (Taylor & Wright, 2003; Biazzo, 2005). This is not intended to diminish the TQM approach: empirical evidence shows that SMEs that have taken part in Quality Award Programmes are more sensitive to the implementation of tools and processes promoting managerial development; however, it is recognised that they are not structured to support the design of an IMS (McAdam, 2000; Garengo, 2009).

2.2 *The PMM literature*

After reviewing the PMM research, it was immediately clear that there was the need to clarify the meaning of ‘performance measurement’, ‘performance management’ and ‘management system’, which are often used as synonyms. As previously mentioned, in this paper, the ‘management system’ is studied as an integrated set of processes and tools that a company uses to develop its strategy, translate it into operational actions, and monitor and improve the effectiveness of both (Kaplan & Norton, 2008). ‘PMM’ instead is a concept pertaining to the capability to track the performance of an organisation by supporting internal and external communication of results, helping managers make both tactical and strategic decisions and facilitating organisational learning (Kaplan & Norton, 1996). The review of the literature indicated the presence of numerous researches that firstly focused upon performance measurement (i.e. what to measure, how to measure and how to report the results), and subsequently upon performance management (i.e. how to use the measures to manage the performance of the organisation) (Bititci, Garengo, Dorfler, & Nudurupati, in press). Although the majority of PMM-related works focuses upon the practices of large organisations, during the past 10 years (2000–2010) we have also seen a growing interest in PMM in SMEs (Garengo, Biazzo, & Bititci, 2005; Turner, Bititci, & Nudurupati, 2005; Fuller-Love, 2006; Sousa, Aspinwall, & Rodrigues, 2006; Hudson-Smith & Smith, 2007; Wiesner, McDonald, & Banham, 2007; Ates, Garengo, Cocca, & Bititci, in press).

PMM is described as a crucial stimulus to support the improvement of SMEs’ managerial processes. It should promote the definition of the company’s strategy (Hudson, Lean, & Smart, 2001a, 2001b; Garengo & Biazzo, 2012) as the alignment between strategy and operational activities without losing the main focus upon the operational aspects that characterise small manufacturing organisations (CIMA, 1993; Hudson-Smith & Smiths, 2007).

The recognition of the fundamental difference between large organisations and SMEs points at a set of characteristics that prevent the adoption of appropriate PMM practices in many SMEs (Garengo & Bititci, 2007). These characteristics are as follows:

- *Lack of formalised strategy*, as strategy is very often not made explicit (Ghobadian & Gallear, 1997; Brouthers, Andriessen, & Nicolaes, 1998; McAdam, 2000; Garengo & Biazzo, 2012).
- *Entrepreneurial behaviour* leading to many unpredictable changes in direction and priorities: SMEs consider a high structured management system as a constraint to change (Walley, Blenkinsop, & Duberley, 1994; Hussein, Gunasekaran, & Laitinen, 1998; McAdam, 2000; Bourne, 2001; Garengo & Sharma, in press).
- *Limited managerial capacities* mainly fuelled by implicit and context-specific knowledge (Jennings & Beaver, 1997; Fuller-Love, 2006).
- *Operational focus* leading to limited involvement in strategic and managerial activities (Robinson & Pearce, 1984; Franco & Bourne, 2003; Fuller-Love, 2006).
- *Limited capital and human resources*: The staff often has no extra time for managerial and strategic activities, such as implementing a management system (Noci, 1995; Burns & Dewhurst, 1996; Ghobadian & Gallear, 1997; McAdam, 2000; Hudson et al., 2001a; Tenhunen, Rantanen, & Ukko, 2001).
- *Poor understanding and therefore scarce adoption of management tools* (CIMA, 1993; Tenhunen et al., 2001).

The need to stimulate the development of a management system in SMEs necessitates the consideration of the factors that characterise these companies (Hudson et al., 2001b; Garengo et al., 2005; Fuller-Love, 2006; Wiesner et al., 2007). Recent studies showed that PMM models, like the Balanced Scorecard (BSC), could not achieve successful strategy execution if they were implemented as an isolated tool (Kaplan & Norton, 2008). Models like the BSC should be the core of the management system, but it cannot be the whole management system, as stated above. To balance the tensions between strategy and operations, Kaplan and Norton (2008) carefully illustrated a group of tools that should be applied to each stage of the cycle, but, once again, the authors made no mention of the company's size. The empirical investigations available confirm that the proposed system is able to meet the needs of a large organisation, but it is not clear how it should be amended before being implemented in small and medium companies.

We could conclude that empirical investigations emphasise the need for SMEs to be guided towards managerial development (Heck & Stafford, 2001; Hisrich & Drnovsek, 2002; Astrachan & Shanker, 2003). However, an IMS framework, as defined by Kaplan and Norton (2008), has not yet been proposed for SMEs (Wilkinson & Dale, 1999). Such considerations, and the small number of empirical researches on the implementation of the IMS in SMEs, led to the choice of carrying out an empirical study, developed through a longitudinal retrospective and a real-time case study. The adopted methodology is described below.

3. Research methodology

The study of how to implement an effective IMS in SMEs called for in-depth understanding of managerial processes, defined as a series of interconnected activities and practices through which work flows towards a specific outcome or purpose. The case study methodology was chosen because this type of approach gives the opportunity to be close to data, thus enabling rich and inductive description (Halinen & Törnroos, 2005) and to carefully investigate research questions focused on 'how' (Yin, 2003). The analysis was founded on an *intensive* retrospective and real-time longitudinal study (Barton, 1997) of a leading

manufacturing SME that has stood out for its excellent management practices and performance in the last 5 years.

The investigated company, named Home Cucine, produces and supplies kitchen furniture for domestic use with distinctive characteristics of safety and functionality that satisfy the customers' quality/price expectations at the national and international levels. It employs approximately 50 people and it is known as a leading SME of its sector: notwithstanding the crisis of the furniture industry, it was the only company able to increase its revenues by more than 50% in a time of crisis. In a group of 50 companies that we investigated in 2007 in 10 different countries, Home Cucine emerged as the best manufacturing company in the relationship between managerial practices and achieved performance.¹ Considering a balanced set of indicators (Bititci, Firat, & Garengo, in press), the company's performances of the last 5 years were above average in its industry as far revenues, market shares and investments in R&D were concerned (especially in new product development and managerial processes). To assess managerial practices, we considered the maturity of managerial activities identified by Bititci et al. (2011). The results highlighted by these studies suggest that Home Cucine had a greater maturity of managerial activities and paid greater attention to the implementation of its managerial systems, so we believed it to be of interest to investigate how this company implemented its managerial system.

3.1 Data collection

The information used in this study was collected using a retrospective case study (9 years) and a real-time longitudinal study (3 years). The years between 1998 and 2006 were analysed through documentation and interviews with the entrepreneur and managers involved at that time. From 2007 to 2010, data were collected through interviews, documents and observations.

In order to maintain consistency in the data collection effort, the researchers developed a research protocol structured into four main parts called Plan Do Check Act (PDCA) to stress the relevance of a quality approach distinguishing SMEs (Garengo, 2009). The first part was addressed to the entrepreneur, two senior managers and three functional managers, and it focused on key issues, such as the overall strategy of the organisation, the company's managerial activities in relation to the dimensions of competitiveness and reasons for supporting managerial development. The three other parts were structured to explore the impact of the plan activities on the other three phases and they were addressed to the entrepreneur and employees. The interview protocol was first tested on the quality manager, as he connected for years the managerial team – composed of the entrepreneur, quality managers, account manager and production manager – with the operational levels. Thanks to his support, the protocol was revised to fit both the company's organisation and the specific purpose of the study.

A retrospective study was carried out in order to empirically investigate how the company implemented the management system of those days. As Leonard-Barton (1990) pointed out, retrospective studies offer the opportunity to identify patterns indicative of dynamic processes, just as the implementation of the management system did. The study investigated the managerial tools and the managerial activities that the company adopted in the previous 9 years.

Given the effectiveness of the initial study, the researchers continued the investigation using a real-time longitudinal study, so to provide a close-up view of the managerial tools and managerial activities as they evolved over time. In this last phase, the researchers did

not give any support to the management team, but simply observed the introduction of a BSC and the subsequent development of an IMS based upon Home Cucine's needs.

Data were gathered by means of semi-structured interviews, documents and direct observations (Yin, 2003). The interviews were used to gain an in-depth picture of the past and current managerial activities. A total of 43 semi-structured face-to-face interviews were completed with the entrepreneur, who acted as the general manager, and employees at different organisational levels and they ranged from 2 to 3 h each. Nine interviews with company consultants were used to collect additional information and to better understand the data gathered. Intranet documents and managerial paper documents were carefully analysed and explanations were asked for a better understanding of their meaning. In addition, interviewers attended all the company's monthly meetings for over 3 years, approximately 90 h in total, and 12 company internal workshops in order to understand the change in the managerial system.

During the interviews, a researcher asked questions and another took notes and recorded the interviews. These respective tasks were consistent across all of the interviews. The employment of a two-person research team enabled the establishment of different perspectives of each investigated case. The interviewer was able to establish a personal relationship with the interviewee, while the data recorder maintained a more distant view.

Triangulation was achieved by using multiple sources of information (Voss, Tsikriktsis, & Frohlich, 2002). Interviewing multiple informants (i.e. entrepreneur, functional managers, employees and consultants), using multiple data evidence and archival data, helped the authors to crosscheck information and verify the reliability of the data obtained. As Yin (2003) pointed out, one of the strengths of the case study method is the ability to obtain multiple sources of evidence, thus improving the researcher's understanding of the phenomenon under consideration.

3.2 Data analysis

The interviewers transcribed all the interviews. During the transcription, data were put in chronological order; interviewers drew a time line for both retrospective and real-time analysis, as we needed to highlight the incremental trend (Bryman, 2002). All events in the time line were tagged and transcribed in a display that permitted the understanding of what took place from 1998 to 2010; to highlight the key events, their positive effects and their weaknesses were summarised in the same display, as suggested by Miles and Huberman (1994). We divided the implementation process into four main phases, which are described in the next section, as shown in Figure 2.

Subsequently, we sought patterns and drawing conclusions as suggested by Miles and Huberman (1994), that is, through crosschecking against previous knowledge, we identified the evolutionary process that Home Cucine followed in introducing its IMS and we identified the main steps and managerial tools characterising the implementation of an IMS in a SME. All the main phases and managerial tools were combined in the same figure, enabling us to show the process and the key managerial tools (Figure 9). Finally, the results were studied against previous literature to identify the key factors to overcome the conventional barriers against the implementation of an effective management system in SMEs. All the factors are synthesised in the last section of this paper.

4. Empirical analysis: the implementation of Home Cucine's IMS

Home Cucine implemented its IMS to manage its growing internal managerial complexity. The implementation process did not follow a predefined plan: each part grew to meet

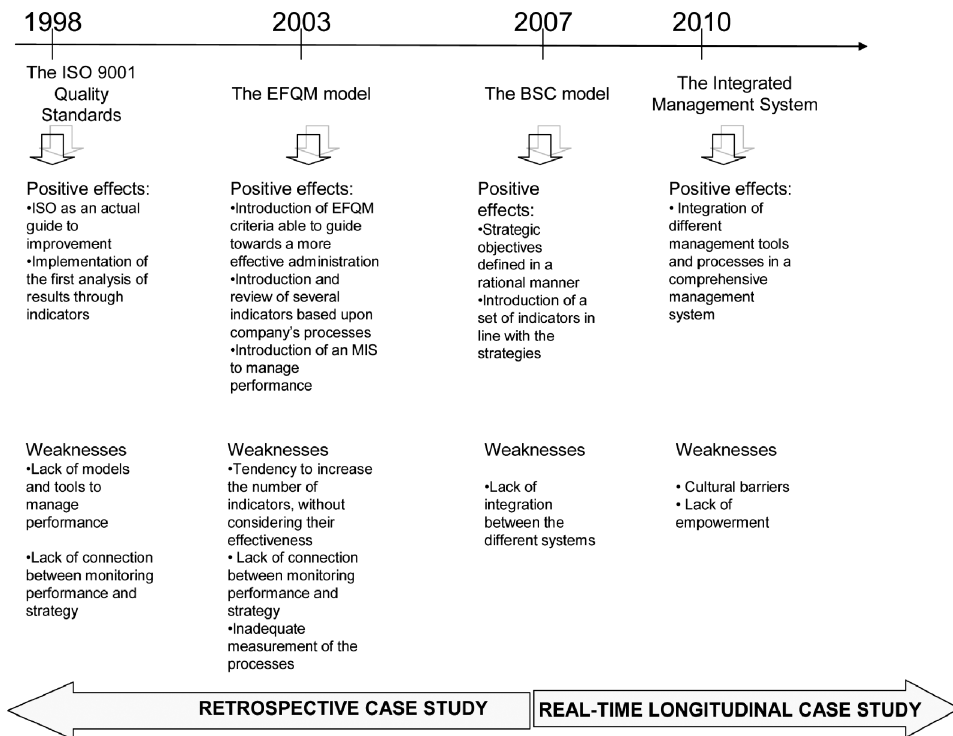


Figure 2. The implementation of the IMS in Home Cucine.

specific needs and to create an integrated system in support of the company's management as a whole. Consequently, it was not possible to distinguish between the planning and the implementation of the system itself. By analysing the collected data, we were able to identify the four main development phases that determined its creation. These phases are described below.

4.1 Phase 1: the ISO quality standards

In 1998, Home Cucine adopted a quality management system based on the ISO 9001 quality standards to support the increasing size and complexity of the business. The management team, composed of the entrepreneur, quality managers, account manager and production manager, was greatly involved in all the ISO adoption process. From 1999 to 2003, the entrepreneur took upon the role of Quality Manager in order to actively participate in the implementation of what the norms set forth and to ensure that the certification process would not be undertaken as a mere formal task, but as an actual guideline towards improvement. He soon perceived the need for an adequate system to measure performances, as an essential tool for fully controlling entrepreneurial risks and best managing the company. Using the same approach, he pushed for the introduction of the first analyses of results through indicators.

Ever since the first applications of the ISO 9001 norms and the first performance indicators, the focus had been upon two key objectives: customer satisfaction and production efficiency. Year after year, the company invested resources to improve the collection of data pertaining to the performances achieved, thereby increasing the amount of details

gathered. Numerous meetings were organised to make the whole organisation aware of the importance of carefully gathering the necessary information and actually pursuing an ongoing improvement policy.

In 2002, Home Cucine envisaged the use of 44 indicators, divided according to the themes of the ISO standards and of the business functions (Table 1). The positive effects of the ISO standards were hence evident, as they were able to promote the introduction of performance indicators, although the lack of a connection between monitored performances and business strategies was showing. If we take into consideration what the norms stated, in this phase the management team had identified a group of performance indicators with the purpose of supplying information on various aspects (customer satisfaction; conformity of product; trends in products and processes; suppliers), but it had failed to use a suitable model for the definition of a performance measurement system that would be integrated and have a strategic nature.

The ISO standards prescribed the measurement of performances, although the standards did not indicate what managerial tools or models were to be adopted. In a short amount of time, it became clear to the management team that, despite the company's

Table 1. The first Home Cucine's dashboard: 44 indicators, divided according to the themes of the ISO standards and of the business functions.

<i>Audits results:</i>	<i>Efficiency of production processes:</i>
Number of observations accepted in audit	Micro-non-conformity
Number of non-conformities accepted in audit	Turnover per person
Number of non-conformities per area	<i>Analysis of corrective and preventive actions:</i>
<i>Information on the customer:</i>	Effectiveness of corrective actions
Customer complaints	Effectiveness of corrective action planning
Economic value of the customer complaints/turnover	Effectiveness of the analysis of the technical and design
Type of more frequent complaints	% of new validated projects
Customer satisfaction	<i>Performance of the suppliers:</i>
Number of questionnaires returned	Change in supplier list
Number of positive questionnaires returned by the customer	% of non-conforming supplies
<i>Trade function analysis:</i>	<i>Analysis of competence and training:</i>
Turnover	Absenteeism
Previous year turnover/year turnover	Employee satisfaction
Turnover (Northern Italy)	Accidents at work
Turnover (Central Italy)	Training costs
Turnover (Southern Italy)	Workers training cost/turnover
Turnover abroad	Employees training cost/turnover
New customers	<i>Policies and objectives:</i>
New customers in current years	Decision-making capacity
New customers (geographical area)	Employee satisfaction with management
Number of audits	Improvement plans
Web contacts	<i>Maintenance analysis:</i>
Rate of showroom renewal	Cost of maintenance
Agents involvement	
Agents satisfaction	
Outstanding agents	
Payment terms	
Market share	

small size, the performance indicators, if managed individually, could not thoroughly capture the complex nature of business performances.

4.2 Phase 2: the EFQM model

While trying to define a suitable model that would guide the company towards further improvement in managerial processes, in 2003 the management team adopted the EFQM framework to become its management model of reference. Such a model introduced five important guidelines aiming to direct the organisation towards a more effective administration. The four main guidelines that were adopted are listed below.

- (1) Establishing the company's mission to better outline its values and what the entrepreneur aimed at. In its mission, Home Cuisine not only summarised its ultimate goal, which was the reason for its existence, but also what made it stand out, that is the business values that fed the determination of critical success factors. Briefly, the company's ultimate goal was defined as follows:

To produce kitchen furniture for domestic use that satisfy the expectations of our customers in terms of safety, functionality, quality/price ratio. Through improvement of internal expertise, Home Cuisine also intends to offer its customers highly innovative services, without losing sight of the interests of all the stakeholders of the company (especially of the employees).

- (2) Establishing the organisation's policies and strategies. Six main strategic themes were identified (commercial development, customer satisfaction, involvement of staff, administration of financial growth, creation of a flexible and efficient corporate structure, and development of the brand). The management team came up with four main processes (customer process, management and finance process, learning and innovation process, internal process) and relevant activities (see the excerpt from the document on strategies, activities and processes, as illustrated by Figure 3). For the first time, the management team identified a company's strategy, even if it was not connected with its mission.
- (3) Assessing strengths and weaknesses of the internal structure and of the market (SWOT analysis). The SWOT analysis was carried out as a strategic planning tool to evaluate the Strengths, Weaknesses, Opportunities and Threats involved in the company business. The SWOT analysis was especially useful because, for the first time, the management's observations with regard to Strengths, Weaknesses, Opportunities and Threats were written in a structured form. However, these observations were unrelated to the definition of the mission and the strategies (Figure 4).
- (4) Defining an indicator dashboard based upon the business processes. The introduction of these criteria helped to improve the management of performances within the company. The goal of setting up a dashboard of indicators, based upon the company's processes, led to the introduction and review of several indicators.

In 2006, the dashboard was further improved thanks to the implementation of new software, which was internally produced. Almost without any economic investment, it was possible to specifically design the necessary solution to best meet the needs of the company. This solution enabled the organisation to have a simple Microsoft Access database that contained all the information on performances, hence providing a more rapid and precise management (rather than the previous one based upon Excel spreadsheets), both with regard to the update of indicators, results and targets, and with regard to the printing of reports (to review or to fill in) to be handed out to the middle managers. In addition,

Strategy		St1	Sales development		Exp. 31 Dec. 2006
Develop sales activities in a methodical and organised manner by firstly identifying a Sales Manager and methodologies for the analysis, development, monitoring and control of the sales network (Item 3 Quality Policy).					
Policy			Activity		Process
✓	Po.01	New safety ads + new reviews	At.07	Marketing	Customer pr
	Po.03	Periodical meetings with sales agents	at.01	Management of sales network	Customer pr
	Po.04	Ongoing search for technical solutions that will improve the catalogue's graphic image	At.07	Marketing	Customer pr
	Po.04.2	Ongoing search for technical solutions that will improve the product	At.20	Product innovation and Design	Innovation – learning pr.
	Po.05	Analysis of the market and sales data to increase the knowledge of customers' needs	At.03	Customer loyalty	Customer pr
	Po.07	Acquisition of new markets, new customers and consolidation of existing ones	at.20	Sales development	Customer pr
✓	Po.21	New models (Mela / Reflexa...)	At.02	Product innovation and Design	Innovation – learning pr.
✓	Po.22	New agents	At.01	Management of sales network	Customer pr
✓	Po.23	New brand Heron in the economy category	At.02	Sales development	Customer pr
Strategy		St2	Customer Satisfaction		Exp. 31 Dec. 2006
Through a careful analysis of customer satisfaction, performed with codified methods, develop the knowledge of customers' needs/preferences and use this information to improve services and products (Item 1 Quality Policy).					
Policy			Activity		Process
	Po.02	Improve operational tools to measure customer satisfaction	At.05	Measuring customer satisfaction	Customer pr
✓	Po.24	Saving customers' bio. data for automatic send out of birthday wishes	at.03	Customer loyalty	Customer pr

Figure 3. Policies, activities and processes.

<p>STRENGTHS</p> <p>F1. Financial soundness F2. Performance/price ratio F3. Safe kitchen F4. Cust.Satisf. surveys activated F5. IT know-how F6. Investments in technological innovation F7. Personnel loyalty F8. Involvement of resources F9. Company with young and dynamic personnel</p>	<p>WEAKNESSES</p> <p>D1. Management Control missing D2. Non-careful administration of sales activities and sales network D3. Elements that characterise the Product's safety are missing D4. Company's owner is the central focus D5. No internal investments in product know-how D6. Little presence in foreign markets with positive trends (France, Spain) D7. Conservative management</p>
<p>OPPORTUNITIES</p> <p>O1. Customer penetration O2. Penetration in new markets where demands are higher O3. Opportunity to increase production volumes O4. Rate of kitchen segment on the increase O5. Speed in production of new models (3 months)</p>	<p>THREATS</p> <p>M1. Stagnation of economic cycle M2. Decrease in purchasing power of families M3. Inability to contrast competitors' commercial power M4. Little professional workmanship M5. Presence of strong brands in the market M6. Competitors who copy new models and have more commercial power</p>

Figure 4. The SWOT analysis.

having internally produced the software for data collection and analysis allowed for a fast and systematic update of the dashboard. Without having to turn to external suppliers, the quality manager could at any time modify either the dashboard's structure or the indicators in the system.

The set of performance indicators used until 2007 soon showed the need for a clear connection among the company's mission, strategies and indicators. The use of the EFQM model made it easier to measure some business aspects that were not at all connected with the company's strategies. The indicators were gathered according to managerial processes, but there was no logical linkage between indicators and strategic objectives (SOs). For example, the numerous indicators of the managerial-financial process – stock rotation days, cost of labour/production value, debt level, current ratio, hedging of fixed assets, etc. – were systematically monitored but looked disconnected from the SOs (Table 2).

While reviewing the system, it also appeared clear that there was a tendency to increase the number of indicators, rather than trying to better understand them. Consequently, there was an increase in the organisational complexity of the performance measurement (from 44 indicators in 2002 to 49 indicators in 2006), unnecessary to promote the improvement of the managerial practices.

This fact was also confirmed by the annual ISO 9001 report, edited on 19 April 2007, where the Det Norske Veritas examiner made the following observation

...we would like to bring to attention that, although there is complete information on the actual performances, the following are still missing:

- Mapping of the managerial processes, further to the recent organisational changes;
- Positioning, in the mapping, of the indicators being used to analyse managerial process trends;
- An adequate synchronisation of the various managerial processes.

The observation of the certification auditor reinforced the perception of the entrepreneur that the business performances had not been best managed. The management of business performances though, based upon the EFQM model, was not proving to be as effective as the entrepreneur had expected.

4.3 Phase 3: the performance measurement system (PMS)

The need for measuring performances was born in Home Cucine as a direct consequence of the management team's decision to 'non-ritually' implement the ISO 9001 quality standards (Biazzo, 2005). Over the last few years, the entrepreneur had been wondering if there was a set of indicators that could actually measure *what is available* and not *what is necessary* to manage the achievement of the company's SOs. In trying to find a solution to this, the entrepreneur decided to take part in a project to implement a suitable model to manage performances: the BSC using the bottom up methodology proposed by Biazzo and Garengo (2012). With the support of two external consultants, it was possible for the company to seriously think about the goals that were actually being pursued, as well as about whether they were in line with the strategy that the entrepreneur desired. All the indicators that were then being used were analysed and translated into the critical success factors that were implicitly pursued. The analysis of the critical factors that were being actually pursued showed a clear inconsistency between the desired strategy and the pursued strategy. Therefore, the need for redefining the company's strategic goals emerged, in light of the desired strategy, partly inferred from the analysis of the performances that were actually being under control. The values inferred from the mission

Table 2. New list of indicators as reviewed after the adoption of the EFQM model (year 2006).

Code	Indicator	Business activity	Process
ind45	Number of customers top 200 <i>n</i> (turnover > 50,000) that reduced their turnover by at least 20% in 200 <i>n</i> +1)	Customer loyalty	1 – Customer management
ind05	Number of appointments made by the sales manager	Management of sales network	
ind06	Percentage of agents who stayed within the budget		
ind07	Increase of kitchens displayed compared with previous year		
ind10	Number of complaints from customers	Measuring customer satisfaction	
ind01	Total sales: turnover increase	Commercial development	
ind02	Number of new customers in database in current period		
ind03	Customers who purchased in current year		
ind08	Market share		
ind20	Southern Italy and islands: turnover increase		
ind24	Northern Italy: turnover increase		
ind39	Central Italy: turnover increase		
ind53	Foreign: turnover increase		
ind11	Complaint value/total turnover	Measuring customer satisfaction	
ind12	Customer questionnaire: positive replies/total replies		
ind48	Number of retailer questionnaires received over the year		
ind63	Value of customer returns due to ‘Customer Errors + Sales Department Errors’/ Turnover	Order management and customer assistance	2 – Internal
ind64	% positive feedback from customer questionnaire on tracking, availability, promptness		
ind31	Implementation of intranet by December 2007	IT network management	
ind51	Number of newsletters sent out over the year		
ind62	Number of customers who open newsletter/ those who receive it		
ind22	Value of customer returns due to ‘production defects’/turnover	Production	
ind23	Value of micro-non-conformity/turnover		
ind14	Value of returns to suppliers/value of purchased product	Research, selection and management of suppliers	
ind61	Value of customer returns due to ‘supplier defects’/turnover		
ind04	Achieved objectives/defined objectives	Definition of strategies	3 – Managerial-financial
ind09	Effectiveness of planned actions		
ind17	Stock rotation days	Financial management	
ind19	Cost of labour/production value		
ind25	Debt level		
ind26	Current ratio		
ind27	Hedging of fixed assets		

(Continued)

Table 2. Continued.

Code	Indicator	Business activity	Process
ind55	Value of agents' outstanding/turnover		
ind59	Average duration of debts		
ind60	Average duration of credits		
ind15	ROS = operating profit/sales	Investments	
ind29	EBITDA = gross operating margin		
ind30	ROE = net income/equity		
ind40	ROI = net income/cost of investments		
ind37	Training hours in office/number of staff	Personnel management	4 – Innovation – learning
ind38	Training hours in factory/number of labourers		
ind41	Resignations over the year		
ind42	Absenteeism = total absence days		
ind47	Overtime/total hours worked		
ind57	Positive answers from employee questionnaire (factory)		
ind58	Positive answers from employee questionnaire (offices)		
ind35	Number of models in catalogue	Product innovation and design	
ind36	Improvements to products and new elements introduced over the year		
ind44	Days of work injuries/days worked	Safety at work	

and the critical success factors were then redefined using various managerial tools, as described below.

Adopting the *value curve* proposed by Kim and Mauborgne (2005), the management team analysed the competitive factors that pertained to the industry and confronted the critical success factors that were relevant to competitors' offers with its own. The value curve supported the management team in combining its knowledge with that of the sales manager and the analyses regarding the specific industry, in order to identify the critical factors that pertained to the industry and the company offer. The two curves provided a clear graphic representation of the company's positioning and the level of differentiation of its offer, and it encouraged the management team to review its SOs (Figure 5).

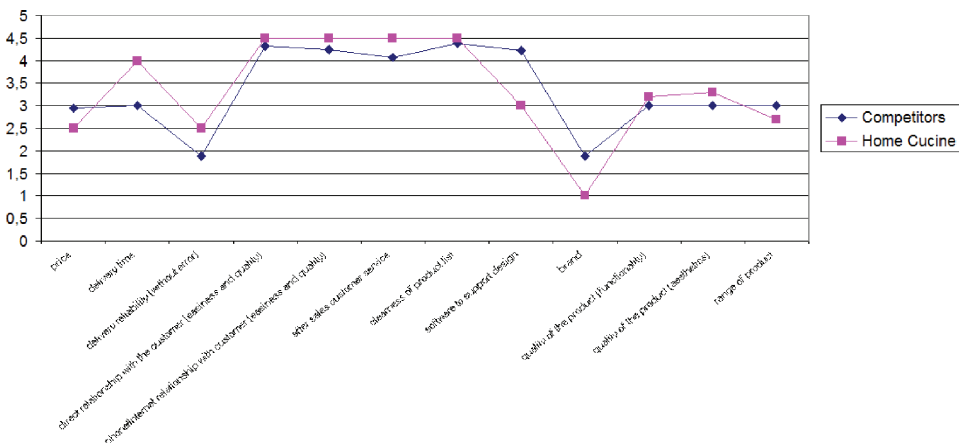


Figure 5. Home Cuisine's value curve.

By combining the competitive factors that the value curve showed and the values that the mission yielded, the management team identified the SOs to be pursued in a coherent and integrated fashion. Such objectives were then represented by using a *strategy map*. For example, in the strategy map, the objective called ‘verify the product’s quality throughout the production process’ (Figure 3) was a direct consequence of one of the critical factors derived from the mission – the one about ‘Checking production and performances of the product’.

The strategy map promoted internal communication of the business strategy and provided an actual support to the analysis of the matching between perspectives and of the inter-relations between objectives. As shown in Figure 6, Home Cucine’s strategy map was purposely ‘pending towards customers’, thus confirming the real importance of customers both in the company’s policies and to its management (economic-financial (four SOs); customers (seven SOs); internal processes (five SOs); learning and growth (three SOs)).

It is interesting to see how Home Cucine’s strategy map introduced some innovation with respect to what Kaplan and Norton (2004) had proposed to further support internal communication and the sharing of results. In the same map, the positive and negative performances of the indicators that measured the achievement of the SOs were also shown, with the positive results in green dots and the negative ones in red dots. The presence of negative performances was not taken as a negative aspect; rather it was a confirmation of the effectiveness of this tool to monitor the factors that were critical to the success of the company.

All the SOs were also referred to in the *management dashboard*, translated into performance indicators and assigned to a manager. For example, objective number 20 ‘satisfy employees’ was monitored through four indicators (resignations over the year; absenteeism; positive answers to employee questionnaire (factory); positive answers to employee questionnaire (offices) (Figure 6)). The strategy map gave an overview of the objectives being pursued and of the level of achievement. For every indicator, the

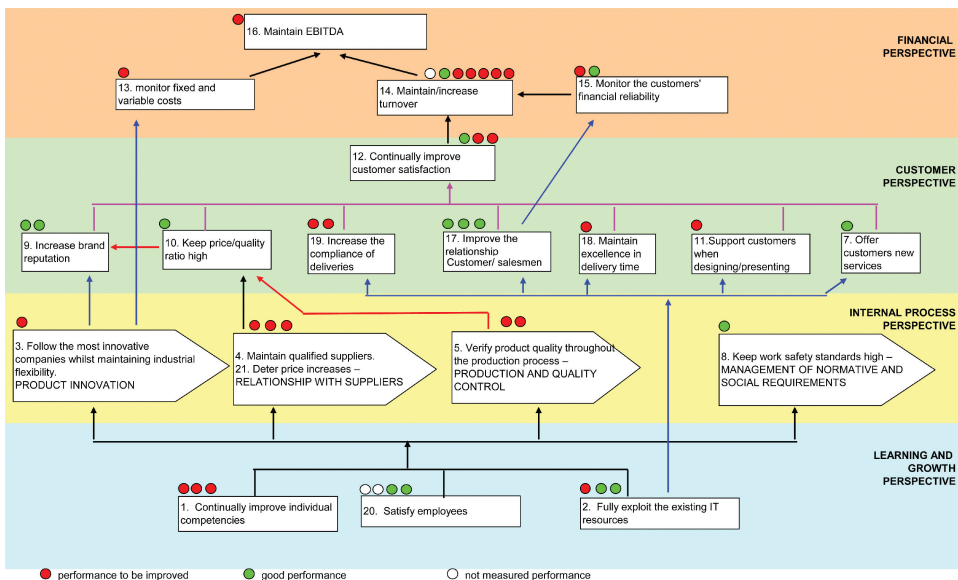


Figure 6. Home Cucine’s strategy map.

dashboard could be used to investigate the variance between the targets that the management team had defined and the results that were actually achieved (Table 3).

The management team was therefore aware that measuring the performances of the various business functions and activities was meaningful only if such measuring allowed the company to monitor the process that led to the achievement of the defined strategies. The indicators that were not related to the business strategies (as highlighted by the value curve and the mission) were deleted from the management dashboard. This did not imply that the removed indicators were not important; it simply meant that they were not suited for being included in the management dashboard because they did not have any strategic relevance.

Consequently, Home Cucine was able to use a dashboard of 41 indicators, which let the company evaluate its ability to achieve its strategy. The entrepreneur continued to promote attention to the connection between indicators and strategy, as well as the importance of striving towards essentiality.

We may say that Home Cucine went from managing a set of indicators – as defined by the ISO standards and the EFQM model – to implementing a PMM system based upon a BSC model. The newly implemented model met the needs of the entrepreneur by introducing the three innovations and the resulting relevant managerial improvements, as listed below:

- The path to follow was clear: the strategy objectives were defined in a rational manner as they derived from the analysis of the value curve and the mission.
- Usefulness of the selected indicators (indicators decreased to 41): the company used a group of structured indicators (shown in the management dashboard) that was in line with its strategies.
- Overview of the company: the strategy map could represent strategy and performance trends, plus the connections among the different SOs.

Even though the implementation of the BSC brought some benefits, Home Cucine's management system showed insufficient integration; over the years, the management team had introduced several managerial tools in support of its administration, but they had not been integrated into a single system, thus sometimes impeding the effective management of information.

Phase 4: the IMS. In 2009, by combining the managerial tools and managerial processes in use in the company with the implemented BSC, the management team set up an IMS. Its structure both synthesised and combined the evolution of the quality standards with the most recent changes that had occurred in the systems that measured performances. This yielded a cycle-based management system for improvement that was known as the PDCA and at whose centre was the BSC, which enabled the company to connect strategy with actions and promoted the dissemination of a holistic approach based on cyclical progressive logics (Figure 7).

From the BSC model, but also from the cycle proposed by Deming, Home Cucine changed its need for a planned system on how to operate and what resources were necessary for implementing its processes, as well as the need for future feedback. Unlike the conventional PDCA cycle, in the definition of the management process, after downsizing phase Plan and enhancing phases Do, Check and Act, Home Cucine came up with a management system that integrated its processes with the managerial tools being used to define its business strategy, translated it into operational actions, and monitored and identified the right improvements, both at the strategic and at the operational levels.

The cycle that the management team developed featured four phases that are illustrated in Figure 7 and can be summarised as follows:

Table 3. The management dashboard.

Perspective	SO	Owner	Index	Description
Customer	Increase brand reputation	Mkg manager	Ind15	No. web contacts
		Mkg manager	Ind21	Average score of the Home Cucine brand (product and service)
	Increase the compliance of deliveries	Sales manager	Ind04	Pieces missing at the time of loading
		Sales manager	Ind63	Value of complaints for 'commercial errors'/ revenues
	Maintain excellence in delivery time	Sales manager	Ind 16	Difference between the date of the receipt order and the date of the loading order
	Continually improve customer satisfaction	Quality managers	Ind10	Number of complaints by customers
		Quality managers	Ind11	Complaints value/revenues
		Quality managers	Ind12	Questionnaire to customers: positive answers/total answers
	Improve the relationship between customers and salesmen	Trade manager	Ind02	# new customers
		Trade manager	Ind03	Customers handled over the year (revenue > 1000)
	Offers of new services to customers	Mkg manager	Ind64	Innovative services been successful over the year
	Support customers when presenting designs	Showroom M.	Ind05	Visits of the sales manager
		Showroom M.	Ind07	Kitchens exported over the year
	Keep price/quality high	Mkg manager	Ind06	Average rating of Q/P
Financial	Monitor fixed and variable costs	Account manager	Ind19	Fixed costs/variable costs
	Maintain/increase turnover	GM	Ind01	Total revenues
		GM	Ind08	Market share (total sales, Italian kitchens)
		GM	Ind20	Revenue (Southern Italy and Islands)
		GM	Ind24	Revenue (Northern Italy)
		GM	Ind49	Revenue (Central Italy)
		GM	Ind45	Number of clients in the turnover range 50,000–400,000 euros
	Monitor the customers' financial reliability	GM	Ind53	Turnover abroad
		Account manager	Ind17	Number of insured customers/number of non-insured customers
		Account manager	Ind55	Outstanding value (agent)/ value received submitted
	Maintain EBITDA	GM	Ind29	EBITDA
			Ind14	

(Continued)

Table 3. Continued.

Perspective	SO	Owner	Index	Description
Internal process	Maintain qualified suppliers	Purchase manager	Ind61	Value non-conformity of the suppliers/value purchased
		Purchase manager		Value complaints for 'supplier's defects'/revenue
	Follow the most innovative companies while maintaining industrial flexibility	Techn. manager	Ind36	Improvements to the product and new elements
	Keep work safety standards high	Safety manager	Ind44	Number of accidents
	Verify product quality throughout the production process	Mft manager	Ind18	UV errors on drilling kitchen doors
Learning and growth	Continually improve individual competencies	Mft manager	Ind22	Value of complaints for 'production defects'/revenue
		Mft manager	Ind23	Value of the micro/revenues
		GM	Ind37	Hours of training to employees/number of employees
		GM	Ind38	Hours of training to workers/number of workers
		GM	Ind60	Average age of employees
	Fully exploit the existing IT resources	IT manager	Ind09	Customers using 3CAD
		IT manager	Ind62	Open newsletters/sent newsletters
	Satisfy employees	GM	Ind41	Resignation over the year
		GM	Ind42	Absenteeism = number of days of total absences
		GM	Ind57	Positive answers of the employee questionnaire (factory)
		GM	Ind58	Positive answers of the employee questionnaire (office)

- (1) Analysis of competitive factors and success factors, as indicated by the value curve and the company's mission statement, and development of the company's strategy, which is written in the strategic map, expressed both in terms of SOs and in terms of performance indicators (Plan).
- (2) Implementation of what was planned through operational and improvement actions, job descriptions and other quality system documents (Do).
- (3) Monitoring the achievement of the objectives by means of the management dashboard and with operational meetings (Check).
- (4) Setting up actions that aimed at improving the company (Act).

In order to handle the management system, a key role was given to the *management review*; it was the first and foremost moment of annual analysis of the business management, and one from which improvement actions derived.

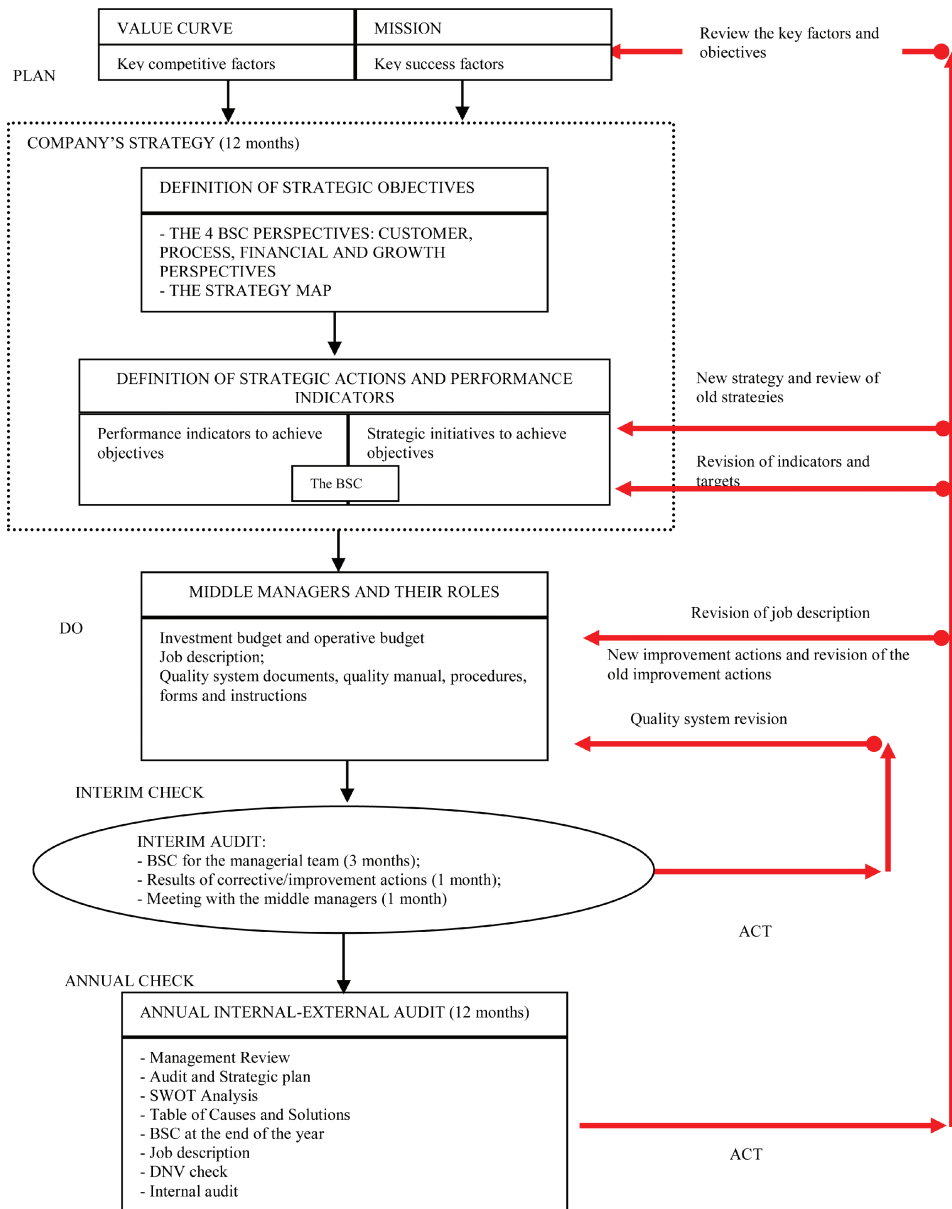


Figure 7. Home Cuisine's IMS.

The aim of the measurement and management processes was not to control and blame employees but to support improvement. Consequently, once the management document was verified, all the middle managers were asked to fill in a form called *Table of Causes and Solutions* to summarise the causes that they believed had determined negative performances (red dots, see strategy map above), and the solutions that they thought were suitable to solve the problems and thus achieve positive performances. All the solutions that the middle managers proposed were evaluated and selected by the entrepreneur; the most valuable solutions became part of the improvement actions for the current year.

Causes and Solutions of negative performance

Objective: 5 verify product's quality in production

Function	Causes of red indexes	Proposed solution	Audit notes
Sales Manager	Customised dept. often having difficulties verifying the quality of furniture	In need of a professional figure to refer to in the dept	
Quality Manager	No random checks on furniture	Re-establish random checks in case there are (hopefully seldom throughout the year) precise and reliable referrals from the sales office. Use the database in a systematic way "Reports from sales office to sales mgr." that was re-implemented last Jan.	
Sales office Manager	Some production depts. are not held responsible enough	Re-establish random checks on finished products, at least once a month	
Sales office Manager	Columns are not packed in the best way	Also pack the borders that are on the backside of the columns (those that are placed on the truck's edge to download columns). If the back border receives a blow on the side of a column on display, a complaint ensues	

Figure 8. Causes and solutions.

This was indeed a key process that acted as an actual change promoter in Home Cucine: at the beginning of 2009, an improvement action that contained 26 operational actions was activated, featuring the people in charge and a well-defined timing (Figure 8).

Notwithstanding the small company size, particular attention was given to the definition and the systematic review of the *job description*, a document that defined the tasks, roles, responsibilities, hierarchical relations and functions of each employee. Drawing up this description was an especially useful process for the management team, as it implied the analysis and, if necessary, the review not only of the task, roles responsibilities, but also of documents and communications involved. By describing the job of a collaborator, any potential contrast with neighbouring jobs was spotted, as well as any operational problem that could impede the carrying out of the newly assigned jobs. In Home Cucine's job description, there were also the requirements and competencies that were necessary to fill a specific role, as well as the SOs to which each person was expected to contribute. Therefore the job description was strictly connected with the objectives illustrated in the strategy map and it promoted 'improvement of individual competences' (OBJ. 1).

5. Discussion and conclusion

This paper investigates how a leading SME implemented an effective IMS to identify key implications for academia and practice.

5.1 Implication for academia

As highlighted in the previous paragraphs, scholarly literature describes the IMS implementation as essential for all types of organisations, but it does not supply enough studies to clarify how an IMS could be implemented in SMEs (Bititci, Carrie, & McDevitt, 1997; Wilkinson & Dale, 1999; Karapetrovic & Jonker, 2003; Zutshi & Sohal, 2005).

In order to contribute to this research gap, our study investigated how a leading SME spontaneously and effectively implemented its IMS. The empirical study emphasised two main evidences: the need to adopt an incremental approach (Figure 9) and the presence of some essential enablers supporting the implementation of the IMS. The use of an

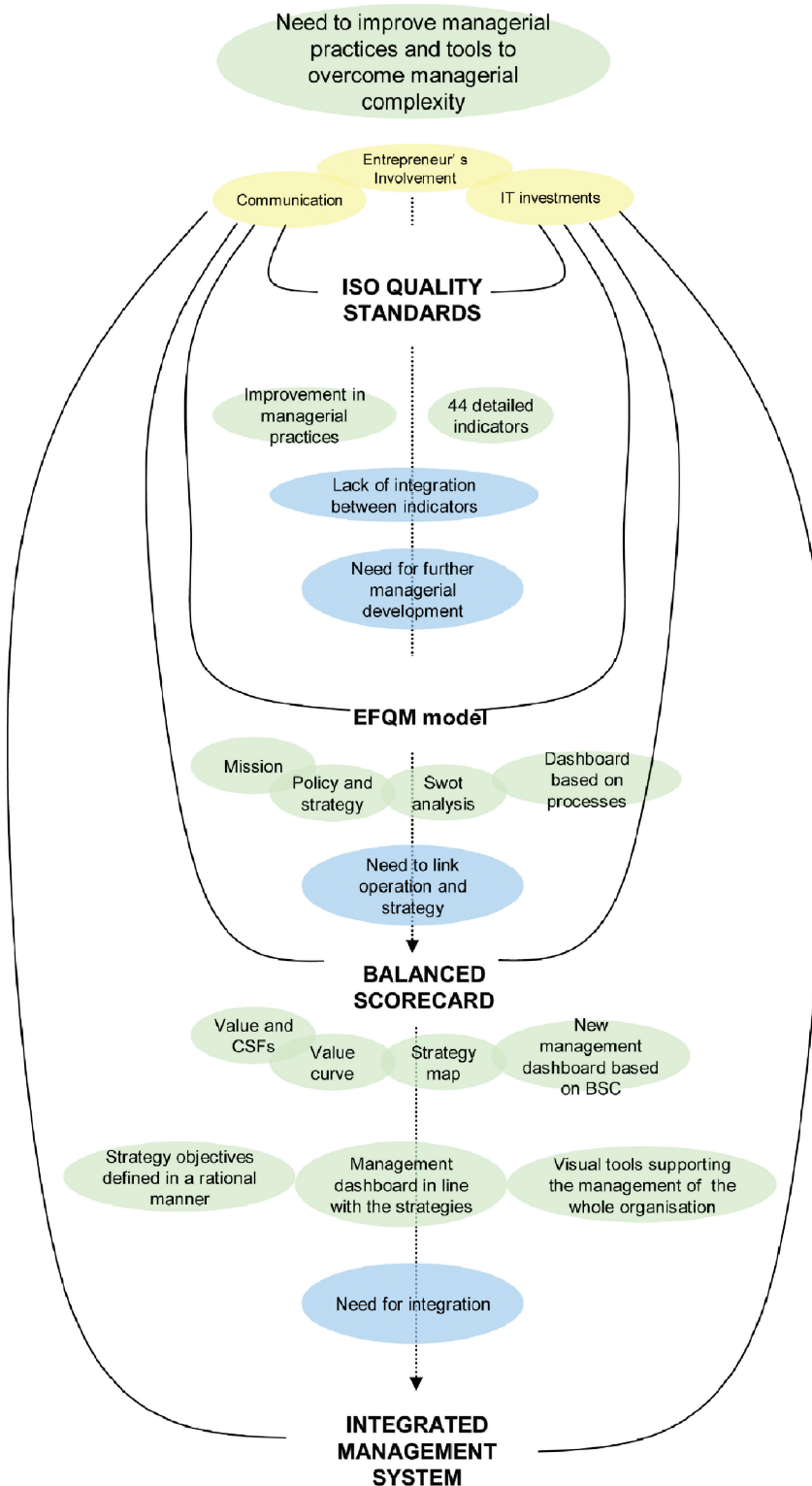


Figure 9. The evolutionary path that Home Cucine followed to introduce its IMS.

incremental approach drove both the growth of the management system and the change in the managerial culture and supported the definition of the four main phases favouring the design of an IMS: (1) the ISO quality standards, (2) the EFQM model, (3) the PMS and finally (4) the development of the IMS. Each phase was described in detail in the previous paragraph to show the evolutionary path that the company followed and the tools it implemented (Figure 9). The relevance of the evolutionary path confirmed the literature previously analysed and the need to move from the TQM approach to the implementation of an IMS. Each phase was characterised by a growing development of management practices. However, in the first three phases, a small company can find tools and models proposed by literature and validated by practices. In the last phase, the available studies and established management practices do not provide adequate frameworks supporting integration of the tools and the managerial process. Nevertheless, the problem-solving approach that characterises a small-size company enabled the identification of a framework that integrated the different tools and process in a comprehensive framework based upon the four phases of the PDCA cycle.

The identified framework provides a comprehensive and descriptive reference that can be used to understand the implementation of an IMS in SMEs, and direct further investigation to the emerging issues described above.

To answer the second research question, five enablers were established as crucial for overcoming the traditional barriers against the implementation of an IMS in SMEs – they are also identified by the literature that is summarised in the previous section. These factors were as follows:

- *Commitment of the management team.* Huge commitment of the management team and, especially, of the entrepreneur who directly promoted the adoption of the quality management system and its evolution to obtain the current management system. He actively participated in the design and implementation activities, supervised the definition and the implementation of the whole system, operating to solve any problem and promoting the commitment of all the employees, and encouraged its use and improvement daily.
- *Effective adoption of the TQM approach.* The successful adoption of the TQM approach was shown firstly with the effective implementation of the ISO standards, and secondly with the adoption of the EFQM model, which was adopted not to obtain a seal or an award, but to really improve the company's management system.
- *External facilitators.* The importance of external facilitators who promoted the learning of managerial tools and their dissemination throughout the company. Without having to turn to highly skilled managers, the company was able to take advantage of the knowledge needed by collaborating with external facilitators who promoted the acquisition of internal competencies for the follow-up management (and update) of the PMS.
- *Communication to the whole organisation.* The management team organised many meetings to make the whole organisation aware of the importance of carefully gathering the necessary information and actually pursuing an ongoing improvement policy. Special attention was given to the communication of the final goal of the changes in the managerial system: the company was not collecting information to blame employees for negative performances, but to identify the best managerial processes and tools that would help to improve the company's overall performance.
- *Simple software solution.* Adoption of simple, but effective, software to collect the necessary data. The limited capital resources made it difficult to purchase complex

solutions created for large organisations, but as Home Cucine proved, it was also possible for a SME to find simple software or to even produce it internally.

5.2 *Implication for practice*

Using a grounded approach, authors have shown how an IMS can be successfully designed and implemented in the SMEs context (Figure 9). As stated above, the proposed framework is not a normative one, but should offer a useful guidance for managers facing the decision to understand an IMS implementation in SMEs. The fact that the system was spontaneously implemented confirms that, even in SMEs, there is a clear emerging issue: the need for going beyond the TQM approach and implementing an IMS. The integrated set of tools and processes that Home Cucine identified derived from the needs of a small enterprise, and are in line with the characteristics of SMEs, as mentioned in the literature review section. Therefore, with the necessary adaptations, the identified IMS may be adopted by other SMEs as a reference framework to integrate different managerial processes and tools.

The details of the implementation process that Home Cucine undertook and described in the previous paragraph represent a useful operational reference that facilitates not only the understanding, but also the implementation of an IMS in SMEs. The identified tools, although not an exhaustive group, are presented as reference tools that companies can use during their implementation process, as they show their capability to support the management team in the development of the IMS and their capability to meet SMEs needs.

5.3 *Research limitations/implications*

As this research is only a study highlighting a special context of an SME, further studies on the IMS implementation and their managerial implications are needed. This study does not claim the statistical generalisability of the findings, but provides insight into complex managerial and organisational processes that, for example, surveys cannot. While we did not attempt to replicate this study in other settings, we did identify a group of enablers to make the identified process workable, that is, commitment of the management team, effective adoption of the TQM approach, presence of external facilitators, communication to the whole organisation and adoption of simple software solutions.

Although shortcomings in the methodology of the study limit the generalisability of the findings, we believe our research provides a useful starting point for considering IMS implementation in SMEs.

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