

Identification of guidelines for Hoshin Kanri initiatives

Guidelines for
Hoshin Kanri
initiatives

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85

Received 31 March 2016
Revised 18 August 2016
30 September 2016
Accepted 11 October 2016

Abstract

Purpose – The purpose of this paper is to propose a set of guidelines to be used for diagnosing and (re) designing organizational systems based on Hoshin Kanri – a management framework that is recognized for building the link between strategy and business execution.

Design/methodology/approach – A two-step approach was used in this research work. A systematic literature review (SLR) was used to find relevant references related to Hoshin Kanri that could serve as sources for recommendations. After completing the SLR, content analysis was used to define the recommendations and analyze them, deriving a set of guidelines.

Findings – A collection of recurring topics was identified through content analysis. These topics can be interpreted as central aspects for Hoshin Kanri application. Topics were eventually categorized and one guideline was developed for each one of the categories, which resulted in a total of 23 guidelines. Guidelines were grouped in two dimensions (context and process) and also according to their central aspect (organizational culture, capabilities, focus, alignment, integration and review).

Originality/value – Although Hoshin Kanri has been widely applied in Japan and also in large companies over the past 50 years, it is not as widely explored in research papers as other frameworks. Literature often focuses on Hoshin Kanri only as a process and not as an organization-wide holistic system. There are few empirical studies about its conceptual assumptions and practical implications and no systematization of the main aspects that ensure the effective application of Hoshin Kanri in a universal manner.

Keywords Content analysis, Guidelines, Hoshin Kanri, Strategy deployment

Paper type Research paper

1. Introduction

It is not a novelty that companies struggle to link business strategy and business execution. Hoshin Kanri is a management framework that is recognized for building this link. It is grounded on the total quality management (TQM) movement, which started in Japan during the 1950s and 1960s, and it can be regarded as the natural evolution of the management by objectives approach, introduced by Peter Drucker in the beginning of the 1950s. Through the 1970s, Hoshin Kanri was already widely applied in the Japanese industries, and it quickly became one of the central features in Japanese management models. The approach was first introduced in the western world during the 1980s, in the period of transfer of management knowledge from Japan. Unfortunately, since that time, few western organizations seem to have fully understood and applied its principles, with only a few larger ones having implemented it successfully (Witcher and Chau, 2007).

Research in the performance management field (Neely, 2005) points out that current frameworks presented in the literature fail to align strategic priorities throughout the organization as well as to integrate them into the daily work of collaborators (Witcher and Chau, 2007). In that perspective, some authors suggest that many western companies might not put as much effort to the deployment of strategy as they put to the process of formulating the strategy (Witcher and Chau, 2007; Osada, 1998). Examination of the literature related to how companies manage through measures (Franco-Santos and Bourne, 2005) also highlights that the authors are stressing the need for vertical and horizontal alignment and strategy integration. Furthermore, some of the major obstacles for companies deploying and



International Journal of
Productivity and Performance
Management
Vol. 67 No. 1, 2018
pp. 85-110
© Emerald Publishing Limited
1741-0401
DOI 10.1108/IJPPM-03-2016-0071

implementing strategy are the inability to manage change effectively, the lack of accountability for actions and decisions, and the lack of a model to effectively guide strategy deployment and implementation efforts (Hrebiniak, 2006). These issues are precisely some of the major strengths of Hoshin Kanri, reinforcing the need to consider it not only within the context of TQM, but within the contexts of strategy deployment and strategic performance management field. There has been a resurgence of interest in Hoshin Kanri implementation among western strategic management practitioners, consultancy solution providers and academics (Witcher, 2014). For instance, Hoshin Kanri is being used for lean applications in healthcare (Babur *et al.*, 2016; Daultani *et al.*, 2015), education (Ahmed, 2016) and corporate social responsibility (Hosoda and Suzuki, 2015) and even for complementing benchmarking approaches (Pham Evans *et al.*, 2012).

It can be noted that although Hoshin Kanri has been widely applied in Japan and also in large companies over the past 50 years, it is not as widely explored in research papers as other frameworks. Hence, there are few empirical studies about its conceptual assumptions and practical implications. The literature often focuses only on Hoshin Kanri as a process. However, it should be also addressed in a broader perspective, as an organization-wide holistic system. Hence, for understanding what drives its effective application, aspects related to its context and structure must also be considered. Additionally, there is also a cultural challenge regarding its implementation across western companies, since it is a framework that was first conceived within the context of the Japanese culture. Also, the variety of Hoshin Kanri models and characteristics described in literature might cause confusion in practitioners involved with its application. All of this taken into account, it can be inferred that there is no systematization of the main aspects that ensure the effective application of Hoshin Kanri in a universal manner.

The question that arises is:

RQ1. What are the recommendations that could work as universally applicable guiding principles for Hoshin Kanri initiatives?

This work addresses this issue by proposing a set of guidelines to be used for diagnosing and (re)designing Hoshin Kanri initiatives and is organized as follows: the next section gives an overview of Hoshin Kanri, after which the main foundations applied in the study are presented. The research method adopted is then discussed and the set of guidelines created are presented. Finally, general conclusions are drawn for further development of the guidelines and their application as both design principles and diagnosis elements.

2. Background on Hoshin Kanri

The first text on Hoshin Kanri in English was edited by Yoji Akao (1991), describing it as a planning, implementation and review system for change management. Its most common translation is “policy deployment,” though a better interpretation could be “providing direction” or “direction management.” According to Tennant and Roberts (2001a), other translations are “policy management” and “management by policy.” Furthermore, many companies adopt other denominations for it, as part of an adaptation to its own organizational culture. In fact, this practice is very common amongst companies adopting concepts and practices of the acknowledged lean manufacturing or lean thinking model, several of which apply Hoshin Kanri (Sisson and Elshennawy, 2015; Jadhav *et al.*, 2014; Witcher, 2014; Hilton and Sohal, 2012; Jolayemi, 2008).

The literature offers different models to organize and describe the process undertaken in Hoshin Kanri. Lee and Dale (1998) provide a thorough examination on the evolution of Hoshin Kanri theory and the perspectives discussed by the authors until then. Some of the notable models are the ones given by Akao (1991), GOAL/QPC Research Committee (1994),

Lee and Dale (1999), Jackson (2006), Jolayemi (2009) and Liker and Convis (2012). Interestingly, Jackson's model for Hoshin Kanri places it not only as a framework of strategic management, but also for developing different layers of organizational capabilities, especially the capabilities required to achieve lean production. In this perspective, Hoshin Kanri can be positioned as a dynamic capability (Bessant and Francis, 1999; Anand *et al.*, 2009; Witcher *et al.*, 2008; Witcher and Chau, 2007, 2008), and is being widely used to develop lean implementation projects, such as in the health and other service-related sectors, and also to implement supply chain management practices (Rich and Hines, 1998).

A comprehensive review on Hoshin Kanri models, concepts and practices can be seen in the research work of Jolayemi (2008). This author also developed a comparison between two Hoshin Kanri's best practice models applied in Xerox and Hewlett-Packard (Jolayemi, 2009). Some authors combine Hoshin Kanri with balanced scorecard (BSC), such as Witcher and Chau (2007), Yang and Yeh (2009), Asan and Tanyaş (2007) and Yazdi and Mennatib (2011). Witcher (2014) describes a summary review on Hoshin Kanri and analyzes the perspective of its adaption to a more western style. The variety observed in Hoshin Kanri literature points to a lack of consensus about its structure and key guiding principles, which might cause confusion for those interested in its design, implementation, use and enhancement. Some of the main aspects observed in the Hoshin Kanri literature are discussed next.

The process of Hoshin Kanri is designed as an annual cycle that operationalizes the task of carrying out corporate strategic intents. It starts with the identification and selection of only a few vital strategic priorities to be achieved during the following year. The annual strategic priorities must be derived from medium-term breakthrough objectives, implying that the corporate strategic plan needs to be updated at every annual cycle – with a proper conduction of external and internal analyses. As the strategic priorities are objectives built to enhance performance, they are often stated as aspirational breakthrough objectives which are left open with respect to its implementation, but which must be quantified so that progress can be assessed at operational levels. Thus, each strategic priority is a set composed by a performance target and an action. This array is also referred to in the literature as a “policy” – and an annual strategic priority/objective is equal to an annual policy.

The next step in the process of Hoshin Kanri is carried out through the so-called “catchball” mechanism, which runs a cascaded deployment of the policies throughout each level and department of the corporation in a participative manner, aiming at fostering alignment, agreement and commitment. The term “catchball” is derived from a children's ballgame, as Tennant and Roberts (2001b) explain. In the context of Hoshin Kanri, the ball assumes the form of an idea, meaning that the central principle in “catchball” is that ideas must be thrown from person to person. The concept behind this is as follows: the manager shares his objectives with its subordinates. These objectives must be previously agreed between the manager and its superiors. Then, the subordinate team develops an action plan containing the specific objectives that need to be achieved so that the manager's objectives are achieved as well. Getting back to the central principle of “catchball,” the action plan is a proposition of ideas. This proposition is then passed on to the manager, who will check the proposition's effectiveness. If he does not agree, he will pass it back to the subordinate team, and then the process goes on until an agreement is reached. A further explanation of the “catchball” mechanism can be seen in other work (Tennant and Roberts, 2001b).

One may argue that in the Japanese style of Hoshin Kanri there is no need for catchball. The two-way communication provided by catchball is part of how they work, it is implicit in the Japanese culture. Catchball is a western term, and for Japanese, this process of

negotiation and prior consultation to achieve consensus and absence of conflict is known as “Nemawashi.” Nemawashi is an aspect that is present in a range of formal and informal habits in decision-making processes, which prepare the “roots” for sharing and discussing ideas and taking decisions.

According to Soltero (2007), policies must be cascaded vertically, from top management to the lowest hierarchical levels of the company, so much as horizontally across business functions. If applied appropriately, the catchball mechanism should prevent the cascaded deployment from being a strictly top-down approach. First, top management builds an action plan upon the annual vital few strategic policies. Every action is accompanied by a performance target, and the “sum of all targets” should be sufficient to achieve the targets of the original policies, in a relation of cause-and-effect. Some of the actions are susceptible to be deployed down to the next organizational level. Those actions, along with the targets, become then policies for the next level. Some actions are not deployable because of their nature – these are the ones that usually require certain levels of decision, negotiation and change that are inherent to the assignments of the current level. For instance, some high-level actions cannot be delegated to lower levels. These non-deployable actions should be carried out either by top management itself or by a specialized team under a strategic project structure. This concept of non-deployable actions, although implicit in Hoshin Kanri process, is rarely mentioned in the research literature, but it can be verified in some workbooks Campos (2004).

The next level builds an action plan upon the policies deployed to it by top management. Again, the “sum of all targets” of its action plan should be sufficient to the achievement of the targets of the precedent level. Some actions may be non-deployable, whereas the deployable ones become policies to the next level, so the cascading deployment goes on. As this process is repeated and the objectives are cascaded downwards in the organizational structure, they take the form of a balanced set of objectives, which are commonly referred to in the literature as QCDE objectives. QCDE is an acronym that stands for the following dimensions: quality, cost, delivery and education/employee. As some authors claim (Witcher and Chau, 2007), the QCDE dimensions are similar to the four perspectives of the BSC framework: financial, costumers, processes and learning. The concept behind the QCDE objectives implies that Hoshin Kanri, since its beginning, was addressing the need for a balanced set of objectives, the same need that boosted the performance measurement research field in the late 1980s.

During the “catchball” mechanism, a mutual debate is built at each level between managers and their work teams. This dialog may occur several times until they agree about which is the best feasible way to achieve the annual policies that was set by the precedent level. In other words, they decide the means required to achieve the targets. That is why an annual policy can also be referred to as an array of targets and means. It is alleged (Tennant and Roberts, 2001b) that this iterative mechanism, in which targets and plans are debated at each level and department until consensus is reached, is what ensures that the entire organization is aligned and committed toward the same strategic objectives. Hence, every manager and work team, at every hierarchical and functional level of the organization, should have an action plan which, in turn, must have a set of targets and actions to be accomplished.

Even though the research literature rarely mentions it explicitly, several practitioners in the USA regard the X Matrix as the main tool for aiding in the realization of the “catchball” mechanism. A full description of it can be seen in Jackson’s (2006) workbook. The recent work of Witcher (2014) also provides an explanation on this tool. An X Matrix is a chart or diagram, which is essentially a correlation matrix that establishes the relationship between targets and actions. The X Matrix and other formats of correlation matrices used in the process of cascading the policies are similar to the quality function deployment (QFD) technique, with the grading of strong, medium and week relationships between strategy and

processes and between goals and actions. Some authors actually address a combination of QFD and Hoshin Kanri to deploy strategic issues (Pun *et al.*, 2000; Walker, 2002; Yazdi and Mennatib, 2011).

The Hoshin Kanri process continues with the incorporation of objectives in daily work processes. Objectives stated in the action plans are integrated into daily management routines, so that they are continually subject to checks and actions. Thus, progress on objectives will be continuously monitored. As Hoshin Kanri was built in the context of TQM, the main approach considered for undertaking process management is the PDCA methodology. As it is often claimed (Witcher and Butterworth, 1997), what makes Hoshin Kanri different from other strategic management frameworks is the application of the PDCA management methodology throughout all levels and business functions of a company.

One aspect that is not clearly described in Hoshin Kanri research papers in general is that some objectives or action plans may assume the form of strategic projects. These objectives, hence, will be integrated into management routines in the form of projects, requiring a cross-functional team and project management organizational structure and capabilities for the project to be effectively carried out.

Some authors, though, emphasize the capability and conduction of cross-functional management as one of the main differentials of the Hoshin Kanri approach for carrying out the strategic issues of an organization, be it at the stage when managers are formulating the policies or during the coordination and improvement activities associated with achieving the goals (Tennant and Roberts, 2001a, b; Rich and Hines, 1998). As in the case of Witcher and Chau (2007), who address the QCDE framework in a way that could be interpreted as a starting point for the company to implement cross-functional management, especially when dealing with multi-business and/or multi-unit corporations, claiming that matrix management teams can be established and assigned for each dimension of QCDE, in order to manage one high-impact QCDE-related breakthrough objective each. Akao (1991) also stresses on how Hoshin Kanri provides a cross-managed bridge between cross-functional and daily management. This fashion of organizational structure crosses the boundaries of business functions, enabling an effective management of objectives that are, in essence, cross-functional, since they address issues that systemically interact with business processes, causing a global impact on business performance. Originally in Japan, especially at Toyota, cross-functional QCDEs were reviewed and managed by senior management committee. This management style is rare in the west, although sometimes board-level executives individually take responsibilities for particular Hoshins – the west top managers typically keep away from the operations, especially if compared to the Japanese ones.

As the policies are integrated into management routines, they should be constantly monitored; hence, performance reviews are undertaken systematically, on a regular basis, so that countermeasures are implemented whenever necessary. Performance reviews follow the opposite path undertook in the cascaded deployment of policies, i.e., they are carried out in a bottom-up approach, from the lower operational levels upwards to more strategic ones.

Following the Hoshin Kanri process in its annual cycle, a diagnosis must be carried out by top management. The diagnosis provided by Hoshin Kanri is a systematic review of how well the management is carried out for the achievement of strategic priorities (Tennant and Roberts, 2001b). The diagnosis is commonly referred to as top executive audit (TEA), as described by Witcher *et al.* (2006). According to these authors, the TEA works as a vehicle to stimulate mutual discussion between senior managers and those who implement the strategic annual policies in the work areas. It provides an interaction degree that routine meetings and reports fail to catch up.

In TEA, members of top management visit the work areas and talk directly to the collaborators. By doing this, the top management team gets a realistic and updated

understanding of the needs of the operational level. The idea is that the collaborators at the lower levels get an opportunity to reflect about how their daily actions impact the company's strategic purpose. Meanwhile, top management gets an opportunity to reflect about how strategic issues are being actually carried out throughout the organization. The great purpose is to enhance the ability of implementing Hoshin Kanri and to develop essential management capabilities among people in the organization.

3. Foundations for the analysis

The architecture of the guidelines was built upon two frameworks: one regarding the dimensions of the Hoshin Kanri process and the other regarding a holistic understanding of Hoshin Kanri conveyed through a concept map, each of which is presented and briefly discussed next.

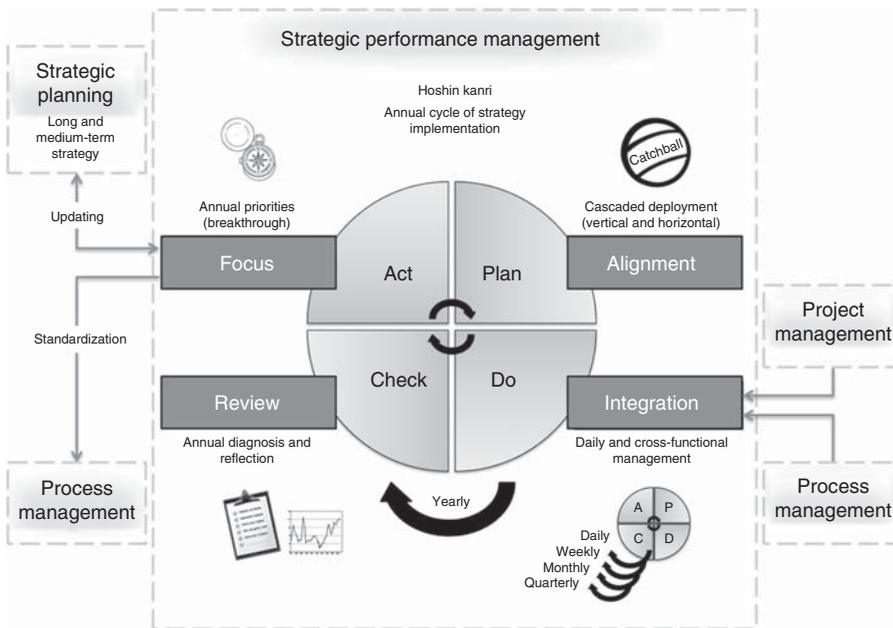
3.1 Dimensions of the Hoshin Kanri process

There have been some attempts to adapt Hoshin Kanri to the western management culture (Lee and Dale, 1998). Some of the models can be found in the works of Akao (1991), Calingo (1996), GOAL/QPC Research Committee (1994), Lee and Dale (1999), Witcher and Butterworth (1999, 2000), Tennant and Roberts (2001a), Witcher (2003), Jackson (2006), Asan and Tanyaş (2007), Yang and Su (2007), Yang and Yeh (2007, 2009), Jolayemi (2008, 2009), Yazdi and Mennatib (2011), Ćwiklicki and Obora (2011). The most relevant one, as is the most recurring, is the FAIR model developed by Witcher and Chau (2007). FAIR is an acronym that relates to the PDCA cycle: focus (act), alignment (plan), integration (do), and review (check):

- Focus: the first step involves the selection of a few vital strategic priorities for the year. These strategic priorities are innovative breakthrough changes required to accomplish the company's medium- and long-term objectives. They represent the corporate strategic direction and are also referred to as "Hoshins."
- Alignment: annual policies are developed and deployed both vertically and horizontally throughout the company by means of the catchball mechanism.
- Integration: the performance targets and action plans agreed by means of the catchball mechanism are then integrated into the work routine so that the progress on targets and plans are properly managed through the PDCA cycle.
- Review: the last step involves the conduction of an annual diagnosis by top management in order to check how the company is using Hoshin Kanri to manage its strategic objectives. Advanced applications of the annual audit, also referred to as TEA, can be thoroughly seen in the works of Witcher *et al.* (2006) and Witcher and Chau (2008). Following the analogous PDCA cycle, the annual diagnosis provides important insights that fuel the selection of strategic breakthrough priorities for the next annual cycle.

Further detail about Hoshin Kanri practices and the perspectives of different authors can be seen in Lee and Dale (1998). It is important, however, to explicitly define the scope for the Hoshin Kanri process in this work, which is illustrated in Figure 1, adapted from Witcher and Chau's (2007) FAIR model. Each one of the FAIR stages is illustrated with its main concept and the analogy with PDCA stages.

First, this work considers Hoshin Kanri as the annual cycle of strategy deployment and implementation. This definition separates the Hoshin Kanri process from the strategic planning process. Although Hoshin Kanri needs proper medium- and long-term strategic plans, it does not provide full details on how to define a strategy. Hoshin Kanri is not regarded as a strategy formulation framework, but as a framework that operationalizes strategy.



Source: Adapted from Witcher and Chau (2007)

Figure 1.
Hoshin Kanri process
scope adopted in this
work

Furthermore, Hoshin Kanri is also considered a strategic performance management system (SPMS). According to Folan *et al.* (2007), performance management is the management of the system established by an entity that has chosen a direction toward which it wants to progress, using a set of recognizable characteristics as measurement instruments to monitor and assess this progress. This definition encapsulates the concepts of performance measurement and performance assessment. While performance measurement and performance assessment occur in cycles, the performance management scenario evolves as the strategic objectives are assessed, updated or redesigned to meet the conditions of the future. One notion that is central in this definition is that knowing what to measure (performance measurement) is as much important as knowing how to assess (performance assessment) and use the measurement data to make better decisions (performance management).

Performance management systems have a life cycle composed by the following phases: design, implementation and use (Bourne *et al.*, 2000). The design phase stands for the formulation of the performance management system: the decision of what indicators should be used to monitor progress toward the corporate strategic direction. The implementation phase stands for how the act of measuring performance should be carried out and how the targets and metrics should be aligned throughout the corporation. The use phase stands for how to make better use of the measurement data in order to manage performance, and thereby, to make effective decisions. In that context, several authors have been addressing issues related to the design, the implementation or the use of performance management systems (Bourne *et al.*, 2000, 2005; Franco-Santos and Bourne, 2005; Neely, 2005; Nudurupati *et al.*, 2011). However, it should be remarked that, as it has been pointed out few years ago (Neely, 2005), performance management researchers and practitioners have been struggling to line up performance measurement to corporate strategy. What it seems to be lacking is precisely the link provided by Hoshin Kanri.

The adapted framework presented in Figure 1 also highlights some of the main interactions between Hoshin Kanri and other organizational systems. First, Hoshin Kanri interacts with the strategic planning system in a mutual feedback relationship. The strategic planning system provides the long- and medium-term strategy of the organization, from which the annual breakthrough priorities are derived. On the reverse way, an updating in the strategic plan may be driven by operational issues which were identified as important strategic inputs to be addressed in the medium and long-term strategy. Another way of viewing this interaction is that the “focus” stage can be perceived as a consolidation of both the closing of the current annual cycle and the beginning of the next. It provides operational feedback which will be consumed within internal vs external analysis in strategic planning, with the aid of techniques such as the SWOT analysis. The results of the strategic analysis may update the medium- and long-term strategy landscape, from which the next annual priorities will be selected.

Another important link is the one through which Hoshin Kanri issues go on to become process management issues. Through standardization, new strategic achievements become controlled processes, so that new performance thresholds accomplished during the current year are sustained in the future.

At the right side of the framework, Hoshin Kanri is deeply associated with process and project management systems, because the “integration” stage of Hoshin Kanri triggers the necessity of carrying out the strategic objectives by effective process and project management systems.

These interactions imply that if a company enhances its capabilities of strategic planning, process management and project management, the application of Hoshin Kanri will benefit. These strong connections also provide a picture from which it can be inferred that Hoshin Kanri might not have been perceived as a discrete, punctual approach by many practitioners during the transfer of Japanese management models, such as TQM and lean, to the western world – which could help explaining why Hoshin Kanri was not given as much attention as other approaches.

3.2 Holistic understanding of Hoshin Kanri

Besides considering Hoshin Kanri as a SPMS, this work also considers it as a SPMS architecture in a manner that the framework is regarded not only through its implementation process, but also through an holistic perspective, based on Pettigrew’s (1987) framework. This framework shows the factors that should be taken into account during a change management process and contains three basic components: context, process and outcome. The logic behind the adoption of this framework for analyzing a SPMS can be further observed in the work of Franco-Santos and Bourne (2005).

The first component, the context, involves the identification of the contextual factors that influence or are being influenced by the process or system under examination. These factors may be external or internal, and this work focuses on the latter, since they constitute the field of action for managers, such as factors like leadership, management style and other systems or processes bordering Hoshin Kanri. The process component involves the exploration of the process itself, which is seen as the sequence of actions and events undertaken by the people and resources involved. This process has design, implementation and use stages based on the framework provided by Bourne *et al.* (2000), and constitutes how the system or process under examination is carried out. The outcome component involves the study of the end results of the process or system under investigation. This component was not regarded, since the guidelines actually relate to elements that are required to produce effective outcomes.

The main idea behind Pettigrew’s framework is that organizational change processes can be better understood using a holistic approach. Based on this premise, a SPMS cannot be fully understood using a narrow analysis perspective that only focuses on its process.

Instead, research on this type of system should use a broader perspective (Franco-Santos and Bourne, 2005). Hence, Hoshin Kanri was analyzed by means of context and process components. A third component was also considered, as a variation of Pettigrew's outcome component, based on a broader work regarding enterprise engineering guidelines (Deschamps *et al.*, 2013). This component is structure, which is considered here as the infrastructure and tangible technologies that enable the system or process to be performed. These could include organizational structure, information systems and other elements. The holistic understanding of Hoshin Kanri according to these components is illustrated in Figure 2.

The inter-associations among these three components can be interpreted as follows. Both context and structure exert influence upon how the process is performed – they are not exclusively or strictly linked to the process under examination, but are also related to other processes and systems of the organization. Hence, organizational structure, for instance, is not an element that serves exclusively to the process of Hoshin Kanri, but it could affect how Hoshin Kanri is performed. The context-related elements are the other management systems that interact with Hoshin Kanri. The relationships between Hoshin Kanri and strategic planning, as well as project management, TQM and lean were mentioned earlier in this paper. Other systems illustrated are budget planning and incentives or appraisals, since these are elements that could exert influence in the design of performance targets, for instance. The structure-related elements comprise organizational structure, information systems, technological resources and information structure. The latter is related, for instance, to a sense of metadata, such as how management reports, forms and data sheets are structured.

The process-related elements are the design, implementation and use stages from the performance management literature. These three elements are interassociated, since each stage informs the subsequent. The interassociation between use and design was not made explicit through an arc in order to achieve a clean network view, but they are also linked as the use stage provides feedback to the design stage. What is worth noting is that Hoshin Kanri's "focus," "alignment," "integration" and "review" phases can be interpreted as a variation of the performance management literature's design, implementation and use stages.

Within the Hoshin Kanri process, the "design" of performance targets and objectives is a result of the "focus" and the "alignment" phases, and it is complete by the end of the catchball mechanism. Catchball is also an approach that starts the "implementation" of performance targets and objectives, by aligning all levels and departments of the corporation. "Implementation," on the other hand, is complete with the "integration" of progress monitoring within routine actions of process and project management. In its turn, the "integration" phase also comprises the "use" of performance data to drive actions, as it runs a PDCA-based approach that drives performance improvement. Finally, "use" is complete with the conduction of the annual diagnosis and reflection, which provides feedback for the next

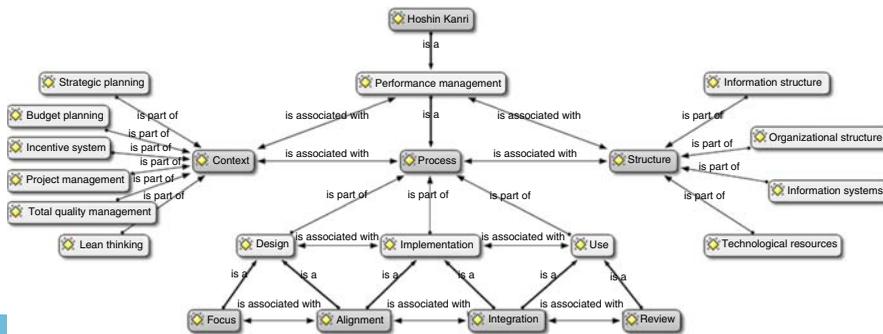


Figure 2. Network view of a holistic understanding of Hoshin Kanri as a SPMS architecture

annual cycle and drive major changes in corporate strategy. The fact that Hoshin Kanri's FAIR model can be interpreted in this manner as a variation of the performance management literature's stages of design, implementation and use phases reinforces and confirms Hoshin Kanri as a SPMS architecture.

4. Research design

This work applied a systematic literature review (SLR) for finding relevant works related to Hoshin Kanri that could serve as the sources for recommendations and content analysis to determine these recommendations and analyze them, deriving the model for the guidelines.

The first step conducted was the SLR through a search for Hoshin Kanri-related papers within reference databases published until 2014. As Hoshin Kanri often assumes different denominations in literature and practice, three variations were applied as search terms: "Hoshin," "Policy Deployment" and a combination of "Hoshin" and "Policy" within the search fields of the reference databases. The term Hoshin was applied alone because it might assume, besides the official "Hoshin Kanri" denomination, variations such as "Hoshin Planning" or "Hoshin Management." "Policy Deployment" was also used alone, since it is the most common western translation to Hoshin Kanri. For the combination of "Hoshin" and "Policy," the following logic was applied: "Policy" was used in the title, keywords or abstract search fields and "Hoshin" in all other fields. Consulted reference databases comprised Emerald, Science Direct, Scopus, EBSCO Host (Academic Search Premier), Taylor and Francis and Web of Knowledge.

The resulting papers from this search were analyzed and either classified as "primary papers," that directly address Hoshin Kanri, or "secondary papers," that address Hoshin Kanri in an indirect manner, focusing on other systems, such as TQM and continuous improvement. Eventually, 36 papers were classified as "primary papers." From this primary set, half of the papers can be classified as a conceptual description or literature review. Figure 3 shows the publication profile of these papers per year (only the years in which at least one paper was published are shown). The most recurring authors are B. Witcher, with ten publications and C. Tennant, with five publications. Primary papers are distributed over a diverse set of journals, the most recurring ones being related to TQM, as can be seen in Table I.

The second step conducted was the derivation of guidelines through content analysis. Content analysis was chosen due to the fact that the universe of scientific Hoshin Kanri

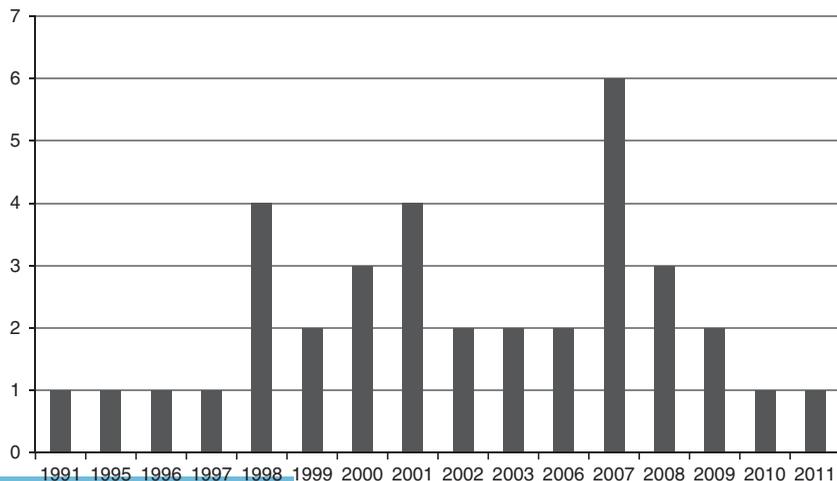


Figure 3.
Hoshin Kanri
publications per year

Journal	Number of publications
<i>Total Quality Management</i>	4
<i>Total Quality Management Business Excellence</i>	4
<i>Management & Production (Brazil)</i>	2
<i>The TQM Magazine</i>	2
<i>Managerial Auditing Journal</i>	2
<i>Long Range Planning</i>	2
<i>Management Decision</i>	2
<i>Journal of General Management</i>	1
<i>Strategic Change</i>	1
<i>Production Planning & Control</i>	1
<i>Journal of Management Studies</i>	1
<i>Handbook of Business Strategy</i>	1
<i>Journal of Manufacturing Technology Management</i>	1
<i>International Journal of Quality & Reliability Management</i>	1
<i>Knowledge and Process Management</i>	1
<i>Quality Assurance</i>	1
<i>Environmental Quality Management</i>	1
<i>Team Performance Management</i>	1
<i>Business, Management and Education</i>	1
<i>Hospital Topics</i>	1
<i>Employment Relations Today</i>	1
<i>International Journal of Operations & Production Management</i>	1
<i>Measuring Business Excellence</i>	1
<i>Journal of Management & Marketing in Healthcare</i>	1
<i>National Productivity Review</i>	1

Table I.
Hoshin Kanri
publications
per journal

publications is not extensive, and a systematic procedure for analyzing and synthesizing the literature was needed for the guidelines to be robust. The content analysis research technique is systematic in the sense that all relevant aspects are objectively considered from the sample (according to clearly defined criteria), rather than arbitrarily selected to be widespread.

The analysis was conducted with the aid of a qualitative data analysis (QDA) tool. A major advantage of conducting content analysis with a computational tool is the attainment of traceability of data studied. This gives flexibility for the research team to incorporate new perspectives into the analysis frame, allowing data that had already been manipulated to be analyzed in a different manner if necessary. This iterative process provides a robust foundation for the process of synthesizing information. Also, the results of the analysis can be easily traced back to its original sources, which is an aspect that gives credibility to the study results.

Coding is the basis of the whole analysis. It refers to the process of assigning categories, concepts, dimensions, viewpoints or any kind of label to segments of information that are of interest to the research project objectives. Every coded segment is treated as a quotation. Each quotation can be associated to as much different codes as needed. By default, the software calculates two metrics for every code assigned in the hermeneutic unit: "groundedness," which indicates how often a particular code has been applied; and "density," which refers to the number of linkages between a particular code and the others. The next sections present the procedure used for content analysis, also illustrated in Figure 4. The description of the process is organized through Bourne *et al.*'s (2000) design, implementation and use framework, which enables a proper comprehension of the process as a whole. The design phase corresponds to the task of preparing the ground for the analysis, the implementation phase is related to the conduction of the analysis itself and the use phase involves the actual use of generated data – in other words, it is the phase where data are synthesized.

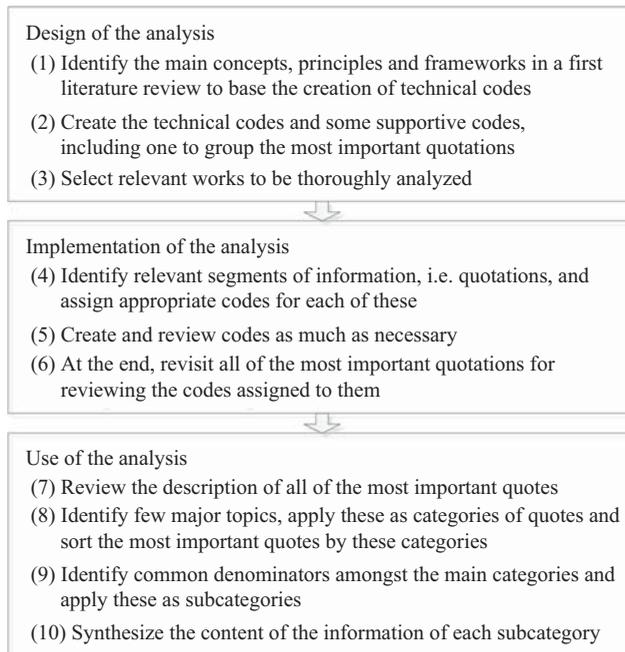


Figure 4.
The ten-step
procedure for
conducting content
analysis adopted
in this work

4.1 Design of the analysis

A preliminary literature review was undertaken that allowed the identification of the main concepts and frameworks related to Hoshin Kanri, resulting in the two main frameworks presented in Figures 1 and 2.

Based on the concepts and frameworks identified, a set of codes was designed to be considered in the content analysis. Codes comprised, among others, Hoshin Kanri's process stages, its methods and concepts, as well as issues related to its application context and structure. The network map presented in Figure 2 was actually built with the main codes designed in the QDA software. All concepts presented in this figure were used as codes in the analysis. However, dozens of other codes were applied as well. Some codes were designed with a supportive function, since they would help classify information during the analysis. For example, the "possible guideline" code was designed to group all segments of information that could represent a possible guideline for applying Hoshin Kanri.

Primary papers resulting from the SLR were prioritized based on their objective, source of publication and research method. Higher priority was given to highly referenced journals and articles containing empirical evidence about Hoshin Kanri application. This was done to establish an order in which papers would be analyzed. Altogether, these first steps can be understood as a pre-analysis phase, which sets the ground for the subsequent systematic analysis and interpretation of results.

4.2 Implementation of the analysis

Articles were read and scrutinized, identifying relevant quotations and assigning them appropriate codes. A relevant quotation would contain a segment of information related to a recommendation, a key element or a principle that could lead to the derivation of a guideline. Quotations could be derived from the synthesis of the literature review of the work, from the

results of the work or from its conclusions. Various codes could be assigned to each quotation to create better information traceability.

As readings proceeded, new codes were generated and used in an iterative process of constant review of quotations and codes. In a certain point of the content analysis, the amount of codes reached a high value, which led to the creation of code families. The latter enabled arranging the codes in a manner that they could be quickly accessed within the QDA software during analysis.

Each quotation was revisited for a check on the codes assigned to it. This was necessary to level the analysis and ensure consistency, since new codes had been created throughout the reading process. At this point, 79 quotations were identified as possible guidelines.

4.3 Use of the analysis

To better handle the generated data, a mind-mapping software was applied to help organize and reorganize information. All possible guidelines were copied to this software and a review of their description was performed to ensure that they were meaningful and described in the form of statements. This procedure did not change the meaning of the original quotations.

After reviewing their description, all possible guidelines were labeled with their respective authors and sorted by category. The selection of applicable categories took into account the most frequent codes assigned to the original quotations. Since the Hoshin Kanri FAIR process phases of focus, alignment, integration and review have been identified as a common pattern, along with context and structure components of Figure 2, these were applied as the main categories for guidelines.

Each category was then thoroughly analyzed, leading to the identification of several common topics (or underlying common denominators) among the statements sorted in each category. Statements with common topics were then grouped in subcategories.

Eventually, almost all subcategories had statements from different authors explicitly addressing the same topics, demonstrating agreement. All topics agreed by more than one author were converted into a guideline by writing a complete and meaningful recommendation based on the authors' statements. Only a few subcategories had statements from only one author. However, some of these appear to be a consensus in the literature, because it can be argued that their ideas are consistent with others authors' ideas. Thus, these particular topics were also converted into guidelines – future iterations of content analysis, with the inclusion of new articles, could be used for a further verification of such ideas, once the QDA software provides a structure that allows reusing and updating the analysis. Moreover, two particular topics identified during the coding process had no explicit statements among the possible guidelines quotations, but as their ideas seem to be implicit in the literature (the ideas are present but are not explored in detail), two guidelines were suggested for these topics. Finally, topics that could not be interpreted as a consensus in the literature were classified as a “need further investigation” topic, and were not converted into guidelines. These particular issues to be further investigated are analyzed in the discussion section.

In order to provide a better understanding and exemplify the procedure of translating a set of original statements into a guideline, an example is provided in the Figure 5. It is derived from a screenshot of the mind-mapping software used for organizing the possible guidelines, and shows the categories of guidelines, the particular subcategories identified as common topics for the “focus” category and the quotations/statements classified within the ANNUAL POLICIES subcategory. For this particular case, several statements from different authors were found in the literature regarding the importance and characteristics of designing few vital annual policies for the annual cycle of strategy. On that account, a single and full recommendation was developed as a synthesis of the

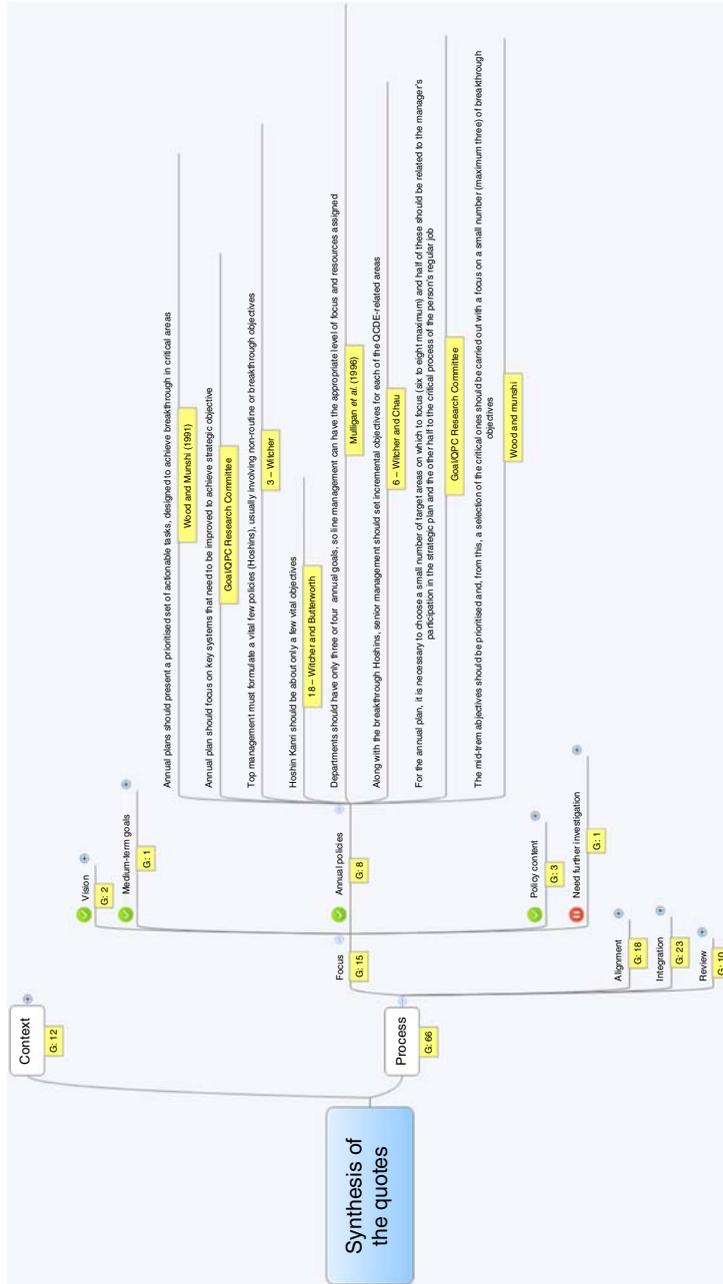


Figure 5.
Example of synthesis
of guidelines from
quotations

several statements extracted from the content analysis, as it follows: “Annual policies should be focused only on a few vital Hoshins, designed to achieve breakthrough in critical areas of the business, alongside with a small set of incremental objectives related to daily processes.” This full recommendation statement is actually the guideline generated for the topic annual policies. The same procedure was applied for all categories and topics identified and organized in the content analysis procedure. It is not the aim of this work to present all of the original 79 quotations that generated the guidelines for Hoshin Kanri, which are presented in the next section. The important point is the procedure that led to the development of the guidelines.

5. Findings

Guidelines resulting from the application of the procedure depicted in Figure 4 were grouped in two major dimensions: context and process. Although structure was a dimension to be initially considered, no guidelines were attributed to it, as will be explained shortly. Additionally, guidelines were also grouped according to their subcategories, as described in Step 10 of the procedure. A collection of recurring topics presented by the authors was identified for each subcategory of guidelines. These topics can be interpreted as central aspects for Hoshin Kanri applications. Eventually, one guideline was developed for each one of these subcategories, which resulted in a total of 23 guidelines.

Tables II and III present the resulting guidelines, with their central aspects and the main references in which they were based for the content and process dimensions, respectively. As mentioned earlier, two central aspects had no explicit statements among the quotations, but as they seem to be implicit in the literature, a guideline was composed for each of them, inspired by some references.

As mentioned earlier, no guideline was specifically derived for the structure dimension. This result can be interpreted in two ways. First, many structure-related components are intrinsically connected to context and process-related components, and a double categorization would not be useful for the practical purposes. For example, Guideline No. 11 addresses features that are related to the information structure of annual policies, but while this guideline could be classified as a structure-related guideline, it is also a guideline strongly related to the process. Second, there were no recommendations regarding features that are associated to the company's infrastructure, such as its information systems or its formal organizational structure design. Features like these can be perceived as components that are designed according to the company's internal and external context. For example, organizational structure design is a feature that is strongly associated with the size of the company. That way, it can be interpreted that a recommendation for these kinds of infrastructural components would be unlikeable to work as a guiding principle in a universal manner.

5.1 Context-related guidelines

A total of seven guidelines related to the “context” dimension were derived. The guidelines are classified by the use of two categories identified as major topics associated with the context factors of a Hoshin Kanri system.

The first category, “organizational culture,” refers to aspects that are among the set of philosophies, guiding principles, beliefs and values disseminated throughout the corporation (Schein, 2004). These can be understood as aspects that shape behaviors and habits of people in the corporation. Although these aspects are commonly disseminated through explicit and formal ways, they can be regarded as pieces of tacit knowledge which are deeply rooted in the corporation and might even be verified in a range of informal habits.

The second category refers to aspects related to organizational “capabilities,” i.e. the set of knowledge, skills, abilities, capacities and/or competencies of individuals and teams

No.	Central aspect	Context-related Hoshin Kanri guidelines	References
<i>Organizational culture</i>			
1	Management approach centered in the continuous improvement of business processes	A continuous improvement philosophy (Kaizen), alongside with an organization-wide process-based management approach is central. The organization must be familiar to PDCA, TQM and/or Lean ways of working	Lee and Dale (1998), Witcher and Butterworth (2001)
2	Active involvement of leadership	There must be an active involvement of leadership at all levels of the organization in order to foster alignment and commitment to strategic objectives and to ensure the effective use of Hoshin Kanri	Kondo (1998), Witcher (2003)
3	Decisions based on the Nemawashi philosophy	Decisions in Hoshin Kanri should be underpinned by the Nemawashi philosophy, which stands for consensus building by means of a process for sharing ideas, coupled with the benefits of group analysis and agreement	Lee and Dale (1998), Tennant and Roberts (2001b), Witcher (2003)
<i>Capabilities</i>			
4	Quality management capabilities	Individuals and teams must be empowered through an ability to use the PDCA methodology, quality tools, team working and problem-solving techniques	Lee and Dale (1998), Witcher <i>et al.</i> (2008), Witcher (2003)
5	Ability to apply matrix management	An ability to apply matrix management forms of organizing work is recommended to effectively combine departmental and cross-functional management	Inspired by Campos (2004), Jackson (2006), Witcher (2003)
6	Project management capabilities	A capability to form cross-functional problem-solving teams and manage projects is recommended to effectively carry out complex and/or organization-wide strategic issues	Inspired by Jackson (2006), Witcher (2003)
7	Administration and continuous improvement of Hoshin Kanri itself	Hoshin Kanri must be constantly managed and continually improved by top management, like any cross-functional process	Witcher <i>et al.</i> (2006), Witcher (2003)

Table II.
Central aspects of context-related Hoshin Kanri guidelines

of the corporation. Actually, Hoshin Kanri itself can be framed as a capability – the capability through which the organization implements its strategy purpose and manages the development of organizational capabilities. It is actually considered as a high-order dynamic capability, within which a set of lower order capabilities is nested (Witcher and Chau, 2007), in such a manner that will be further explained in this work.

While “capabilities” are mostly associated to technical and managerial abilities of individuals and teams which enable them to perform the organizational processes, the “organizational culture” is more associated with people’s attitudes and a sense of purpose in their actions and decisions. The full statement of each guideline is presented in Table II, together with their central aspects and the references they were based on.

5.2 Process-related guidelines

A total of 16 guidelines related to the “process” dimension were derived. The guidelines are classified by four categories identified as major topics associated with the process of Hoshin Kanri based on Witcher and Chau’s (2007) FAIR model. A thorough explanation of each category can be seen in the previous sections of this work paper or in other works (Witcher and Butterworth, 2001; Witcher, 2003).

No.	Central aspect	Process-related Hoshin Kanri guidelines	References
<i>Focus</i>			
8	A vision that is challenging and relevant to all collaborators	There must be a challenging and customer-focused vision, which is relevant to people at all levels and departments, and appropriate for the next five to ten years	Lee and Dale (1998), Roberts and Tennant (2003)
9	Medium-term goals designed to encourage innovation	The vision must be translated into medium-term goals required for the next three to five years. Their design must be framed to encourage innovative and creative thinking in the task of electing, every year, the vital improvements required by the business	Jolayemi (2008), Lee and Dale (1998), Witcher and Chau (2007)
10	Annual policies focused only on a few breakthrough objectives along with incremental objectives	Annual policies should be focused only on a few vital Hoshins, designed to achieve breakthrough in critical areas of the business, alongside with a small set of incremental objectives related to daily processes	GOAL/QPC Research Committee (1994), Jolayemi (2008), Witcher and Butterworth (2001), Witcher <i>et al.</i> (2008), Witcher (2003), Wood and Munshi (1991)
11	An appropriate design of policies: meaningful, challenging and balanced	Both annual Hoshins and incremental objectives must be meaningful and challenging to people at all levels and departments of the organization. Their design should include a balanced set of targets, usually expressed across the whole organization in the common language of QCDE dimensions (quality, cost, delivery and education)	Witcher and Butterworth (2001), Witcher <i>et al.</i> (2008)
<i>Alignment</i>			
12	Organization-wide participation in policy planning	Everyone in the organization, at all levels and departments, should be involved in the planning of the annual policies to ensure buy-in to the overall Hoshin Kanri process	GOAL/QPC Research Committee (1994), Lee and Dale (1998), Tennant and Roberts (2001b), Witcher (2003)
13	Cascaded deployment of the policies through catchball	Each policy must be cascaded vertically and/or horizontally through the organization, as appropriate, by means of the catchball process, in a way that subordinate teams participate in setting the targets and means, rather than acquiesce to a higher-level order	Lee and Dale (1998), Tennant and Roberts (2001b), Witcher (2002), Witcher (2003)
14	Catchball applied as an iterative process of consensus building	Catchball must be carried out as an iterative process of debating plans and targets at each level and/or department until consensus is reached in a manner that both parties agree that this is the best way to accomplish the corresponding policy	Lee and Dale (1998), Tennant and Roberts (2001b), Witcher (2003)
15	Planning based on causes analysis	Decision on targets and means for accomplishing policy must be based on in-depth cause-and-effect analysis, along with adherence to the Pareto principle to ensure that changes significantly impact original policy	GOAL/QPC Research Committee (1994), Witcher (2002), Witcher (2003)
<i>Integration</i>			
16	Incorporation of the policies into daily management	Hoshins and incremental objectives must be integrated in daily management routines of business processes and/or alongside as projects, as appropriate, in ways that make them subject to checks and action	Jolayemi (2008), Witcher <i>et al.</i> (2008), Witcher (2003)

(continued)

Table III.
Central aspects of
process-related Hoshin
Kanri guidelines

No.	Central aspect	Process-related Hoshin Kanri guidelines	References
17	Responsibility based on the task's scope, rather than strictly tied to a functional area	Ownership should be organized around the nature of the task being tackled. Thus, organization-wide (cross-functional) objectives should be addressed and reviewed by cross-functional management teams, while responsibility for local (functional) objectives should be taken by departmental management teams	Witcher and Butterworth (2001), Witcher (2002, 2003)
18	Self-monitoring of targets within daily management	Business processes and projects must be under control within daily management routine, by using a PDCA-based management approach, where progress on targets is constantly self-monitored, deviations are identified and improvement actions are implemented based on problem-solving principles	Lee and Dale (1998), Witcher and Butterworth (2001), Witcher (2003)
19	Periodic reports on performance	Implementation teams within business processes and projects must report performance data in periodic review meetings conducted by target-related owner and/or manager on a daily, weekly, and/or monthly and quarterly basis, as appropriate. Reports on performance data must be prepared in advance with adherence to PDCA and problem-solving principles, in a way that review meetings work as a process-focused investigation forum	Jolayemi (2008), Tennant and Roberts (2001a), Witcher and Chau (2007)
20	Managers' engagement	Managers or individuals who have ownership of objectives, plans and projects must commit to policy-related appointments, ensuring that systematic review takes place, and that it is conducted properly with its follow-up action successfully closed	Witcher (2002)
21	Visible management	Key policy-related data must be systematically collected and displayed in a highly visible manner on the shop floor, so that managers can understand what is happening in the policy-related process and project at any moment	Lee and Dale (1998), Tennant and Roberts (2001b), Witcher and Butterworth (2001)
<i>Review</i>			
22	An annual diagnosis from top management focused on checking how the management of strategic issues is carried out in the work areas	An annual review should be conducted with an active involvement of top-level management in the work areas to check the organization's effectiveness in managing and achieving its Hoshins and incremental objectives. The purpose should not be so much about reviewing strategy as to understand the nature of how management is carried out, including the management of Hoshin Kanri process itself	Kondo (1998), Lee and Dale (1998), Tennant and Roberts (2001a), Witcher and Butterworth (2001), Witcher <i>et al.</i> (2008)
23	An appropriate conduction of the annual diagnosis: stimulating dialog with people at all levels in order to potentiate operations capabilities	Top executive audits must be conducted in ways that stimulate mutual discussion between senior managers and the people who implement the goals at an operational level. The nature of discussion should not be so much about taking corrective action as how to improve operations capabilities in carrying out the strategic objective of the organization. A recognized model for business excellence is recommended to serve as a basis for the audit process, enabling top managers with a tool for institutionalizing best practices	Kondo (1998), Lee and Dale (1998), Tennant and Roberts (2001b), Witcher <i>et al.</i> (2008)

Table III.

6. Implications

The approach of this work has several possible applications, for both research and practice communities. First, the guidelines model can be applied in a variety of ways, both for practical purposes and for research purposes. Second, the framing of Hoshin Kanri as a performance management system provides a broader perspective for understanding its assumptions and applications, which can also be extended to an interpretation of Hoshin Kanri as a high-order dynamic capability. This broader view highlights the importance and the usefulness of the guidelines model, especially because the model has the potential to support the design and the enhancement of Hoshin Kanri, thus the design and enhancement of a fundamental high-order dynamic capability.

Regarding their application, guidelines could be used as the basis for designing, diagnosing and redesigning management systems that are better aligned with Hoshin Kanri principles. For instance, consider the process-oriented guidelines in Table III. Management processes of an organization could: already be designed according to these guidelines from the beginning, if an organization is starting to use Hoshin Kanri; be audited or diagnosed to ensure that they comply to these guidelines; and in case of non-compliance, be redesigned to make the management system more consistent with Hoshin Kanri principles. The use of the guidelines for design initiatives would decrease the time needed for the implementation of management systems that respect Hoshin Kanri principles, whereas their use as a diagnosis and redesign tool would assist them in identifying and implementing improvement opportunities. Guidelines, in this sense, could be considered a systemic framework that helps dealing with organizational complexity, as discussed by Bernus *et al.* (2016).

As for the development of research in the area, guidelines could be used as a high-level framework to identify and organize actual management practices that contribute to the implementation of Hoshin Kanri in organizations of different sizes, locations and industries, among other factors. This could lead to: the development of a more structured design and diagnosis tool coupled with a practice-oriented knowledge base that would assist organizations in holistically assessing their management systems and selecting best practices for Hoshin Kanri implementation; the establishment of a maturity model that could help organizations gradually implement Hoshin Kanri, in a progressive and modular approach, suited to the particularities of each organization; and the understanding of differences and similarities in the implementation of Hoshin Kanri among organizations in general, and, in particular, in organizations that collaborate, helping them achieve more interoperable management systems through a shared understanding of how they function, a challenge discussed by Panetto *et al.* (2016).

Regarding the framing of Hoshin Kanri as a dynamic capability, this is thoroughly explained in Witcher and Chau (2007) and is supported by Jackson (2006). As the former authors discuss, the concept of core competence is described by Prahalad and Hamel (1990) as an ability to integrate different technologies through cross-functional management and collaborative working. Though, while Prahalad and Hamel do not explain how this cross-functional integration is conducted, Hoshin Kanri does. In this sense, Hoshin Kanri has the ability to manage the development of core competences. As Witcher and Chau continue to explain, a dynamic capability is defined by Eisenhardt and Martin (2000) as any cross-functional routine used to reconfigure combinations of strategic resources as circumstances change. Hence, Hoshin Kanri is a dynamic capability. Moreover, the authors illustrate, based on Teece *et al.* (1997), that while the Toyota Production System (TPS) is an advanced application of lean that constitutes a high-order dynamic capability, it is not the only dynamic capability of Toyota. Hoshin Kanri is another dynamic capability, which in turn is used to manage and integrate not only the TPS itself, but also other essential dynamic capabilities, such as supply chain integration. This is supported by Rich and Hines (1998), within the context of supply chain integration. They go on to conclude, founded on

Winter (2003), that Hoshin Kanri is a dynamic capability of higher order, within which dynamic capabilities of lower order are nested.

Even though Hoshin Kanri is addressed, in this work, in the context of performance management, it is not the intention to consider it as a framework that solves all performance management issues. For instance, Hoshin Kari does not provide full detail about how a performance measure should be structured. A combined use of Hoshin Kanri with other performance management elements or frameworks is welcome, and this work agrees with the understanding that the combination of Hoshin Kanri and BSC has the potential to enhance the management of corporate strategic fit, as noted by other authors (Witcher and Chau, 2007; Yang and Yeh, 2009). In fact, the BSC itself has evolved to incorporate the “catchball” mechanism and other concepts of Hoshin Kanri. In the case of a combined use of Hoshin Kanri and the BSC, the BSC is often considered as an adequate framework to design performance measures at the top level and very successful in translating and communicating the strategy, especially by the use of its strategy maps with cause-and-effect relationships among objectives distributed through its perspectives.

Nevertheless, Hoshin Kanri also provides tools for translating the strategy in a visual manner. It does so through the “catchball” mechanism, which may be supported by the use of correlation matrices to cascade the strategies in a way that sets up the cause-and-effect relationships between strategies and plans and between targets and actions. On that same account, Hoshin Kanri is deeply grounded on visible management, as addressed in Guideline No. 21, and the use of the “catchball” mechanism supported by correlation matrices is a starting point for translating and communicating the strategy at the more operational levels.

Irrespective of these comparisons, the combination of Hoshin Kari and the BSC can be seen in the perspective of their cultural differences. While the western culture, represented by the BSC, is centered on the selection and monitoring of the right measures to drive strategic change, the oriental culture, represented by Hoshin Kanri, is more focused on the capabilities required to provide change.

Also, as Witcher and Butterworth (2001) point out, the quality revolution has enlightened the perception that progress should not be assessed only by organizational performance, but also by how the performance is achieved, which is precisely the perspective in which Hoshin Kanri works. Thus, as these authors reinforce, Hoshin Kanri is more about the “how” of strategy than it is about the “content,” though we could assume that the management of strategy execution has a great potential to fuel strategic choice in ways that may enhance the strategy content as well.

7. Conclusions

The main objective of this work was to systematize the main aspects that ensure the effective application of Hoshin Kanri. This was accomplished with the presentation and discussion of 23 guidelines for applying Hoshin Kanri. These guidelines address the issues related to the context and the process of Hoshin Kanri. The former comprises issues related to the organizational culture and the capabilities of the company, while the latter comprises the issues related to providing the strategic focus, aligning strategic priorities throughout the corporation, integrating the strategic priorities into management routines, and providing a diagnosis of how people are managing the achievement of the strategic priorities in the work areas of the Hoshin Kanri process.

Guidelines for the organizational culture comprise continuous improvement culture, leadership's active involvement and Nemawashi. For an organization to succeed in its Hoshin Kanri initiative, it has to prepare the “roots” by developing a continuous improvement philosophy. Management approaches such as TQM, lean production, Six Sigma and Kaizen may be useful in this context. The active involvement of leadership is fundamental if a company wants to accomplish effective organizational change with Hoshin Kanri. Also, with Nemawashi in place, the leaders develop a proper basis for reaching effective participation, commitment and

ownership onto the strategy. The context for an effective Hoshin Kanri initiative also comprises the development of an array of capabilities. Individuals and teams must be empowered with the capabilities to manage their action plans within daily operations through the use of PDCA, quality tools, team working and problem-solving techniques. The capability to combine departmental and cross-functional management, including the use of cross-functional teams and project management skills is required to effectively carry out complex and/or organization-wide strategic issues. Hoshin Kanri itself is a cross-functional capability that should be managed and continuously improved throughout the organization. The focus-related guidelines comprise aspects and characteristics related to the design of a long-term vision, a set of medium-term goals and a small set of high-level Hoshins (strategic annual priorities). The annual policies should be focused on only a few vital breakthrough priorities to be achieved during the Hoshin Kanri yearly cycle, along with incremental improvement objectives aimed at sustaining the performance of important daily processes. The annual policies should take into account a balanced (varied) set of performance dimensions, which may be expressed in the language of QCDE or a variation of that. The notion of organization-wide participation in policy planning implies that every levels and departments should be involved to ensure buy-in, understanding and ownership onto the policies. Catchball plays a fundamental role on that perspective. Also, an in-depth cause-and-effect analysis should be the basis for an effective planning process. Context-related guidelines such as the ones related to Leadership, Nemawashi and quality management capabilities are intrinsically associated to the whole process of deploying and aligning the strategic priorities throughout the organization's levels and departments. The policy-related work must be incorporated into daily operations so that it is properly managed. A cross-functional mindset is required along with the sense of ownership (responsibility) over policy-related work. Teams and individuals should be empowered to self-monitor their performance targets within daily work. A system of multi-layered and periodic reports on performance is also fundamental for an effective management of policy-related work. The method to conduct performance reviews should not be neglected. Visual management was also identified as an essential feature for effectively tracking the progress on policies. Closing the Hoshin Kanri guidelines, a proper diagnosis procedure to be conducted by top managers is recommended with aim to checking management capabilities and difficulties in the real context of work areas and to stimulate dialog with people at the operational levels.

Guidelines were derived from the literature by a systematic review supported by the use of content analysis techniques with aid of a QDA tool. As a result of this process, a methodological contribution was also proposed: a framework for conducting the content analysis process. This framework may be useful for other researchers applying similar approaches. It can be also used as a standard procedure for deriving guidelines for other organizational processes or systems.

A limitation to this work comes from the fact that the extraction of recommendations, their categorization and the statement of guidelines, although systematic and based on objective criteria, are subjective processes with respect to inference and interpretation of information collected. Additionally, the literature analyzed is comprehensive but not exhaustive, meaning that other guidelines could be identified in further readings.

For future works, guidelines, although covering different aspects of Hoshin Kanri initiatives, still need refinement. This will be done through the conduction of expert interviews in order to check the relevance of the guidelines and their completeness.

For the research community, the guidelines list can work as a basis for a research agenda to foster further empirical investigations regarding Hoshin Kanri-based initiatives, since it has broken down Hoshin Kanri into a set of demarcated guiding principles. For instance, the role of cross-functional management committees in Hoshin Kanri has yet to be further investigated and explained. As a result, the guidelines could be refined, as much as the content of each current guideline. On that account, some recommendations identified in the

literature were classified as a “need further investigation” topic during the content analysis, as it was described in the research method section. Thereby, no official guideline was specifically derived from these. These are described as follows:

- there must be a balance between content of policy and level of its issuer: the higher the policy issuer the more abstract the policy should be and the less concrete (Lee and Dale, 1998); and
- the management of policy should be flexible enough to allow changes in targets when work becomes overtaken (Witcher and Butterworth, 2001).

The first can be regarded as an alignment issue, while the other can be regarded as an integration issue. These are issues that could be further investigated with the potential to become (or not) guidelines, and thereby, refine the set of process-related guidelines presented in this paper. However, the first issue might be interpreted as a topic that has already been addressed by Guideline No. 11 by both the “meaningful” and the “challenging” attributes. As to the second issue, while it addresses an important topic, it is not clear how it should be implemented.

There are also context and structure issues that are not covered in greater detail in the literature. There is a scarcity of empirical evidences and practical recommendations about those issues. Some of these include information systems and incentive systems. These issues could be broken down into a broader set of topics or sub-issues to be investigated, based on the elements of the network view presented in Figure 2. Other references could also be applied, like the study regarding performance management systems by Bourne *et al.* (2005), in which the authors classified a set of topics such as: system maturity, organizational structure, organizational size, management style, competitive strategy, information systems infrastructure and other management practices and systems. That way, further investigations on the context and the structure components of Hoshin Kanri could result in a refinement of the guidelines presented in this paper.

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