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WILLIAM GIORDANI DA SILVEIRA

GUIDELINES FOR HOSHIN KANRI: PROPOSAL FOR STRATEGY MANAGEMENT CAPABILITY

CURITIBA
2014

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Dissertação apresentada ao Programa de Pós-Graduação em Engenharia de Produção e Sistemas da Pontifícia Universidade Católica do Paraná como requisito parcial para a obtenção do título de Mestre em Engenharia de Produção e Sistemas.

Orientador: Prof. Dr. Edson Pinheiro de Lima.

Coorientadores: Prof. Dr. Sérgio Eduardo Gouvêa da Costa e Prof. Dr. Fernando Deschamps.

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To the ones who teach me the most
valuable lessons,
my beloved parents
Reginaldo Daniel and Carmem Maria.

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ABSTRACT

It is not a novelty that companies struggle to link business strategy and business execution. Hoshin Kanri is a strategic management model precisely recognized for building this link. It was conceived in Japan and it is applied usually in the context of TQM and Lean implementations. The limited universe of western scientific publications of an empirical nature concerning Hoshin Kanri, added to a resurgence of interest amongst western managers, who may face cultural challenges towards its implementation, leads to the necessity of systematizing a set of universally applicable guiding principles for Hoshin Kanri initiatives. This work aims at fulfilling this lack by developing a systematization of guidelines for Hoshin Kanri. The research design is based on a systematic literature review, on an empirical study that applied successive expert interviews and on a set of exploratory cases. First, the guidelines are identified through the systematic literature review supported by content analysis aided by a computational tool. Then, the guidelines are refined and confirmed through the expert interviews. Such guidelines address not only the process of Hoshin Kanri, but also its context. Finally, an assessment tool is developed for evaluating the implementation level of the guidelines in the real-context of corporations, resulting in an analysis related to the capability of three big-sized corporations in managing strategy. The result is the systematization of the guidelines to be used for the design and diagnosis of strategy management capability in corporations, besides a set of methodological contributions regarding the process of systematizing guidelines.

Keywords: Hoshin Kanri, Strategy Management Capability, Systematization of Guidelines, Organizational Systems Design and Diagnosis.

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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 precisely recognized for building this link.

A broad definition of Hoshin Kanri's scope can be adapted from the literature (TENNANT; ROBERTS, 2001a; WITCHER, 2003) as it follows.

Hoshin Kanri is a management framework concerned with the following primary tasks: providing a focus on corporate direction by setting few breakthrough strategic priorities to be achieved every year; aligning the strategic priorities throughout the corporation while fostering agreement and commitment to their achievement; integrating the strategic priorities into the routine management of processes and projects of the organization so that they are continually subject to checks and actions; and providing a systematic review of how well management is carried out in the work areas for the achievement of strategic priorities.

It is grounded on the advent of Total Quality Management (TQM) movement, which was raised in Japan during the 1950s and 1960s, and it can be regarded as the natural evolution of the Management by Objectives (MBO) approach, introduced by Peter Drucker at the beginning of the 1950s. Through the 1970s, Hoshin Kanri was already widely accepted in the Japanese industry, and it quickly became one of the central features in Japanese management models. In fact, Hoshin Kanri was eventually established as the main criterion in the assessment of the annual "Japan's Deming Prize" awards (SOLTERO, 2007).

The approach was first introduced to the western continents during the 1980s, in the period of the transfer of Japanese management knowledge. Unfortunately, since that time, few western organizations seem to have fully understood and applied its principles (WITCHER; CHAU, 2007).

On the one hand, it can be argued that the Balanced Scorecard (BSC), perhaps the most recurring framework in the strategic performance management literature and practice, was originally developed from Hoshin Kanri concepts, although no explicit reference was stated by their creators (WITCHER; CHAU, 2007). On the other hand, current research in the performance management field (NEELY, 2005) points out that the frameworks offered in the literature fail to align the strategic priorities

throughout the company as well as to integrate them into the daily work of collaborators (WITCHER; CHAU, 2007). Other examination of the literature related to how companies manage through measures (FRANCO-SANTOS; BOURNE, 2005) also highlights that authors are stressing the need for vertical and horizontal alignment and integration of strategy. These issues are precisely some of the major strengths of Hoshin Kanri, which reinforces the need to address Hoshin Kanri not only strictly within the context of TQM, but within the context of strategic performance management field.

From that perspective, it can be noted that, although Hoshin Kanri has been widely applied in Japan and also in large companies over the past fifty years, it is not as widely explored in research papers as the BSC and other frameworks are, by far. Hence, there are few empirical studies about the conceptual assumptions and practical implications of Hoshin Kanri. Withal, some experts claim that there has been a seeming resurgence of interest in Hoshin Kanri implementation amongst western strategic management practitioners over the last couple of years, especially in American companies. This advent leads to an increasing interest upon the central principles of Hoshin Kanri along with the key factors for its successful application.

Apart from the fact that there is a scarcity in research literature around Hoshin Kanri concepts, there is a context-related challenge regarding its implementation across western companies, since it is a framework that was firstly conceived within the context of Japanese culture. Thus, it can be concluded that there is no systematization of the main aspects that ensure the effective application of Hoshin Kanri in a universal manner.

In order to bridge this gap, this research project proposes a systematization of recommendations based on a more empirical approach. The result is a proposition and an assessment of a model of guidelines for applying Hoshin Kanri, which is seen as a model for the design and diagnosis of corporate strategy's implementation management capability.

The guidelines are developed through a systematic literature view that applied the content analysis technique with aid of a computational tool. Then, the guidelines are refined and confirmed through the design and conduction of a structured study of guidelines refinements with consultation to experts in the field. Finally, the guidelines are assessed in companies' implementations through the conduction of a set of exploratory cases.

This systematization of guidelines provided by this research project would benefit both the research and the practice community. The researchers can benefit from this systematization effort because the concepts involving Hoshin Kanri are organized within the context of operations strategic performance management in such a manner that they are broken down into a set of delimited guidelines. As to the practitioners, the model has a clear practical purpose of providing managers with a tool that could guide the design or improvement of their company's capability in managing the implementation of the corporate strategy.

1.1 RESEARCH QUESTION

The literature often focuses only on Hoshin Kanri process. However, Hoshin Kanri should be addressed in a broader perspective, as an organization-wide holistic system, which implies that the associations between Hoshin Kanri and other elements and systems must be regarded as well. Hence, for understanding what drives Hoshin Kanri effective application, aspects related to its context and its structure must also be considered.
The question then is:

- *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.
Grounded on Enterprise Engineering principles (DESCHAMPS et al., 2013a), a guideline is defined, in the context of this work, as a recommended Hoshin Kanri design practice or principle that allows some discretion in its interpretation, use, or implementation. The diagnosis dimension refers to the fact that the guidelines can be used to assess an organization in regard to how well its Hoshin Kanri initiative is structured and functions through this structure. About the (re)design dimension, it takes into account the fact that guidelines can be used to promote change and that even a whole new Hoshin Kanri initiative could be generated so that it functions according to them. Therefore, this work can also be positioned within the Enterprise Engineering field, and both of these dimensions must be kept in mind in the process of defining the guidelines (DESCHAMPS et al., 2013a).

1.2 RESEARCH OBJECTIVES

The research question entails the following research general primary objective:

- *Propose a set of guidelines to be used as a basis to guide the design and diagnosis of Hoshin Kanri application*.

In order to accomplish the primary objective, a set of specific secondary objectives is decomposed, as it is depicted in Table 1.1.

Table 1.1 - General and specific objectives of this research project

Research objective	#	Specific objectives
Propose a set of guidelines to be used as a basis to guide the design and diagnosis of Hoshin Kanri application.	1	Identify and organize from the literature a set of universally applicable guiding principles for Hoshin Kari initiatives.
	2	Refine and confirm the set of guidelines from an empirical approach.
	3	Verify the model application by assessing the implementation of the guidelines in a set of companies.

1.3 DOCUMENT STRUCTURE

This document is organized in 6 chapters, as follows: the current chapter presents the contextualization of this research project, which comprises the introduction, the research question and the research objectives.

The following chapter presents the research method, which comprises the research strategy and approach, the research procedures, the research planning, the expected results and the structure of articles that compose the dissertation.

Chapters three, four and five (3, 4 and 5) present the articles of this dissertation, which will be edited to be submitted to journals.

1. The first article addresses the first specific research objective, presenting a literature review that grounds the conceptual foundations of the research, which include an overview of the Hoshin Kanri background and its framing as

a strategic performance management system and also a discussion of an holistic comprehension of Hoshin Kanri. Then a systematic literature review supported by content analysis is described and the Hoshin Kanri guidelines derived from that research procedure are presented. After that, the implications are discussed comprising the role of Hoshin Kanri, the implications of each guideline and the implications for researchers.

2. The second article addresses the second specific research objective by developing a study of guidelines refinement through the consultation with experts. The research procedure applied in the study is described in detail and the findings are presented and discussed for each guideline. The results are presented with aid of a set of summary tables so that the results are synthesized in a visual manner for facilitating the comprehension of the original guidelines versus the final guidelines refined or developed in the study.
3. The third article addresses the third specific research objective by describing an assessment rationale for the guidelines to be used as an assessment model. Then a set of exploratory cases are described, detailing the assessment of the guidelines implementation degree within the companies studied.

Chapter six (6) presents the conclusions and final remarks of this research project, and also discusses the research limitations and perspectives for future work. Next, the research method is detailed.

2 RESEARCH DESIGN

As it can be observed from the research objectives described in Table 1.1, this study is an effort to systematize knowledge about Hoshin Kanri, by means of the identification, organization and assessment of application guidelines. In the context of this research work, a guideline is a recommended Hoshin Kanri design principle which is desirable for the Hoshin Kanri implementation or use to be successful.

As it is described in other enterprise engineering study focused on the development of guidelines, the systematization effort involves collecting, organizing and analyzing information about a study object in a rational way, so that patterns and common denominators can be identified (DESCHAMPS, 2013). Furthermore, it involves deepening the knowledge of a study object by: i) taking into account different views about the object and its relationship with other objects; ii) breaking down the study object into different parts, which can be seen as concepts, aspects, features and characteristics, so that the parts can be compared and thoroughly analyzed by means of a structured analysis rationale; and iii) synthesizing and formalizing findings through a rationale that is able to represent the patterns and common denominators identified in the study.

This systematization effort is mostly a qualitative process. Thus, the research method applied in this research takes into account a qualitative approach. Furthermore, this is a qualitative research because it addresses the research question through collecting and analyzing data that are mostly of a qualitative nature. The collection and analysis of data was designed in such a manner that it allows capturing the perspectives and interpretations of different authors, experts and companies. Also, this research requires a qualitative approach on the account that the consideration of the subjective reality of the authors, experts and companies consulted is relevant for the accomplishment of the research objectives (CAUCHICK MIGUEL; SOUSA, 2012). Another aspect that delimits this study as a qualitative research process is that the interest is not only on the content of the study object, but on the processes related to it. The interest is not so much on the “what” as it is on the “how” of the study object. In other words, the aim is not so much about describing what Hoshin Kanri is as it is about discovering the issues related to how to succeed in the application of Hoshin Kanri.

The systematization effort is also an exploratory process, although it requires a descriptive process for the systematization to be accomplished. It is not an explanatory study, since the findings are not analyzed by means of a sample size that would allow some degree of generalization, which would usually require a quantitative approach. However, the systematization effort conducted in this work provides a robust basis for structuring a research of that kind.

The strategy for the development of this research is based on the application of bibliography and empirical procedures. The data collection is designed and applied founded on the principles of data triangulation. Both primary and secondary data sources are taking into account. Secondary data comprise the bibliography consulted and documents gathered from the companies. Primary data is obtained through interviews with experts and practitioners, and also through direct field observations within companies. This strategy tries to be as exhaustive as possible by reducing subjectivity biases so that the guidelines are robust enough to be considered as universally applicable guiding principles. The systematization is accomplished by means of a declarative model, in which the guidelines are expressed in the format of statements. Graphics are also applied to depict the relationships among aspects addressed in the model. The next section details the research procedures applied in this work.

It is worth noting that the study is founded on the premise that an effective implementation of Hoshin Kanri will exert positive influence on the strategic results of an organization, which can be observed as a consensus in the literature. It is not the aim of the study to investigate causal relationships between the implementation of Hoshin Kanri and its real implications on the strategic results of an organization. Such an investigation would require a quite different research approach, such as quasi-experimental studies.

2.1 RESEARCH PROCEDURES

The exploratory and qualitative process applied in this research is carried out by the procedures of systematic literature review, semi structured interviews and workshops with experts and exploratory case studies. Each procedure is applied in a different phase of the research. The development of the research can be summarized in four major phases:

1. **Prepare the conceptual ground:** conduction of a literature review in the fields of Hoshin Kanri, Performance Management and Operations Strategy, in order to understand Hoshin Kanri and its context, and thereby build the conceptual foundations of the study.
2. **Develop the initial model:** conduction of a systematic literature review of Hoshin Kanri in order to identify and organize guidelines for Hoshin Kanri, which consists in the initial model.
3. **Refine the initial model:** conduction of an empirical study of guidelines refinement aimed at consulting experts in Hoshin Kanri, so that the set of guidelines are refined and confirmed.
4. **Verify the model application:** development of an assessment tool related to the implementation level of the guidelines application and conduction of a set of cases aided by this assessment tool.

Figure 2.1 relates these four phases to the research specific objectives and also the research procedures applied in each phase.

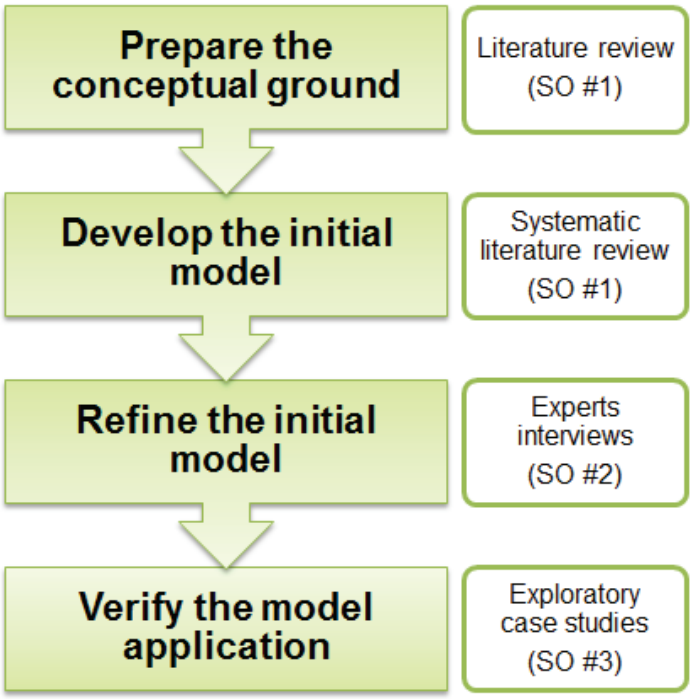

Figure 2.1 - Research approach

Table 2.1 relates the supportive frameworks and methodologies taken into account for each research procedure. The procedures are described next.

Table 2.1 - Supportive frameworks and methodologies for each research procedure

Research procedure	Supportive frameworks and methodologies
Literature review	- Pettigrew's framework - Bourne et al.'s framework - Witcher's framework
Systematic literature review	- Content analysis aided by a computational tool
Experts interviews	- Cambridge Process Approach rationale - Successive semi structured interviews - Workshop
Exploratory case studies	- Likert's scale - Radar chart - Study case - Cross-case analysis

2.1.1 Literature review

In other to understand not only the process of Hoshin Kanri, but also its context and relationship with other management systems, the literature review was carried out not only in the field of Hoshin Kanri, but also in the fields of Performance Management and Operations Strategy.

Concepts such as the resource-based view (RBV) of strategy and dynamic capabilities were outlined from the operations strategy field. The review on Performance Management led to identify concepts such as the closed loop performance management systems and dynamic performance measurement systems. It also made it possible to understand the issues addressed within the research and practice community regarding the design, implementation and use (and redesign or updating strategic assumptions) of Performance Measurement Systems. The cycle of design, implementation and use is explained in the framework of Bourne et al.'s (BOURNE et al., 2000). Alongside this framework, another framework that was helpful to build the conceptual foundation of this work is the Pettigrew's framework (FRANCO-SANTOS; BOURNE, 2005; PETTIGREW, 2012).

Together, these frameworks provided an understanding that led to a holistic comprehension of Hoshin Kanri as a strategic performance management system architecture. Finally, the most recurring framework in the Hoshin Kanri literature was also used as basis for this research work: the Witcher's framework (WITCHER, 2003) of Focus, Alignment, Integration and Review dimensions of Hoshin Kanri process. All of these concepts and frameworks are found in the article #1 (chapter 3) of this document. For a brief overview of these frameworks, consult Figure 3.1 and Figure 3.2.

2.1.2 Systematic literature review

The systematic literature review aims at providing a robust method to analyze the literature by means of a comprehensive and exhaustive examination of the literature research field universe, given a specific research topic. The method is comprehensive because it tries to gather as many works as possible related to the specific topic under examination, and is exhaustive because it tries to undertake a thorough examination of the content of these works (KITCHENHAM, 2004).

Not only this process has to be comprehensive and exhaustive, but also replicable, so that other researchers can apply the method under the circumstances of their research, which is influenced by the research's period of time, subject, objective etc.

As it is described elsewhere (DESCHAMPS, 2013; HIGGINS; GREEN, 2008), for carrying out an ideal procedure of systematic literature review, there are some desirable steps: define the literature review objective and the criteria for including studies; search for studies; select studies and organize them in order to collect the necessary data; assess bias risk within the included studies so that the biased studies are excluded from the analysis; analyze data and meta-data (meta-analysis); address biases on the review procedure by the repetition of the analysis by other researchers, for example; summarize and organize the results and findings; and interpret the results and findings and draw conclusions.

The specific objective #1 of this research was accomplished both by the application of the preliminary literature review and the following application of the systematic literature review. The latter was started by the definition of the search terms to find a comprehensible universe of Hoshin Kanri studies. Then, an extensive search was undertaken within a set of databases. The studies found were then analyzed and meta-analyzed through criteria such as the contemporaneity of the study, the relevance of the journal and the author, the study purpose and the method applied (whether empirical or conceptual or theoretical). This analysis resulted in a set of papers that addressed Hoshin Kanri in a more direct manner. The refined universe of studies was then characterized and a prioritization was undertaken. Since the refined universe of studies was not big, the content analysis technique was applied with the aim to carry out an in-depth analysis of the prioritized studies in order to identify guidelines for Hoshin Kanri.

The content analysis is a systematic and replicable technique for analyzing data and identifying concepts. It provides a robust foundation for analyzing and synthesizing information. The content analysis technique application was aided by the computational tool ATLAS.ti, which added robustness to the process, since it provides the advantage of obtaining traceability of analyzed data. Besides providing reliability to the results of the content analysis, the foundation of traceability is essential for the analysis to be as exhaustive as possible, which increases the quality and also the agility of the analysis.

The detailed description of the systematic literature review process undertaken in this work is found in the article #1 (chapter 3). For a brief overview of the process, consult Figure 3.7.

2.1.3 Expert interviews

The specific objective #2 was accomplished through the design and implementation of a study that applied expert interviews. The detailed description of the systematic literature review process undertaken in this work is found in the article #2 (chapter 4). For a brief overview of the process, consult Figure 4.1.

The study was applied in manner similar to an expert panel, in which experienced professionals put themselves in the position of users of the model. In doing so, they are able to interact, analyze and judge the model's validity and quality.

The aim of the study was to refine the guidelines by a more empirical approach. The practical experience of the experts would allow collecting empirical data. Thereby, a proper selection of experienced experts and a well-defined systematic procedure for data collection, analysis and synthesis was needed.

The selection of experts was done based on their experience with applying Hoshin Kanri, both in terms of their experience time and their experience content, that is, the scope of their expertise, which includes the experts' level of actuation while participating in a Hoshin Kanri initiative, as well as experiences with other Hoshin Kanri context-related experiences, such as Lean and TQM implementations. The heterogeneity of expert was also considered as an important factor to provide diverse viewpoints about Hoshin Kanri. That way, the range of experts included a diverse set of practitioners, consultant and academics. It must be said that these are not criteria that are exclusive in relation to each other, that is, an expert could have experiences both as a practitioner and as a consultant, for instance.

The study consisted in two major rounds of refinement with experts. First, a round of individual interviews was carried out with nine (9) experts through successive semi structured interviews. The successive aspect stands for the fact that each expert undertook the refinement of the guidelines' version that had been achieved by the previous experts' refinements – except the first interviewee, who undertook a refinement of the guidelines' original version. The procedure was designed and applied in such a manner that it provided a structure to carry out a very careful semantic analysis. A robust semantic effort was needed, since the guidelines were systematized in the form of a declarative model. In the second moment, a round of workshops attended by three (3) other experts was undertaken in a manner that worked as either a final refinement or a confirmation of the results obtained in the first round (the individual interviews). The workshop was designed and applied in the format of a decision forum, so that the three experts were able to debate and reach an agreement about the final version of the guidelines.

The design of the procedure took into account the foundations of the Cambridge Process Approach (PLATTS, 1994, 1993). Thus, an appropriate project management was applied; a point of entry was considered in each interview; an appropriate procedure was designed both for the collection and for the analysis and synthesis of data; and an appropriate participation was sought by means of the workshops.

Although similar, the procedure cannot be classified as a Delphi study, since the experts interviewed didn't attend in more than one round. However, it was possible to share some common benefits in relation to Delphi studies: the addressing of the study object on a collective basis analysis; the consideration of the subjective realities or contexts of each expert; the consideration of the diverse background and experiences of each expert; the overcoming of time and cost restrictions that would make the conduction of group meetings with all the experts unfeasible and the possibility to handle disagreements among the experts without creating confrontation.

2.1.4 Case studies

A case study is an empirical study that investigates a given contemporary phenomenon within its real context (CAUCHICK MIGUEL; SOUSA, 2012; YIN, 2003).

It is a research method that makes use of multiple data collection instruments and may rely on multiple sources of evidence, which can be not only qualitative, but also quantitative. Some examples of information sources may include interviews, direct observations and documental analysis. The case study also uses the interaction between the researcher and the study object. It can be seen as a report of the phenomenon under examination by means of data derived from multiple sources of evidence, in which any fact that is relevant to the phenomenon under examination is considered as potential information for the study, given that the real context of the phenomenon is important. Usually the case study is applied as a research strategy for study objects upon which the researcher has few control of its events.

The application of a case study requires the consideration of three aspects: the case selection technique, the development of a protocol for the collection of data, and the development of a protocol for the analysis of data (YIN, 2003). The case selection can be undertook through either a quantitative analysis, by applying statistical techniques, or a qualitative analysis, in which the universe of possible cases is considered either unknown or irrelevant, in the case of a research of an exploratory nature (CAUCHICK MIGUEL; SOUSA, 2012). The cases selected can vary according to the similarities or dissimilarities under examination within a certain population of possible cases. Thus, it may vary from typical cases, in which the cases are expected to represent typical examples of the population being analyzed, until cases that are most different, that is, the cases are different on specified variables.

This work undertook a set of exploratory case studies. Although the cases are of an exploratory nature, the selection of cases was dependent on a few similarities, which were: the companies should have a strategic planning system in place alongside the application of Hoshin Kanri, or a variation of it. Since the universe of companies applying Hoshin Kanri does not represent an extensive population, the possible cases also shared a common context: big size companies that apply Lean or TQM management models. By having meeting the similarity criterion, the selection of the cases was qualitative and based on diversity.

For the assessment of the guidelines application in the case studies, the Likert's scale of five points was applied in the form of a quality assessment: very poor, below average, average, above average and excellent. This scale was chosen due to the fact that it consists in a scale that it has already been extensively tested and

validated in the literature, and because it provides a simple assessment approach, which benefits the model application. Although subjective, the boundaries between each scale point are usually well-understood by people, both because of its simplicity and its extensive application in surveys throughout the world.

The cases were analyzed by means of a radar chart, which aimed at depicting the level of alignment between the company's guideline implementation and the guidelines model's prescription. Besides, the radar chart is an appropriate tool to demonstrate performance gaps in a visual manner. Together with the radar chart, the findings of the exploratory case studies were summarized and organized by means of the guidelines model categories. Finally a cross-case analysis was undertaken to verify similarities and dissimilarities across the cases.

2.2 EXPECTED RESULTS

There is a set of tangible results expected from this work. The expected results are summarized as follows:

- Conceptual framework and/or network views of Hoshin Kanri process and its contextual relationships.
- Systematization of Hoshin Kanri guidelines in the form of a set of statements which consist in universally applicable guiding principles for the successful application of Hoshin Kanri.
- Graphic organization of Hoshin Kanri guidelines.
- Methodological frameworks to bring a contribution to other researchers so that they are able to replicate and improve the research methods applied in this work.
- Assessment tool to be used for the evaluation of the level of implementation of the guidelines in companies in such a manner that enables the diagnosis or even the design of Hoshin Kanri implementations.
- Summary of the findings from the case studies, with aid of a visual chart to facilitate the interpretation of results, composing a summary results report for the companies that participated in the case studies.

2.3 ARTICLES ORGANIZATION

Table 2.2 organizes the articles presented in this dissertation, by relating each article to the specific objective which it has addressed, and also presenting the intended journal for the publication of each article.

Table 2.2 - Articles in this dissertation

#	Article title	Specific objective addressed in the article	Intended Journal for publication
1	*Identification of guidelines for the Hoshin Kanri approach of strategic performance management: an application of content analysis*	[SO#1] Identify and organize from the literature a set of universally applicable guiding principles for Hoshin Kari initiatives.	[EMJ] Engineering Management Journal
2	*Hoshin Kanri guidelines development and discussion: a study of successive refinements with experts*	[SO#2] Refine and confirm the set of guidelines from an empirical approach.	[TQM] Total Quality Management
3	*Assessment of Hoshin Kanri guidelines application: an exploratory evaluation on the development of strategy's implementation management capability*	[SO#3] Verify the model application by assessing the implementation of the guidelines in a set of companies.	[IJOPM] International Journal of Operations and Production Management

2.4 RESEARCH PLANNING

Table 2.3 presents the overall planning of this research project over time. The research phases (which were described earlier) were divided into research tasks. The overlay of time frames between research phase #3 and #4 is due to the fact that some of their tasks were developed in parallel.

Table 2.3 - Overall research project planning

#	Research phase	Research task	Time frame
1	Prepare the conceptual ground	Literature review	From October 2012 until September 2013
2	Develop the initial model	Definition of research criteria	
		Search of studies within databases	
		Analysis and meta-analysis of studies	
		Literature filtering and characterization	
		Creation of content analysis codes	
		Creation and coding of studies' quotes	
		Revision of codes and quotes	
		Sorting of the most important quotes	
		Content revision of the most important quotes	
		Analysis of common denominators among quotes	
		Synthesis of Hoshin Kanri guidelines	
		Redaction of the Article #1	
3	Refine the initial model	Selection and invitation of experts	From October 2013 until August 2014
		Development of overall schedule	
		Development of the data handling procedures	
		Scheduling and management of interviews sequence	
		Conduction of interviews	
		Reflection and redaction of the interviews' reports	
		Qualitative assessment on the refinements' convergence	
		Upgrading of supportive material for the interviews	
		Conduction of the workshops	
		Redaction of the Article #2	
4	Verify the model application	Dismemberment of guidelines into information requirements	From October 2013 until October 2014
		Development of the assessment rationale	
		Selection and invitation of companies	
		Conduction of case studies	
		Summary of findings of the case studies	
		Cross-case analysis	
		Redaction of the Article #3	
-	-	Redaction of the Dissertation	

3 ARTICLE #1 – IDENTIFICATION OF GUIDELINES FOR THE HOSHIN KANRI APPROACH OF STRATEGIC PERFORMANCE MANAGEMENT

This first article addresses the first specific research objective and consists in the development of the first two phases of the research project. Before the effort related to the systematization of Hoshin Kanri guidelines, the conceptual foundations are organized. After that, with the conceptual foundations set up, the effort to systematize Hoshin Kanri guidelines is described: a research procedure that applied a systematic literature review supported by content analysis. Then the resulting guidelines are presented and a whole section is dedicated to discuss some of the major implications of this initial model of guidelines. Table 3.1 lists works whose results led to this article.

Table 3.1 - Previous works leading to the development of Article #1

#	Previous works
1	Work from the Performance Management course taken in the last quarter of 2011.
2	Summarized article published and presented in the Brazilian Conference Proceeding of the national encounter of industrial engineering (ENEGEP), held in September 2012, in Bento Gonçalves, Brazil (SILVEIRA; PINHEIRO DE LIMA, 2012). This article presented a brief framing of Hoshin Kanri in the context of Performance Management.
3	Summarized article published and presented in the Conference Proceeding of the International Conference on Production Research (ICPR), held in August 2013, in Foz do Iguaçu, Brazil (SILVEIRA et al., 2013). This article presented the content analysis procedure and the resulting guidelines that composed the initial model of guidelines. This work was rewarded with an invitation to submit an extended version for publication on the Engineering Management Journal (EMJ).

Identification of Guidelines for the Hoshin Kanri approach of strategic performance management: an application of content analysis

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Abstract

It is not a novelty that companies struggle to link business strategy and business execution. Hoshin Kanri is a strategy management framework precisely recognized for building this link. The scarcity of western scientific publications concerning this traditional framework conceived in Japan, added to a resurgence of interest amongst western managers, who may face cultural challenges towards its implementation, leads to the necessity of systematizing a set of universally applicable guiding principles for Hoshin Kanri initiatives. This work fulfills this lack by conducting a systematic literature review supported by content analysis aided by a computational tool, resulting in a set of guidelines related not only to the process of Hoshin Kanri, but also related to its context.

Keywords: Hoshin Kanri, Policy Deployment, Performance Management, Guidelines Systematization, Dynamic Capabilities.

3.1 INTRODUCTION

It is not a novelty that companies struggle to link business strategy and business execution. Hoshin Kanri is a management framework that is precisely recognized for building this link.

A broad definition of Hoshin Kanri's scope can be adapted from the literature (TENNANT; ROBERTS, 2001a; WITCHER, 2003) as it follows. Hoshin Kanri is a management framework concerned with the following primary tasks: providing a focus on corporate direction by setting few breakthrough strategic priorities to be achieved every year; aligning the strategic priorities throughout the corporation while fostering agreement and commitment to their achievement; integrating the strategic priorities into the routine management of processes and projects of the organization so that they are continually subject to checks and actions; and providing a

systematic review of how well management is carried out in the work areas for the achievement of strategic priorities.

It is grounded on the advent of Total Quality Management (TQM) movement, which was raised in Japan during the 1950s and 1960s, and it can be regarded as the natural evolution of the Management by Objectives (MBO) approach, introduced by Peter Drucker at the beginning of the 1950s. Through the 1970s, Hoshin Kanri was already widely accepted in the Japanese industry, and it quickly became one of the central features in Japanese management models. In fact, Hoshin Kanri was eventually established as the main criterion in the assessment of the annual “Japan’s Deming Prize” awards (SOLTERO, 2007).

The approach was first introduced to the western continents during the 1980s, in the period of the transfer of Japanese management knowledge. Unfortunately, since that time, few western organizations seem to have fully understood and applied its principles (WITCHER; CHAU, 2007).

On the one hand, it can be argued that the Balanced Scorecard (BSC), perhaps the most recurring framework in the strategic performance management literature and practice, was originally developed from Hoshin Kanri concepts, although no explicit reference was stated by their creators (WITCHER; CHAU, 2007). On the other hand, current research in the performance management field (NEELY, 2005) points out that the frameworks offered in the literature fail to align the strategic priorities throughout the company as well as to integrate them into the daily work of collaborators (WITCHER; CHAU, 2007). Other examination of the literature related to how companies manage through measures (FRANCO-SANTOS; BOURNE, 2005) also highlights that authors are stressing the need for vertical and horizontal alignment and integration of strategy. These issues are precisely some of the major strengths of Hoshin Kanri, which reinforces the need to address Hoshin Kanri not only strictly within the context of TQM, but within the context of strategic performance management field (SILVEIRA; PINHEIRO DE LIMA, 2012).

From that perspective, it can be noted that, although Hoshin Kanri has been widely applied in Japan and also in large companies over the past fifty years, it is not as widely explored in research papers as the BSC and other frameworks are, by far. Hence, there are few empirical studies about the conceptual assumptions and practical implications of Hoshin Kanri. Withal, some experts claim that there has been a seeming resurgence of interest in Hoshin Kanri implementation amongst

western strategic management practitioners over the last couple of years, especially in American companies. This advent leads to an increasing interest upon the central principles of Hoshin Kanri along with the key factors for its successful application.

Apart from the fact that there is a scarcity in research literature around Hoshin Kanri concepts, there is a context-related challenge regarding its implementation across western companies, since it is a framework that was firstly conceived within the context of Japanese culture. Thus, it can be concluded that there is no systematization of the main aspects that ensure the effective application of Hoshin Kanri in a universal manner.

The literature often focuses only on Hoshin Kanri process. However, Hoshin Kanri should be addressed in a broader perspective, as an organization-wide holistic system, which implies that the associations between Hoshin Kanri and other elements and systems must be regarded as well. Hence, for understanding what drives Hoshin Kanri effective application, aspects related to its context and its structure must also be considered.

The question then is: 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.

Grounded on Enterprise Engineering principles (DESCHAMPS et al., 2013a), a guideline is defined, in the context of this work, as a recommended Hoshin Kanri design practice or principle that allows some discretion in its interpretation, use, or implementation. The diagnosis dimension refers to the fact that the guidelines can be used to assess an organization in regard to how well its Hoshin Kanri initiative is structured and functions through this structure. About the (re)design dimension, it takes into account the fact that guidelines can be used to promote change and that even a whole new Hoshin Kanri initiative could be generated so that it functions according to them. Therefore, this work can also be positioned within the Enterprise Engineering field, and both of these dimensions must be kept in mind in the process of defining the guidelines (DESCHAMPS et al., 2013a).

This paper is organized as follows: the next section gives an overview of Hoshin Kanri. After that, the main foundations applied in the study are presented in another section. Then, a distinct section describes in detail the research method applied. Thenceforward, the results section presents the set of guidelines generated, while

also proposes a methodological framework for the content analysis method. Following the results, a section is dedicated to discuss the practical implications of the study for engineering managers. Finally, general conclusions are drawn for further development of the guidelines and their application as both design principles and diagnosis elements.

3.2 BACKGROUND OF HOSHIN KANRI

The first prevailing text of Hoshin Kanri in English was edited by Yoji Akao in 1991 (AKAO, 1991), which described as a planning, implementation and review system for change management.

The most common translation of Hoshin Kanri is “Policy Deployment”, though a better interpretation could be “providing direction” or “direction management”. According to Tennant & Roberts (TENNANT; ROBERTS, 2001a), other translations are “Policy Management” and “Management by Policy”. Furthermore, many companies implementing Hoshin Kanri adopt other denomination for it, as part of a customization and/or an adaption to its own organizational culture. In fact, this practice of renaming is very common amongst companies adopting concepts and practices of the acknowledged Lean Manufacturing or Lean Thinking model, several of which apply Hoshin Kanri.

Hewlett-Packard uses the name “Hoshin Planning” or even the original Hoshin Kanri. Texas Instruments uses “Management by Policy”. Both Lucent Technologies and AT&T use the western standard “Policy Deployment” denomination, while Xerox Corporation adopt the term “Management for Results” or “Planning for Results” (JOLAYEMI, 2008).

Regardless of the denomination adopted, the core concept of Hoshin Kanri is to orchestrate the achievement of the vital breakthrough objectives required for the company to survive and thrive in the medium and long term. These breakthroughs represent innovative changes, as they aim to significantly enhance the company competitiveness. Hence, a great organization-wide effort is required. Hoshin Kanri addresses this requirement, as it aims at building consistent managerial actions throughout the company so that daily work execution is linked with strategic purpose achievement.

For the application of Hoshin Kanri, the corporate top management must develop both the company long-term vision and the medium-term strategic plan required for achieving the vision. The latter is usually translated into a set of concrete breakthrough objectives for the next three or five years.

The process of Hoshin Kanri is designed as an annual cycle that operationalizes the task of carrying out the 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 the 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 should be measurable, so that progress can be assessed. 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 “policy”, which leads to the main version of the American translation of Hoshin Kanri: Policy Deployment. Hence, an annual strategic priority/objective equals to an annual policy.

The next step of Hoshin Kanri process 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, which aims at fostering alignment, agreement and commitment to the policies.

Indeed, one of the major weaknesses of the Peter Drucker’s Management by Objectives framework introduced in the 1950s consists in its approach for deploying the objectives, which is overcome by Hoshin Kanri’s Catchball mechanism, as it is alleged in the Hoshin Kanri literature in general.

The term “Catchball” is derived from a children ballgame, as Tennant & Roberts (TENNANT; 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 were 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

effectiveness. If he doesn't agree with the proposition, 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 process can be seen in other work (TENNANT; ROBERTS, 2001b).

According to Soltero (SOLTERO, 2007), the policies must be cascaded vertically, from top management to the lowest hierarchical levels of the company, so much as horizontally across the corporation, between its business functions.

If applied appropriately, the Catchball mechanism should prevent the cascaded deployment from being a strictly top-down approach. First, the top management builds an action plan upon the annual vital few strategic policies. Every action is accompanied by a performance target, so as the "sum of all targets" should be sufficient to the achievement of the targets of original policies, in a real relation of cause-and-effect. Some of the actions are susceptible to be deployed down to the next corporate level. Those actions, along with the targets, become then policies to the next corporate level. Other actions are not deployable, because of their nature – they require certain levels of decision, negotiation and change that are inherent in the assignments of the current level and/or function. For instance, some high level actions cannot be delegated to lower levels. These not-deployable actions should be carried out either by top management itself or by a specialized team under a strategic project structure. This concept of not-deployable actions is rarely mentioned in the research literature, but it can be verified in some workbooks (Campos, 2006).

The next level builds an action plan upon the policies set by top management level. 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 not-deployable, whereas the deployable ones become policies to the next level, so the cascading deployment goes on and so on.

As the objectives are cascaded downwards the organizational structure, they take the form of a balanced set of objectives, which are commonly referred to in the literature as QCDE objectives, or a similar variation of that. QCDE is an acronym that stands for the following dimensions: Quality, Cost, Delivery, and Education. It is a natural derivation of Total Quality Management concepts, which constitutes the context where Hoshin Kanri was grounded. As some authors claim (WITCHER; CHAU, 2007), the QCDE frame is similar to the four perspectives of the Balanced Scorecard (BSC) framework: Financial, Costumers, Processes and People Learning.

It should be remarked that QCDE's Quality refers to customers' satisfaction, the same way as in BSC's Customers perspective. Cost refers to efficiency of resources management, thus it can be associated with BSC's Financial perspective. Delivery refers to efficiency of logistics and business processes, the same way as in BSC's Process Perspective. Education refers to the development of capabilities, motivation and safety amongst collaborators, thus it can be associated with BSC's People Learning Perspective.

The concept behind QCDE frame implies that Hoshin Kanri was addressing since its beginning the need of a balanced set of objectives, the same need that boosted the Performance Measurement research field at the late of the 1980s.

During the Catchball, 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; ROBERTS, 2001b) that this iterative process of Catchball, in which targets and plans are debated at each level and department until consensus is reached, is what assures that the entire organization is aligned and committed towards the same objectives.

By the end of Catchball, the entire organization should be aligned in regard to what must be done for the company to achieve its annual strategic priorities. 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 research literature almost doesn't mention it explicitly, several practitioners in US regard the X Matrix as a main tool for aiding in the conduction of the Catchball. A full description of it can be seen in Jackson's workbook (Jackson, 2006). In the case of using the X matrix, all action plans will be documented in the form an X Matrix 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 work in a very similar manner of the Quality Function Deployment (QFD) technique, with the graduation 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; CHIN; LAU, 2000; WALKER, 2002; YAZDI; MENNATIB, 2011).

The Hoshin Kanri Process continues with the incorporation of the objectives management and achievement in the daily work routines. Thereat, the objectives stated in the action plans are integrated into daily management routines, so that they are continually subject to checks and actions. Thus, the progress on the objectives will be continuously monitored, as part of daily processes management routine. As the Hoshin Kanri was built in the context of Total Quality Management, the main approach considered for undertaking process management is the PDCA methodology. As it is often claimed (WITCHER; 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. As in the case of Witcher & Chau (WITCHER; CHAU, 2007), which address the QCDE frame 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. 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 interact systemically with business processes, causing a global impact on business performance.

As the policies are integrated into the 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 the higher 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; ROBERTS, 2001b).

The diagnosis is commonly referred to as Top Executive Audit (TEA), as described by Witcher et al (WITCHER; CHAU; HARDING, 2006). According to these authors, the TEA works as a vehicle to stimulate mutual discussion between senior manager 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 on the company strategic purpose. Meanwhile, the top management gets an opportunity to reflect about how the 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 amongst people in the organization.

3.3 FOUNDATIONS OF THE ANALYSIS

The architecture of the guidelines was built upon two leading frameworks: one regarding the dimensions of the Hoshin Kanri process and the other regarding the major dimensions of a strategic performance management system, each of which is presented and briefly discussed next.

3.3.1 Dimensions of Hoshin Kanri Process

There have been some adaptions of Hoshin Kanri to adapt it to the western management culture. For instance, some of them are the following conceptual models: Akao's model – from 1991; Calingo's model – from 1996; GOAL/QPC Research's model – from 1996; Witcher et al.'s model – from 1999. A description of

each can be seen elsewhere (LEE; DALE, 1998). The most relevant one, as is the most recurring, is the “FAIR” model developed by Witcher (WITCHER, 2003), which is presented next.

FAIR is an acronym that relates to the PDCA cycle: Focus (Act), Alignment (Plan), Integration (Do), and Review (Check). The four steps of FAIR are regarded as follows:

- **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 strategic purpose. 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 Catchball mechanism;
- **Integration:** the performance targets and action plans agreed by means of Catchball are then integrated into the work routine so that the progress on targets and plans are properly managed through the PDCA cycle. Policies will either be managed within daily process management routines or assume the form of strategic projects and, thus, be managed within project management routines;
- **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 Top Executive Audit (TEA), can be thoroughly seen in Witcher et al (WITCHER; CHAU; HARDING, 2006; WITCHER; CHAU, 2008). Following the analogous PDCA cycle, the annual review is the Check phase that provides feedback to take Action – which, in turn, is the Focus phase of FAIR. Thus, the annual diagnosis provides important insights that fuel the selection of strategic breakthrough priorities for the next annual cycle.

These four dimensions were applied as categories in the derivation of guidelines, as will be further explained in the following sections.

It is not the aim of this work to thoroughly examine the theory of Hoshin Kanri and the evolution of its research field. Further detail about Hoshin Kanri practices and the perspectives of different authors can be better seen in other work (LEE; DALE, 1998). It is important, however, to explicitly define the scope regarded for the Hoshin Kanri process in this work, which is illustrated in Figure 3.1.

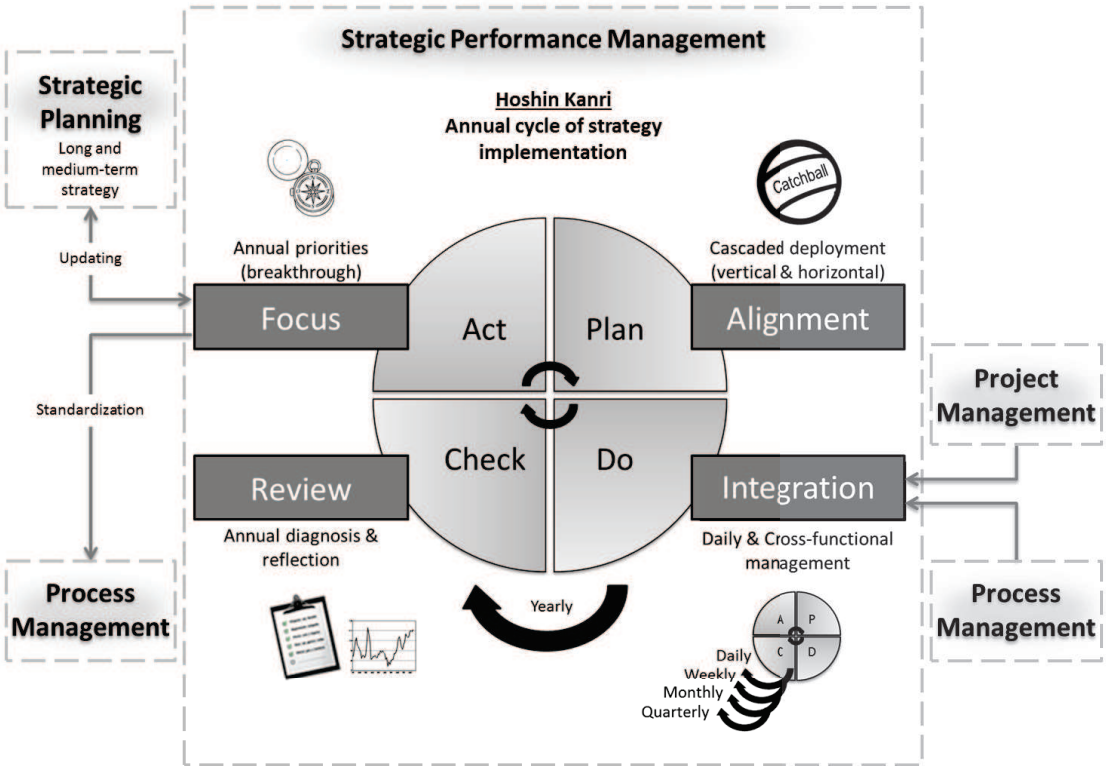

Figure 3.1 - Adapted framework of Hoshin Kanri process scope as a Strategic Performance Management System

Figure 3.1 presents a framework adapted from Witcher et al.'s FAIR framework (WITCHER; CHAU, 2007). Each one of the FAIR stages is illustrated along with its main concept and the analogy with PDCA stages. Besides the demonstration of the relationship among the stages of Hoshin Kanri (alongside its central concepts) and the stages of PDCA, the framework intend to explicitly define the scope of Hoshin Kanri process, while also attempts to illustrate its relationships with other important organizational management processes or systems.

First, this work considers Hoshin Kanri as the annual cycle of strategy implementation. The definition separates Hoshin Kanri process and Strategic Planning process. Although Hoshin Kanri concerns itself with the necessity of a proper medium and long-term corporate strategic plan, it doesn't provide full detail on how to conduct the analyses required for the strategy to be defined. This would be better carried out through a complete strategic planning framework. Thus, the Hoshin Kanri framework is not regarded as a strategy formulation framework, but as a framework that operationalizes the strategy.

Furthermore, the Hoshin Kanri is considered as a Strategic Performance Management framework, which puts it in the same context of the widely known Balanced Scorecard framework. Performance Management is related to the translation of strategic initiatives into measurable objectives and goals. To a better understanding of this context, a brief background is presented next.

According to Folan et al. (FOLAN; BROWNE; JAGDEV, 2007), performance management is the management of the system established by an entity that has chosen a direction towards 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. Performance measurement is one of the elements that constitute the performance assessment cycle. In its turn, the performance assessment is a tool for performance management. While performance measurement and performance assessment occur in cycles, the performance management scenario evolves as the strategic objectives are assessed and updated or redesigned to meet the conditions of the future. One notion which 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).

As it is classified in the Performance Management field (BOURNE et al., 2000), Performance Management Systems have a life cycle composed by the following phases: design, implementation and use. The design phase stands for the formulation of the performance management system: the decision of what should be measure, thus what indicators should be used to monitor progress towards the corporate strategic direction. The implementation phase stands for how the act of measuring the 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, thus it is associated with how data from performance reports are analyzed and used to improve performance. In that context, several authors have been addressing issues related to the design, the implementation or the use of performance management systems (BOURNE; KENNERLEY; FRANCO-SANTOS, 2005; BOURNE et al., 2000; FRANCO-SANTOS; 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 framework, which reinforces why Hoshin Kanri is regarded within this context in this work. Curiously, while the Balanced Scorecard, which borrows similar ideas to Hoshin Kanri in various ways, is perhaps one of the most recurring frameworks in the Performance Management literature, the Hoshin Kanri is practically not mentioned at all, although both provide a framework to align strategy throughout the company and to measure and manage progress towards corporate strategy achievement.

One explanation is that Hoshin Kanri is often regarded in research literature within the Total Quality Management (TQM) field, because it was grounded in that context. As Hoshin Kanri evolved alongside with Total Quality Management and is deeply associated with it, it could be that the former's scope is sometimes confused with the latter's. Also, Hoshin Kanri is often referred to in the practice community as a framework of Lean Manufacturing applications, given the strong relation involving TQM and Lean, and for the fact that most companies applying Hoshin Kanri are Japanese-owned Lean practitioners.

Another explanation is that the Hoshin Kanri is an approach that represents a different culture than that from western approaches of performance management. As Witcher & Chau (WITCHER; CHAU, 2007) analyze, while the western culture is centered on the selection and monitoring of the right measures to drive strategic change (which forms the background approach of Performance Management literature), the oriental culture is more focused on the capabilities required to provide change – which gives an idea of why Hoshin Kanri is a framework that provides further details on how to build the link between corporate strategic management and the daily actions of operational levels.

The adapted framework presented in Figure 3.1 also demarcates some of the main interactions between Hoshin Kanri and other management systems. First, Hoshin Kanri interacts with the Strategic Planning system in a mutual feedback relationship. The Strategic Planning provides the long and medium-term strategy of the corporation, from which the annual breakthrough priorities are derived from in the Focus stage of Hoshin Kanri. On the reverse way, in the closing of the annual cycle of Hoshin Kanri, 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 of the corporation. These are bottom-up issues that arise from the operations, e.g. new capabilities or structural changes, and must be addressed during the next years. The annual diagnosis plays an important role in fuelling these bottom-up issues.

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 versus external analysis in the Strategic Planning, with aid of a technique like the SWOT analysis, for example. 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 daily processes, so that the 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.

The interactions imply that if a company enhances its capabilities of strategic planning, process management and project management, it will benefit the Hoshin Kanri application.

The strong connections also provide a picture from which it can be interpreted that Hoshin Kanri might have not been perceived as a discrete approach by many practitioners during the transfer of Japanese management models, such as TQM and Lean, to the western literature – which could help explaining why Hoshin Kanri was not given as much attention as the other approaches, by far. On the other hand, the same picture demonstrates that the Alignment and the Review stages of Hoshin Kanri are some of the key features that define the uniqueness of Hoshin Kanri, i.e. its main distinctiveness features can be observed in its Alignment and Review approaches.

3.3.2 Dimensions for a Holistic Comprehension of Hoshin Kanri

This paper considers a broader perspective of Hoshin Kanri, in order to identify and develop a complete and robust set of guidelines.

First, it addresses Hoshin Kanri as a Strategic Performance Management System (SPMS), as it was thoroughly explained earlier. Secondly, it addresses Hoshin Kanri 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 the Pettigrew's framework (PETTIGREW, 2012). This framework shows the factors that should be taken into account during a change management process. It contains three basic components: a context, a process and an outcome component. The logic behind the adoption of this framework for analyzing a Performance Management System can be further observed in other work (FRANCO-SANTOS; 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, but this work focuses on the latter, since they constitute the field of action for the managers. Amongst the context elements, this work considered, for instance, factors like leadership, management style, and also 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. (BOURNE et al., 2000), and it constitutes, in fact, how the system or process under examination is carried out.

Finally, 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. In any case, it is worth noting that the study does not aim at investigating causal relationships between the implementation of Hoshin Kanri and its real implications on the strategic results (outcomes) of an organization, which would require a different research approach.

The main idea behind Pettigrew's framework is that organizational change processes can be better understood using a holistic approach. Based on this premises, Performance Management Systems 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; BOURNE, 2005).

A third component was also considered, as a variation of Pettigrew's framework, based on a broader work regarding enterprise engineering guidelines (DESCHAMPS et al., 2013a). The component is the '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.

Hence, Hoshin Kanri was analyzed by means of context, process and structure components, in order to properly identify the guidelines for its effective application. In other words, by taking those three components into account, rather than considering only the process of Hoshin Kanri, the study attempts to observe a universe of elements associated to effective Hoshin Kanri implementation in a manner that is as exhausting as possible.

The holistic comprehension of Hoshin Kanri is organized and illustrated in Figure 3.2, as it is presented next. The framework presents some of the elements that were considered as belonging to the context component and also some of the elements that were considered as belonging to the structure component. It is worth observing that all of these elements were identified during the preliminary literature review, which was conducted in order to build the conceptual foundations of the study. As for the process component, three major elements were considered based on the framework provided by Bourne et al. (BOURNE et al., 2000), as it was aforementioned (design, implementation and use). The four stages of the FAIR framework (focus, alignment, integration and review) were also considered as elements belonging to the process component and an analogy may be made between these latter four elements and those other three elements, as it will be discussed later on this text.

One might argue that there are other elements (as well as secondary elements that could be derived from those elements) that could have been illustrated in the framework, which is true. However, the important point of the framework is the demonstration of the inter-relationships between the dimensions of Hoshin Kanri.

First, Hoshin Kanri is considered as a Performance Management framework, while also as an organization-wide process, since it affects and involves business levels

and functions in a global manner. Secondly, the Performance Management is associated with a Context and a Structure component, besides the Process itself.

The Context is associated with the Process. The Process is also associated with the Structure. As all of these three components are inter-associated by definition, the Structure is also associated with the Context, although no specific arc establishing this association was placed in the network in order to get a clean view, without overlay among arcs.

The inter-association can be interpreted as follows. Both the Context and the Structure exert influence upon how the Process is performed. The reciprocal is true. A useful interpretation adopted in this work is that both the Context and the Structure components are elements that are not exclusively or strictly linked to the process under examination, but are also related to other process and systems of the company. Hence, the 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 illustrated in the network are other management systems that interact with Hoshin Kanri. The relations between Hoshin Kanri and Strategic Planning, as well as Project Management, TQM and Lean were mentioned earlier in this paper. Other systems illustrated are the Budget Planning System and the Incentive or Appraisal System, since these are elements that could exert influence in the design of performance targets, for instance.

The structure-related elements illustrated in the network comprise organizational structure, information systems, technological resources and information structure. The latter is related, for instance, to a sense of meta-data, such as how management reports, forms and data sheets are structured.

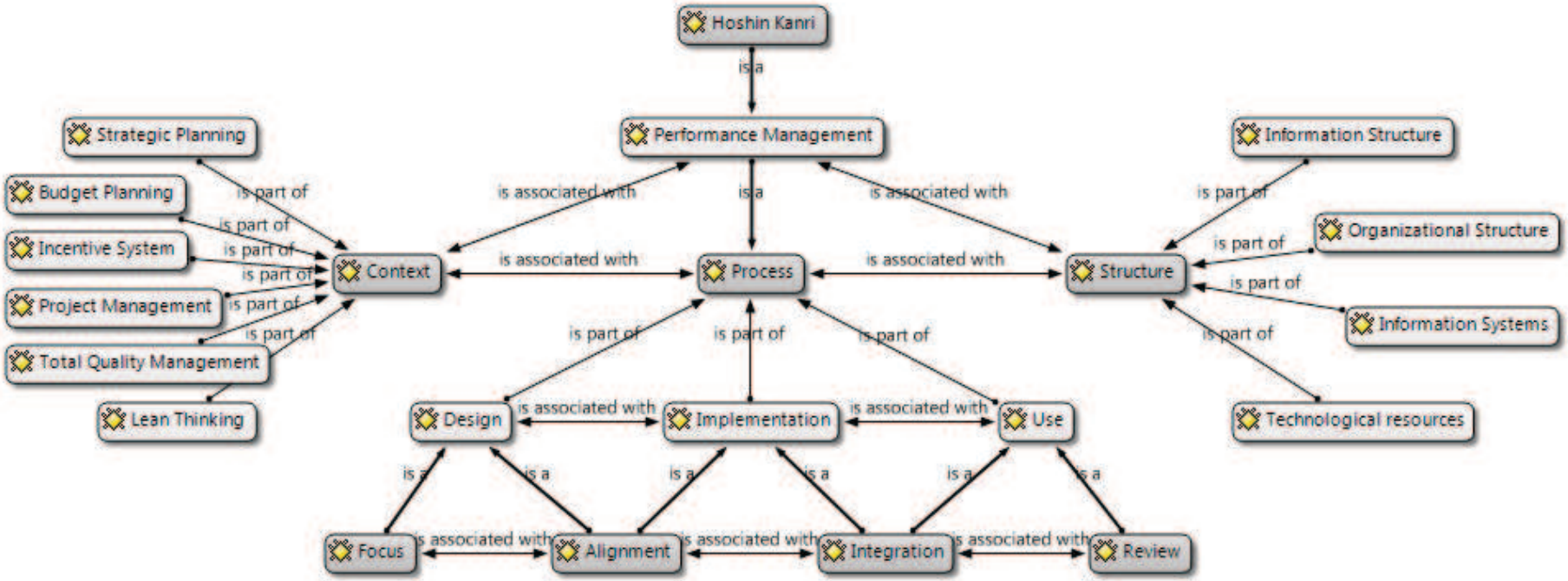

Figure 3.2 - Network view of a holistic comprehension of Hoshin Kanri as a Strategic Performance Management System Architecture

The aim of this network view is not to exhaust all the elements of Context and Structure, but rather to provide an understanding of how Context, Structure and Process dimensions interact. It implies that useful Hoshin Kanri recommendations to derive guidelines may be related not only strictly with the Process itself, but also with Context and Structure elements.

The process has design, implementation and use stages, as it is adopted in the Performance Management literature. These three elements are inter-associated, since each phase informs the subsequent. The “use” phase also provides feedback to the “design” stage. Likewise the inter-association between Context and Structure, the inter-association between “use” and “design” has not been made explicit through a specific arc, in order to achieve a clean network view. The same analyses occur to the Hoshin Kanri phases of “focus”, “alignment”, “integration” and “review” – the “review” phase provides feedback to the “focus” stage.

What is interesting noting is that the Hoshin Kanri’s Focus, Alignment, Integration and Review phases can be interpreted as a variation of the Performance Management life cycle’s Design, Implementation and Use phases.

Within 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 Catchball mechanism. The Catchball is also an approach that starts the “implementation” of performance targets and objectives, by aligning all levels and departments of the corporation.

The implementation 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, the “use” is complete with the conduction of the annual diagnosis and reflection, which provides feedback for the next annual cycle and drive major changes in corporate strategy. The fact that Hoshin Kanri’s FAIR framework can be interpreted in this manner as a variation of Performance Management life cycle’s Design, Implementation and Use phases reinforces and confirm the addressing of Hoshin Kanri as a Performance Management System Architecture.

3.4 RESEARCH DESIGN

In order to derive the Hoshin Kanri guidelines, this work applied a systematic review supported by the use of content analysis technique, which is a systematic and replicable method to analyze data and identify concepts.

The first step conducted in the systematic review was a proper search of Hoshin Kanri papers within databases. This task had a complication factor: Hoshin Kanri often assumes different denomination in literature and practice. Therefore, three variations were applied as search terms: “Hoshin”, “Policy Deployment” and a combination of “Hoshin” and “Policy” within metadata fields of papers from the databases consulted. 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 applied to, since is the most common western translation to Hoshin Kanri. For both search terms, the search was undertaken within the papers Titles, or the Keywords, or the Abstracts, or this three metadata fields combined. For the combination of “Hoshin” and “Policy”, the following logic was applied: “Policy” in Title, Keyword or Abstract metadata fields, while “Hoshin” in all fields.

The databases consulted comprised the following: Emerald, Elsevier (both Science Direct and Scopus), EBSCO (Academic Search Premier), Taylor and Francis, Web of Knowledge, and also the Summon search engine and the Capes search engine – the latter is widely used in Brazil.

After the search of papers, a mining was undertaken to filter only papers addressing directly the Hoshin Kanri subject. Thus, the set of the papers found were analyzed and a sample of that was classified as “secondary papers”, since they address Hoshin Kanri in a secondary manner while focusing on other systems, such as TQM and Continuous Improvement, and they aim at discussions that are not centralized in Hoshin Kanri issues. Eventually, a total of 36 papers were filtered. This set of papers can be characterized as follows. From that sample, half can be classified as a conceptual description or a literature review. Figure 3.3 shows a restricted number of publications in the first 90s, with an increase in the beginning of the century. Nevertheless, it is possible to verify the scarcity of publications.

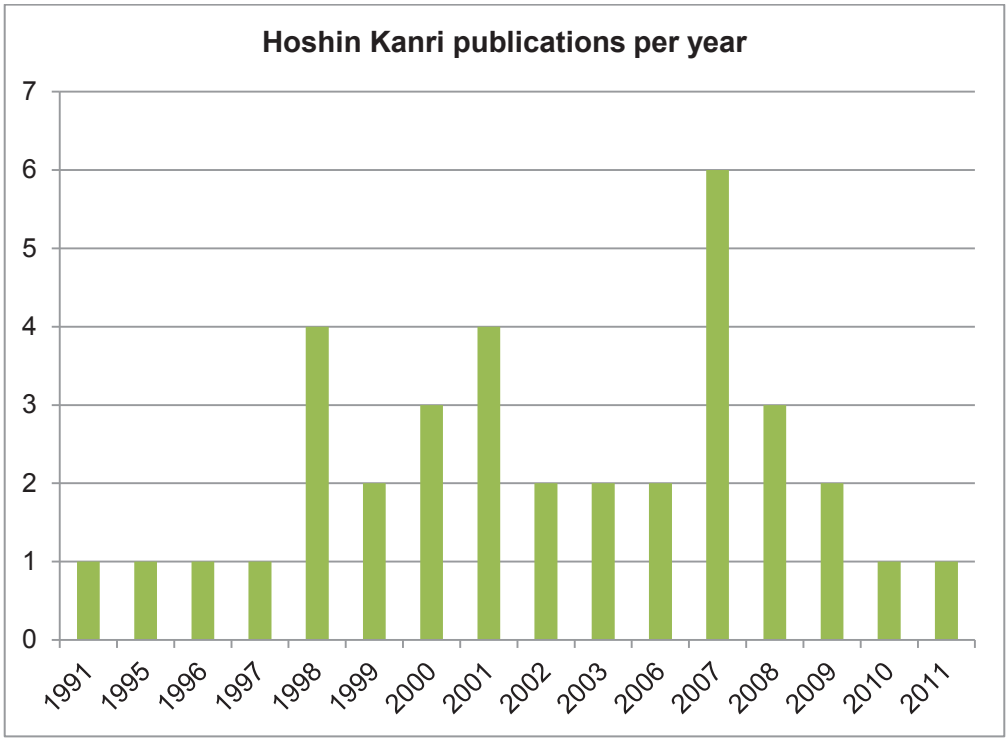

Figure 3.3 - Hoshin Kanri publications per year

The most recurring author is B. Witcher, with 10 publications as the author or coauthor. These are, in general, the most current and relevant publications. The majority of its papers have R. Butterworth or V. Chau as coauthors, each of which with 4 publications. The second most recurring author is C. Tennant, with 5 publications as the author or coauthor. Of these, 4 publications have P. Roberts as the coauthor. As it can be seen, near half of the set of papers identified is written by only a few authors.

A final characterization of Hoshin Kanri literature refers to where the papers are published, as it is demonstrated in Table 3.2. The publications are distributed over a diverse set of periodic journals. As it is evident, the most recurring periodic journals are related to Total Quality Management issues, which can be explained by some of the arguments already mentioned in this work. These characterizations were supported by the use of the Mendeley computational tool, which helps organizing research data.

Table 3.2 - Hoshin Kanri publications per periodic

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

For the derivation of guidelines, a prioritization was undertaken according to their content and a first literature review was conducted to identify the main concepts and frameworks of Hoshin Kanri, as it is further explained next.

It is important noting that a literature review of Performance Management field was undertaken previously, as this work regards Hoshin Kanri in this context.

For the derivation of guidelines, the content analysis technique was applied. The technique was chosen due to the fact that the universe of scientific Hoshin Kanri publications is not extensive, and a systematic procedure for analyzing and synthesizing the literature was needed for the guidelines to be robust.

The analysis was conducted with aid of a computational tool named ATLAS.ti. The software focuses on qualitative data analyses, and its most basic concepts are as follows. Each project is handled as a hermeneutic unit, which keeps track of all data belonging to it, whether they are text documents or multimedia files. 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 quote. Relation between quotations and codes are N-to-N, i.e., each quote 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 following section presents the process undertaken in the content analysis. The description of the process is organized through design, implementation and use’s framework of Bourne et al. (BOURNE et al., 2000), which enables a better comprehension of the whole process. The design phase corresponds to the task of preparing the ground for the analysis, and the implementation phase is the conduction of the analysis itself, while the use phase involves the actual use of data generated in the analysis – in other words, it is the stage where data is synthesized. The process description is also broken down into milestones, following a numerical sequence, to make explicit its step-by-step.

3.4.1 Design of the analysis

1. First of all, a preliminary literature review was undertaken, which allowed identifying the main concepts and frameworks within the Hoshin Kanri field and its context – the fields of operations strategy and performance management – which resulted in the development of the two main frameworks presented earlier in Figure 3.1 and Figure 3.2. This conceptual ground served as a starting point for the design of codes to be considered in the content analysis. It also served as a backbone for organizing the codes during the conduction of content analysis.
2. Upon the concepts and frameworks identified, a set of codes was designed to work as dimensions to be considered in the content analysis. The codes comprised, among others, Hoshin Kanri’s process stages, its methods and

concepts, as well as issues related to its application context and its structure. The network view presented in Figure 3.2 was actually built with the codes designed in the hermeneutic unit within ATLAS.ti. Hence, all concepts presented in Figure 3.2 were applied as codes in the analysis technique. However, dozens of other codes that are not present in the network shown in Figure 3.2 were also applied, since such network served only as a starting point and a backbone for the content analysis. Some codes were designed with a supportive function, since they would help classifying 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.

3. In order to select relevant works among a set of articles to be considered for the extraction of recommendations that could lead to the derivation of guidelines, a prioritization was made based on each article's objective, source of publication and research method. Higher priority was given to highly-referenced journals and articles containing empirical evidence about Hoshin Kanri's application.

3.4.2 Implementation of the analysis

4. The content analysis of each article selected was conducted by a procedure of reading the article, identifying relevant quotations and assigning the appropriate codes for them. A relevant quote 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. The quotations could be highlighted from the synthesis of the literature review of the work, from the results of the work and/or from its conclusions. Various codes could be assigned to each quote, as appropriate to create better traceability of information.
5. 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 degree, which led to the creation of code families. The latter enabled arranging the codes in a manner that they could be quickly accessed during analyses of the articles.
6. After concluding analyses of all the selected articles, a global review was undertaken. Each quote was revisited for a check on the codes assigned to it. This was particularly necessary because new codes had been created

throughout the reading process. At this point, all possible guidelines were consolidated, resulting in a total of 79 quotations, each of which was classified as a possible guideline for applying Hoshin Kanri. The following screenshot of the ATLAS.ti software in Figure 3.4 illustrates a sample of the family codes, the procedure of assigning codes and the list of quotations assigned with the “Possible guideline” code.

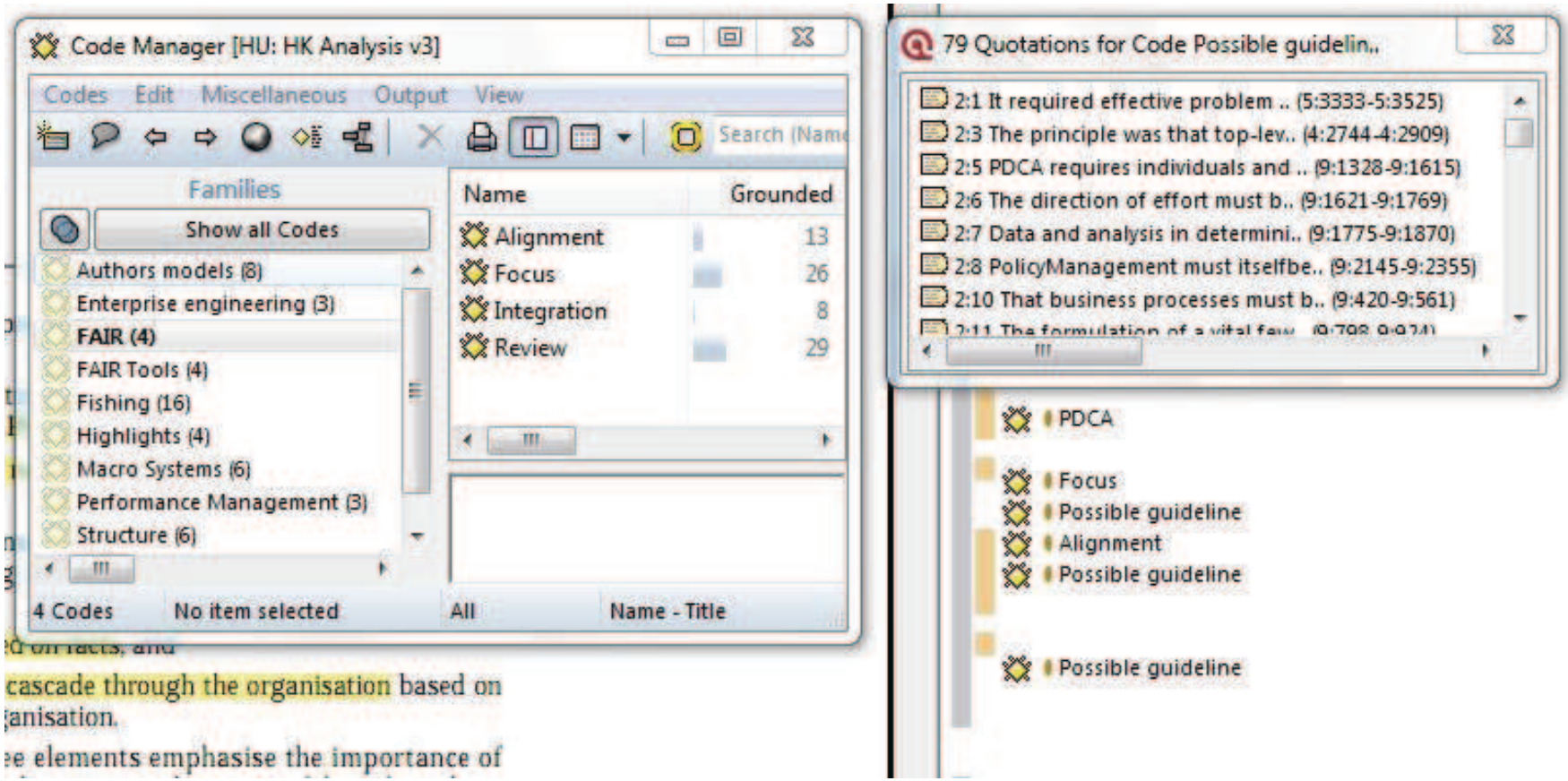

Figure 3.4 - Screenshot of the application of content analysis software in the codifying process

3.4.3 Use of the analysis

7. In order to better handle the generated data, a software for Mind Mapping was applied – namely, the XMind. It helps to quickly organize and reorganize information. Thus, the first task required was copying the content of each possible guideline quote to the Mind Mapping software. After that, a review of the description of each possible guideline was performed in order to ensure that they were meaningful. Thus, the objective was to have all possible guidelines described in the form of statements.
8. After reviewing their description, all possible guidelines statements were labeled, each of which, with its correspondent author. Then, they were sorted by category. The selection of applicable categories took into account the most frequent codes assigned to the original possible guideline quotations. Since the "FAIR" process phases have been identified as a common pattern, along with the context dimension, these were applied as the main categories of guidelines.
9. Each category was then thoroughly analyzed, which led to identifying, amongst its statements, several common denominators. This means that, for each stage of Hoshin Kanri FAIR process, as much as for the context dimension, the authors discussed a series of subjects in common. These common denominators were applied as subcategories of guidelines.
10. Eventually, almost all subcategories had statements from different authors explicitly addressing the same topics, thus demonstrating that there appear to be a consensus about these particular issues. Hence, all topics agreed by more than one author were converted into a guideline by writing a complete and meaningful recommendation statement based on the author's 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 implied that their ideas are consistent with others author's ideas. Hence, these particular topics were also converted into guidelines. Moreover, two particular topics had no explicit statements among the possible guidelines quotations. However, their ideas also seem to be implicit in the literature, and, therefore, two guidelines were created for these topics. Finally, the topics that cannot be interpreted as a consensus in the literature were classified as a "need further investigation" topic,

and were not converted into guidelines. The most relevant particular issues to be further investigated are presented and analyzed in the discussion section. The following screenshot taken of the XMind software in Figure 3.5 illustrates the categories of guidelines, the particular subcategories identified for the Alignment category and the quotations classified within the “Participation” subcategory. The figure shows that, as a result of the content analysis procedure, several statements from different authors were found in the literature regarding the importance of organization-wide participation - people from different departments and hierarchy levels - in the process of planning the policies for the following annual cycle of strategy. For this particular case, for instance, the “Participation” was identified as a subject that is a common denominator in Hoshin Kanri literature. Thus, a single and full statement was developed as a synthesis of the several statements extracted from different authors, as it follows: “*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*”. This full statement is actually the guideline for the subject “Participation”. The same procedure was applied for all categories and subcategories identified and organized in the content analysis procedure. In order to help clarifying and providing a better understanding on this procedure, another example is illustrated. Figure 3.6 presents the statements found for the subject “Annual policies”. In this latter particular example, the resulting guideline was: “*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*”. It is not the aim of this work to present all of the original 79 quotations that generated the set of guidelines for Hoshin Kanri. The important point is the procedure that led to the development of the guidelines.

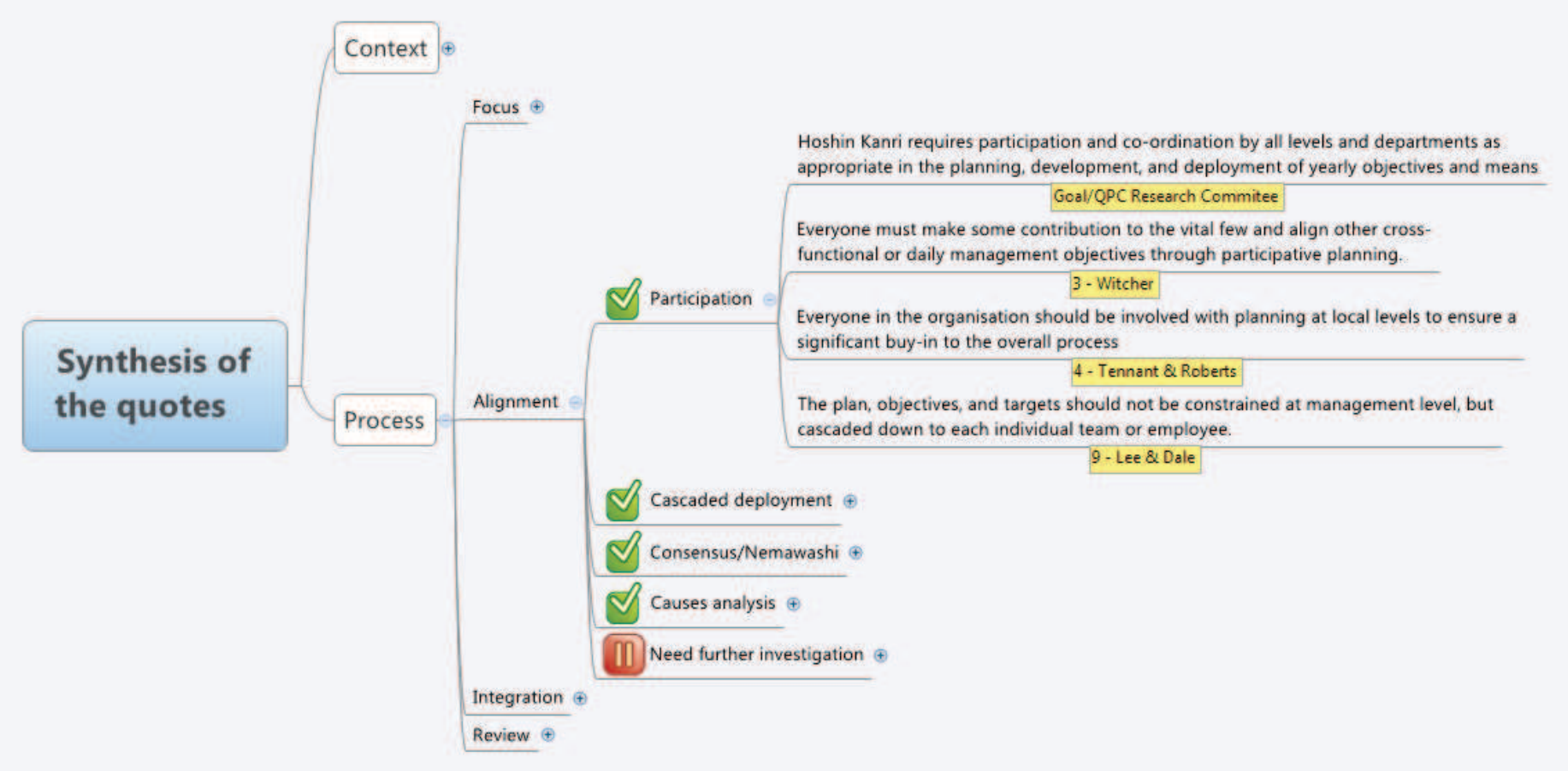

Figure 3.5 - Screenshot of the application of mind mapping software in the quotations synthesis – example 1

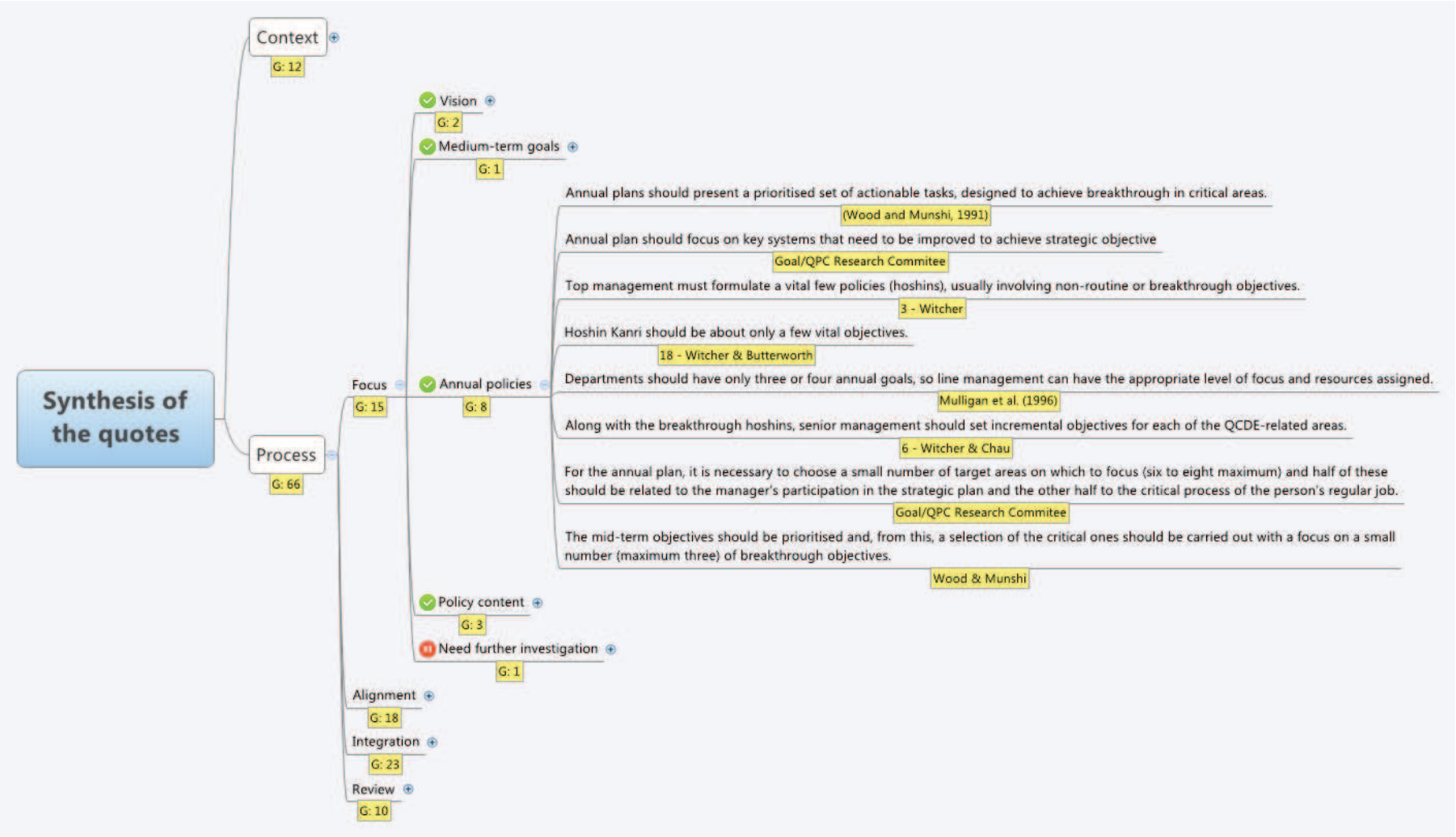

Figure 3.6 – Screenshot of the application of mind mapping software in the quotations synthesis – example 2

3.5 FINDINGS

As it was thoroughly explained previously and it was illustrated in Figure 3.2, three major dimensions were applied as broad categories of guidelines: Context, Process and Structure. For the Process dimension, four categories were considered, based on a recurring framework of Hoshin Kanri literature: “Focus”, “Alignment”, “Integration” and “Review”. On the other hand, for the Context dimension, two categories were identified as a result of content analysis application: “Capabilities” and “Organizational Culture”. Whereas for the Structure dimension, no guideline was specifically identified, as it will be explained later.

A collection of common denominators, i.e. a set of recurring topics presented by the authors, was identified for each of these six categories of guidelines. Thus, a set of common denominators regarding “Capabilities”, another set of common denominators regarding “Organizational Culture”, another set of common denominators regarding “Focus”, and so on. The common denominators can be interpreted as central aspects for Hoshin Kanri applications. Hence, in other words, a set of central aspects was identified for each category, and each of which was applied as a subcategory of guideline. Eventually, one guideline was developed for each one of these subcategories, which resulted in a total of twenty-three (23) guidelines. This guidelines were presented in a previous published work (SILVEIRA et al., 2013).

It is interesting to note that while some of the common denominators that were identified among the quotations and applied as subcategories were directly associated with original codes that had been established in the content analysis process since the beginning, other common denominators, on the other hand, were not associated with any particular code. This means that the synthesis of quotations led to the identification of new dimensions that could be applied in the content analysis of a new set of articles and enrich the analysis.

A major advantage of conducting content analysis with a computational tool is the attainment of traceability of data studied. This gives flexibility to the researcher or the research team, in a manner that a new set of perspectives, i.e. new codes, could be easily incorporated into the analysis frame, allowing data that had already been manipulated to be analyzed under new perspectives. 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.

The process undertaken in the content analysis described in this paper can be summarized into ten steps, as presented in Figure 3.7. This framework can be used as a procedure for conducting content analyses, especially those aimed at identifying guidelines for a determined process or system.

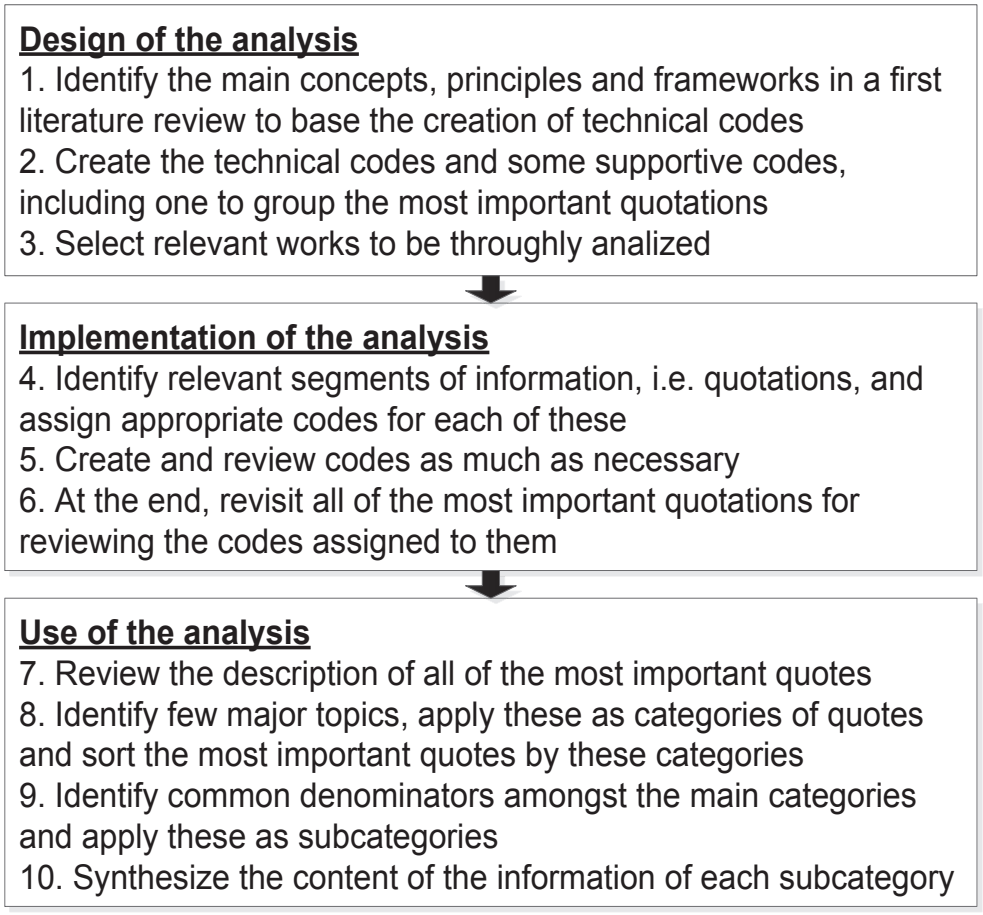

Figure 3.7 - A ten-step framework for conducting the content analysis process

Table 3.3 and Table 3.4 present the central aspect of each guideline derived from the literature using the method described the previous section and summarized in Figure 3.7. The left column defines the identification number for each Hoshin Kanri guideline. The central column presents the central aspect of each guideline. Whereas the right column lists for each of the central aspects the main references from which the quotations were extracted in the content analysis process. 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 Hoshin Kanri literature references. On that account, the references of these two particular central aspects are described with the “inspired by” prefix.

The number of references gives an idea of how strong each guideline is within the literature, i.e. in what degree of consensus these topics are addressed among the authors. The full description of each guideline is presented next.

3.5.1 Context-related Guidelines

A total of 7 guidelines related to the Context dimension were derived. The guidelines are classified by the use of the 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 the corporation “Capabilities”, i.e. the set of knowledge, skills, abilities, capacities and or competencies of individuals and teams of the corporation. Actually, Hoshin Kanri itself can be framed as a capability to the corporation – 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; 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 next. The central aspect of the guideline is described and is followed by the full statement in italic. Both the central aspect and the full statement are presented within boxes for a better understanding. A brief explanatory commentary follows each guideline.

Table 3.3 - Central aspects of Context-related Hoshin Kanri guidelines

Hoshin Kanri Context		
#	**Organizational culture**	**References**
1	Management approach centered in the continuous improvement of business processes	(LEE; DALE, 1998; WITCHER; BUTTERWORTH, 2001)
2	Active involvement of leadership	(KONDO, 1998; WITCHER, 2003)
3	Decisions based on the *Nemawashi* philosophy	(LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER, 2003)
#	**Capabilities**	**References**
4	Quality management capabilities	(LEE; DALE, 1998; WITCHER; CHAU; HARDING, 2008; WITCHER, 2003)
5	Ability to apply matrix management	Inspired by (CAMPOS, 2004; JACKSON, 2006; WITCHER, 2003)
6	Project management capabilities	Inspired by (JACKSON, 2006; WITCHER, 2003)
7	Administration and continuous improvement of Hoshin Kanri itself	(WITCHER; CHAU; HARDING, 2006; WITCHER, 2003)

3.5.1.1 Organizational Culture

Next, the seven guidelines derived for the Organizational culture category are described.

Box 1 – Original Guideline #1

Central aspect: Management approach centered on continuous improvement of business processes.

Full statement: *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.*

The Guideline #1 implies that the application of Hoshin Kanri is intrinsically linked to a culture of continuous improvement of business process. On that account, for an organizational to succeed in its Hoshin Kanri initiative, it has to prepare the ground of continuous improvement philosophy. It provides a sense of purpose for the Hoshin Kanri initiative. The most recurring approaches mentioned in Hoshin Kanri literature for the culture of continuous improvement of business processes are PDCA, TQM and Lean.

Box 2 – Original Guideline #2

Central aspect: Active involvement of leadership.

Full statement: *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.*

The leadership culture is often mentioned in Hoshin Kanri literature. A proper behavior of leaders is fundamental to bring all business levels and functions together towards the achievement of the corporate strategic purpose. As Hoshin Kanri clearly deals with organizational change, this guideline is particularly important because it is concerned with effectively carrying out organizational change.

Box 3 – Original Guideline #3

Central aspect: Decisions based on the Nemawashi philosophy.

Full statement: *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.*

The Nemawashi way of making decisions is deeply rooted in the Japanese culture and is realized in a range of formal and informal habits involving decision making. The Catchball mechanism itself is an evidence of this culture. Nemawashi is interpreted as an organizational culture issue because it is related to how the organization behaves in decision-making processes.

3.5.1.2 Capabilities

Next, the guidelines for the capability category are presented.

Box 4 – Original Guideline #4

Central aspect: Quality management capabilities.

Full statement: *Individuals and teams must be empowered through an ability to use the PDCA methodology, quality tools, team working and problem solving techniques.*

As Hoshin Kanri was raised in the context of TQM, it is highly associated with PDCA-like management capabilities, with built-in activities of team working, problem solving and quality tools application. Hence, the development and continuous enhancement of these capabilities are essential to effectively implement and use Hoshin Kanri. Also, the guideline states that the individuals and teams must be empowered through these capabilities. The concept of empowerment is related not only to the skills, but also to the autonomy that these collaborators have to apply the management techniques in order to solve the problems that emerge within their daily work.

Box 5 – Original Guideline #5

Central aspect: Ability to apply matrix management.

Full statement: *An ability to apply matrix management forms of organizing work is recommended to effectively combine departmental and cross-functional management.*

The capability of combining daily functional management and cross-functional management is often mentioned in the literature. This was considered as an organizational capability guideline, rather than a structure-related guideline, because it does not addresses matrix management as a formal need to the organizational structure, but as a management ability recommendation.

Box 6 – Original Guideline #6

Central aspect: Project management capabilities.

Full statement: *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.*

The Guideline #6 deals with the ability of how organization-wide strategic issues are addressed. In doing so, it emphasizes the need of project management capabilities.

Box 7 – Original Guideline #7

Central aspect: Administration and continuous improvement of Hoshin Kanri itself.

Full statement: *Hoshin Kanri must be constantly managed and continually improved by top management, like any cross-functional process.*

The last capability-related guideline addresses the Hoshin Kanri process itself as a capability that should be continuously improved. While this might seem evident, the guideline implies that Hoshin Kanri must be normalized and standardized as a corporate business process with a Hoshin Kanri manager or leader in charge.

3.5.2 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. A thorough explanation of each category can be seen in the previous sections of this work paper or in other works (WITCHER; BUTTERWORTH, 2001; WITCHER, 2003).

3.5.2.1 Focus

Next, the guidelines for the Focus category are presented.

Box 8 - Original Guideline #8

Central aspect: A vision that is challenging and relevant to all collaborators.

Full statement: *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.*

For Hoshin Kanri, the fitting between business strategy and business execution in the operational level starts by the definition of the long-term strategic vision of the corporation.

Table 3.4 - Central aspects of Process-related Hoshin Kanri guidelines

Hoshin Kanri Process		
#	**Focus**	**References**
8	A vision that is challenging and relevant to all collaborators	(LEE; DALE, 1998; ROBERTS; TENNANT, 2003)
9	Medium-term goals designed to encourage innovation	(JOLAYEMI, 2008; LEE; DALE, 1998; WITCHER; CHAU, 2007)
10	Annual policies focused only on a few breakthrough objectives along with incremental objectives	(GOAL/QPC RESEARCH COMMITTEE, 1994; JOLAYEMI, 2008; WITCHER; BUTTERWORTH, 2001; WITCHER; CHAU; HARDING, 2008; WITCHER, 2003; WOOD; MUNSHI, 1991)
11	An appropriate design of policies: meaningful, challenging and balanced	(WITCHER; BUTTERWORTH, 2001; WITCHER; CHAU; HARDING, 2008)
#	**Alignment**	**References**
12	Organization-wide participation in policy planning	(GOAL/QPC RESEARCH COMMITTEE, 1994; LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER, 2003)
13	Cascaded deployment of the policies through Catchball	(LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER, 2002, 2003)
14	Catchball applied as an iterative process of consensus building	(LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER, 2003)
15	Planning based on causes analysis	(GOAL/QPC RESEARCH COMMITTEE, 1994; WITCHER, 2002, 2003)
#	**Integration**	**References**
16	Incorporation of the policies into daily management	(JOLAYEMI, 2008; WITCHER; CHAU; HARDING, 2008; WITCHER, 2003)
17	Responsibility based on the task's scope, rather than strictly tied to a functional area	(WITCHER; BUTTERWORTH, 2001; WITCHER, 2002, 2003)
18	Self-monitoring of targets within daily management	(LEE; DALE, 1998; WITCHER; BUTTERWORTH, 2001; WITCHER, 2003)
19	Periodic reports on performance	(JOLAYEMI, 2008; TENNANT; ROBERTS, 2001a; WITCHER; CHAU, 2007)
20	Managers engagement	(WITCHER, 2002)
21	Visible management	(LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER; BUTTERWORTH, 2001)
#	**Review**	**References**
22	An annual diagnosis from top management focused on checking how the management of strategic issues is carried out in the work areas	(KONDO, 1998; LEE; DALE, 1998; TENNANT; ROBERTS, 2001a; WITCHER; BUTTERWORTH, 2001; WITCHER; CHAU; HARDING, 2008)
23	An appropriate conduction of the annual diagnosis: stimulating dialogue with people at all levels in order to potentiate operations capabilities	(KONDO, 1998; LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER; CHAU; HARDING, 2008)

According to many authors, the vision is usually expressed as the company purpose for the next five-to-ten years. It must be designed in a manner that people at operational levels understand what is the company's purpose for the future and how their daily work impact on the achievement of that purpose. On that account, the authors claim that the vision should be challenging and customer-focused. Thus, this guideline establishes what could be perceived as a range of quality attributes for the design of long-term vision.

Box 9 - Original Guideline #9

Central aspect: Medium-term goals designed to encourage innovation.

Full statement: *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.*

As it is claimed in the literature, the long-term purpose of the company must be broken down into a set of medium-term goals aimed at innovation. The medium-term goals are usually expressed within a time horizon of three-to-five years. That way, they should have the ability to turn the relatively abstract strategic vision of the company into a set of concrete goals to reach in the near future. Furthermore, as the authors say, the medium-term goals should be designed in a manner that encourages innovative and creative thinking, since they base the selection of the vital few breakthroughs to be achieved every year. Thus, irrespective of how the company conducts its strategic planning process, this guideline implies that the design of a set of medium-term goals with certain attributes is essential to effectively start the annual cycle of Hoshin Kanri.

Box 10 - Original Guideline #10

Central aspect: Annual policies focused only on a few breakthrough objectives along with the incremental objectives.

Full statement: *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.*

The Guideline #10 points out the necessity of determining only a few vital priorities which are, in essence, breakthrough objectives to be achieved during the annual cycle of Hoshin Kanri. The vital breakthroughs aim at improving substantially the performance of critical functions of the business. Hence, they are high-impact objectives. Meanwhile, insofar as the policies are defined at the more operational levels, incremental improvement objectives should also be considered in order to sustain the performance of important daily processes.

Box 11 - Original Guideline #11

Central aspect: An appropriate design of policies: meaningful, challenging and balanced**.**

Full statement: *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).*

The last focus-related guideline is a recommendation for the design of annual policies. At this point, it is worth remembering the concept regarded earlier in this paper: each annual policy, at each level and department, refers both to the performance targets as to the actions intended. The first attribute implies that the policies must have meaning to the work team that will implement them. In other words, the policies must be comprehensible, while also relevant and important to the people who implement them. The second attribute implies that the policies must work as mechanism to motivate and encourage people to achieve the goals of the company. Whereas the third attribute implies that the policies should take into account a balanced set of dimensions of performance, which are often referred to as QCDE dimensions, or a variation of that.

3.5.2.2 Alignment

Next, the guidelines for the Alignment are presented.

Box 12 - Original Guideline #12

Central aspect: Organization-wide participation in policy planning.

Full statement: *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.*

The organization-wide participation in policy planning is a consensus in Hoshin Kanri literature. This recommendation implies that policies must be cascaded in a manner that the action plans are developed and debated until the more operational levels of the company. Even though people in the operational level may not have as much margin for adjustment as managers have at the more strategic levels, they should be involved in the process of planning to ensure alignment, agreement and commitment to the objectives.

Box 13 - Original Guideline #13

Central aspect: Cascaded deployment of the policies through Catchball.

Full statement: *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.*

The Guideline #13 addresses the need to run a cascaded deployment of the policies, vertically throughout corporate levels and horizontally across business functions, by using the Catchball mechanism. Since the Catchball is one of the core aspects of Hoshin Kanri, this is a natural and expected guideline.

Box 14 - Original Guideline #14

Central aspect: Catchball applied as an iterative process of consensus building.

Full statement: *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.*

The aspect that differentiates guideline #14 from guideline #13 is that the present guideline addresses the nature of how Catchball should be conducted, with

emphasis on consensus building. While the guideline subject can be perceived as a concept that is inherent in Catchball, it works as a qualification of Catchball application by placing the iterative debate and the consensus building in the spotlight. The guidelines addressing the Catchball are specially supported by the work of Tennant & Roberts (TENNANT; ROBERTS, 2001b), which is specifically focused on the application of Catchball.

Box 15 - Original Guideline #15

Central aspect: Planning based on causes analysis.

Full statement: *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.*

This guideline addresses the logic behind the definition of policies. As Hoshin Kanri is directly associated with PDCA-like management capabilities, the planning activities must be underpinned by cause-and-effect analyses, following the PDCA cycle. Thus, based on problem-solving principles, processes should be examined with in-depth analyses to find out what are the causes that impact on the achievement of the performance target intended. The Pareto principle helps identifying which causes exert a greater impact on the targets. Hence, actions should address the most significant causes, so that the performance targets are more likely to be effectively achieved. The concepts addressed in guideline #15 also imply that the “sum” of policies of a corporate level should be sufficient to the achievement of the precedent/superior level’s policies.

3.5.2.3 Integration

Next, the guidelines for the Integration category are presented.

Box 16 - Original Guideline #16

Central aspect: Incorporation of the policies into daily management.

Full statement: *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.*

The Guideline #16 is a natural and expected recommendation, since it regards an important element of Hoshi Kanri: the need to integrate the annual policies into management routines so that the progress on the achievement of policies are continuously monitored and is subject to proper countermeasure actions. The guideline explicitly addresses that the policies can be integrated as daily processes that are subject to process management routines or in the form of strategic projects, which in turn are subject to project management routines.

Box 17 - Original Guideline #17

Central aspect: Responsibility based on the task's scope, rather than strictly tied to a functional area.

Full statement: *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.*

The Guideline #17 addresses how ownership over the management and achievement of policies should be organized. It explicitly lays emphasis on the need of a systemic approach that crosses the functional boundaries of the corporation, in such a manner that the ownership is not strictly tied to a functional area, but is organized based on the nature of the objective being addressed. Thus, a quality performance target, for instance, may not be addressed strictly as an objective tied to the functional area responsible for quality management. Furthermore, it implies that the ownership over objectives that need a cross-functional approach must be clearly defined. Hence, for an organization-wide objective, a cross-functional management team must be assigned with a clear definition of who is in charge of the objective. Since the guideline addresses an issue that is related to the manner through which the policies are conducted within management routines, it was classified as a guideline of Integration.

Box 18 - Original Guideline #18

Central aspect: Self-monitoring of targets within daily management.

Full statement: *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.*

The Guideline #18 emphasizes the importance of self-monitoring of targets within management routines. Similarly to the case of guideline #14, the present guideline could be perceived as a concept that is inherent in the application of PCDA-based management approach, but it works as a qualification of the task of managing the processes and projects through which the policies are tackled. It is worth noting that this qualification highlights the need of a self-discipline-based approach, which relates to the concept of empowerment addressed in guideline #4.

Box 19 - Original Guideline #19

Central aspect: Periodic reports on performance.

Full statement: *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.*

Hoshin Kanri is a framework with built-in systematic review activities, as it can be observed by the encapsulation of PDCA cycles in Figure 3.1. As part of PDCA itself, the progress on policies must be constantly checked, which implies that performance reviews must be undertook systematically, on a regular basis, so that countermeasures actions are defined and implemented in a timely manner whenever is necessary. Moreover, the guideline provides a qualification of the activity of reporting performance, by stating that performance reviews should work as forums of processes investigation. In other words, in adherence to PDCA and problem-solving

principles, performance review activities should be underpinned by cause-and-effect-based analyses and reflections.

Box 20 - Original Guideline #20

Central aspect: Managers engagement.

Full statement: *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.*

The Guideline #20 highlights the importance of a proper leadership of policy-related management activities. It is strongly associated with the previous guideline, since it points out that every manager or individual who have ownership over policies must be committed to ensure that systematic reviews of performance are effectively carried out.

Box 21 - Original Guideline #21

Central aspect: Visible management.

Full statement: *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.*

The last guideline for the Integration category raises a concept considered as an essential feature for the effective tracking of progress on the achievement of policies. The concept of visible management is often mentioned in Hoshin Kanri literature and is rooted in the context of TQM and Lean applications. Indeed, it is an important feature in Japanese approaches of management. As it is claimed, for effectively undertaking visible management, key management data must be displayed in a highly visible manner. The data must also be constantly updated so that progress on the objectives can be tracked at any moment.

3.5.2.4 Review

Next, the guidelines for the Review category are presented.

Box 22 - Original Guideline #22

Central aspect: An annual diagnosis from top management focused on checking how the management of strategic issues is carried out in the work areas.

Full statement: *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 shouldn't 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.*

The Guideline #23 establishes the need of the conduction of an annual diagnosis by top management in the work areas, while also elucidates in detail the purpose of this diagnosis. It highlights that the annual diagnosis should be aimed at how well management is carried out in the work areas for the achievement of strategic priorities. Both guidelines of the Review category are specially supported by the works of Witcher , Chau and Harding, which conducted a thorough analysis of the application of Top Management Audits (WITCHER; CHAU; HARDING, 2008).

Box 23 - Original Guideline #23

Central aspect: An appropriate conduction of the annual diagnosis: stimulating dialogue with people at all levels in order to potentiate operations capabilities.

Full statement: *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 shouldn't 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.*

Similarly to the case of Guidelines #13 and #14, the aspect that differentiates the Guideline #23 from the Guideline #22 is that the present guideline addresses the

nature of how the annual diagnosis should be conducted. In doing so, it works as a qualification of the diagnosis application. The extensive statement of the guideline provides a full explanation that sets the importance of creating a mutual dialogue with those who implement the annual policies in the work areas. The guideline also points out that the mutual discussion should work as an opportunity for top management to understand how to potentiate some essential capabilities throughout the company. It is also an opportunity to institutionalize best practices across the organization.

3.5.3 Structure-related Guidelines

No guideline was derived specifically for the Structure dimension. This result can be interpreted in two ways. On the one hand, many Structure-related components are intrinsically connected to Context-related and Process-related components, in such a manner that a double categorization would not be useful for the practical purpose of the guidelines list. For example, the guideline #11 addresses features which 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.

On the other hand, 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, the 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.

3.6 IMPLICATIONS

The approach of this work has several possible applications, for both research and practice communities. First, the framing of Hoshin Kanri as a Performance Management System provides a broader perspective for understanding its assumptions and applications, which can be extended as well to an interpretation of Hoshin Kanri as a high-order dynamic capability of a corporation. This broader view

highlights the importance and the usefulness of the guidelines model generated, 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 of the corporation. Second, the guidelines model can be applied in a variety of ways, both for practical purposes and for research purposes. The role of Hoshin Kanri is discussed next, followed by the implications of the guidelines model for both practice and research.

3.6.1 The role of Hoshin Kanri

First, it is important to observe that the applicability of the model provided by Hoshin Kanri is not restricted to a particular industry or competitive segment. However, due to its origins, the model is usually implemented in companies which apply Lean Manufacturing and TQM, which in turn are usually Japanese-owned and/or manufacturing corporations that compete in a context of JIT (Just In Time) supply – for instance, in industries such as automobile, metallurgical and telecommunication. However, there is no evidence that Hoshin Kanri cannot be implemented in service companies and other segments, or that the model cannot be implemented in small or medium companies. It can be assumed that the guidelines may be useful for companies of different industries and segments, if applied as guiding principles.

Secondly, even though Hoshin Kanri is addressed in the context of Performance Management in this work, 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 the implications regarding how a performance measure should be structured. There are many other strategic management models that can be found in the literature, such as the Balanced Scorecard (KAPLAN; NORTON, 1992) and the Dynamic Performance Measurement Systems (BITITCI; TURNER; BEGEMANN, 2000).

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 Balanced Scorecard (BSC) has the potential to enhance the management of corporate strategic fit, as it is addressed by other authors (WITCHER; CHAU, 2007; YANG; YEH, 2009). In fact, the BSC itself has evolved to incorporate Catchball and other concepts of Hoshin Kanri. In the case of a combined use of Hoshin Kanri and BSC, the BSC is often considered as an

adequate framework to design performance measures at the top level. It is successful in translating and communicating the strategy, especially by the use of its strategy maps with cause-and-effect relationships among objectives distributed through the so-called BSC's perspectives, which were described earlier in this paper. 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; also between performance targets and actions. On that same account, Hoshin Kanri is deeply grounded on visible management, as it is addressed in guideline #21, and the use of Catchball 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 BSC can be seen in the perspective of their cultural differences, which was earlier mentioned in this paper: while the western culture, represented here by BSC, is centered on the selection and monitoring of the right measures to drive strategic change, the oriental culture, represented here by Hoshin Kanri, is more focused on the capabilities required to provide change.

Also, as Witcher & 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 its content, though we could assume that the management of strategy execution has a great potential to fuel strategic choice in ways that it may enhance the strategy content as well.

Thereby, Hoshin Kanri is a framework that supports the resource-based view (RBV) approach of strategy, which emerged in the 1990s. The RBV approach understands that the competitive advantage of a company is sustained over time by its unique or distinctive set of core competences, thus the strategy should be based on the development of organizational capabilities, which puts the concept of organizational learning in the spotlight. This notion leads to an understanding of Hoshin Kanri as a dynamic capability. The foundation for this understanding lies on Hoshin Kanri's

ability to conduct cross-functional management in the benefit of developing organizational capabilities.

The framing of Hoshin Kanri as a dynamic capability is thoroughly explained in Witcher & Chau's work (WITCHER; CHAU, 2007) and is supported elsewhere (JACKSON, 2006). As the former authors discuss, the concept of core competence is described by Prahalad & Hamel (PRAHALAD; HAMEL; JUNE, 1990) as an ability to integrate different technologies through cross-functional management and collaborative working. Though, while Prahalad & 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 & Chau continue to explain, a dynamic capability is defined by Eisenhardt & Martin (EISENHARDT; 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. (TEECE; PISANO; SHUEN, 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. They go on to conclude, founded on Winter (WINTER, 2003), that Hoshin Kanri is a dynamic capability of higher order, within which dynamic capabilities of lower order are nested.

3.6.2 Implications of the guidelines model

Following the conceptual framings explained previously, Hoshin Kanri is seen in this work as a high-order dynamic capability to manage the annual cycle of strategy implementation and the development of organizational capabilities. With that in mind, the guidelines generated here could be applied for the development of that high-order dynamic capability. Thus, as a general practical implication, a non-applicant of Hoshin Kanri, for instance, could use the guidelines model in a general manner to rethink about its current performance management system and, hence, to potentiate its capability of managing strategy implementation.

At this point, it is important to elucidate a possible point of doubt. It could be argued that some of the guidelines belong to other systems. For instance, the guideline that

addresses visible management could be perceived also as a Total Quality Management guideline. While this argument is not wrong, it originates a discussion that is not seen as relevant to this work, since the aim was to derive a complete set of design practices or principles that enable an effective application of Hoshin Kanri. Hence, the issue regarding visible management, for example, is addressed in this work as a management feature that is seen as an important feature in the light of Hoshin Kanri. In other words, for Hoshin Kanri to be successful, the visible management element has to have certain attributes.

For the engineering managers community, the guidelines list has the specific potential to work as basis for creating a reference model and an audit procedure, which then could be operationalized to guide the implementation of Hoshin Kanri (design dimension) and to access the efficacy of an implementation effort and drive its enhancement (diagnosis dimension). On that account, the guidelines need to be analyzed in a perspective of empirical data. This will be accomplished in future work by the conduction of successive interviews with experts, including practitioners, consultants and academic, which will be conducted to confirm and/or refine the model – this implies that the content of guidelines may be refined or maintained, as well as the set of guidelines may be updated with new guidelines or with the elimination of current guidelines.

By analyzing each of the guidelines generated in this work, some practical implications and implementation practices can be derived for the design dimension and/or the diagnosis dimension of Hoshin Kanri implementation. These are presented next, following each guideline's central aspect.

Guideline #1 [central aspect: management approach centered on continuous improvement of business processes]: For the application of guideline #1, a recurring practice is the development and dissemination of a global management approach and/or a business fundamentals model of the corporation. These may assume the background of acknowledged approaches, such as such as TQM, Lean, PDCA, Kaizen, Six Sigma, Business Process Management etc. Toyota Motor Corporation, for instance, has its Toyota Production System, as mentioned earlier. Other examples can be seen in Xerox Corporation and Hewlett-Packard (HP), as it is thoroughly described in other work (JOLAYEMI, 2009). A global system of processes standardization is an important element that is present in the core of the

acknowledged approaches mentioned earlier. The implementation of a continuous improvement environment could also be supported by a business area focused on organization-wide continuous improvement, which could assume the task of developing a systematic Kaizen event program, aimed at both the improvement of processes and the dissemination and the enhancement of continuous improvement culture. A thorough examination of the literature involving Kaizen events and its practices can be seen elsewhere (GLOVER; FARRIS; AKEN, 2014). In fact, it is claimed that the Kaizen events are more effective when conducted as part of a systematic Kaizen event program. Last but not least, intensive standardizing, training and auditing activities could be undertaken over time in order to build a continuous improvement philosophy globally in the organization.

Guideline #2 [central aspect: active involvement of leadership]: The implementation of guideline #2 may involve a continuous process for developing leaders, with proper coaching and feedback activities. Leaders should empower and support the teams. They should engage not only to charge the work teams for results, but rather to build a constructive communication and interaction with the work team, in such a manner that fosters alignment and the effective use of Hoshin Kanri principles and practices. This implies that the leaders should have a focus on the means (the processes), instead of a strictly focus on the endings (the results). This also implies a gemba-focused management, which requires the active involvement of leaders in the work areas for having first hand observations.

Guideline #3 [central aspect: decisions based on the Nemawashi philosophy]: As Nemawashi is a concept deeply rooted in the Japanese culture, the key aspect of this guideline is the understanding of the true meaning of Nemawashi, and how it can be applied to the Western cultural context. The term “consensus building” might lead to a wrong interpretation of Nemawashi as being a democratic process of decision-making. The sense of Nemawashi is not a sense of democracy, but rather a sense of conciliating the different visions of the parts involved in (and/or affected by) the decision, so that all important information is taken into account in order for the quality of the decision to be enhanced, as well as for preparing the interested parties to the incoming changes, by previously consulting them – which may also lead to less resistance and more agreement to the decisions. The principle of Nemawashi is

crucial specially for carrying out effective Catchball. Its implementation is intrinsically connected to the leaders' formal and informal habits and procedures applied globally in decision-making activities across the company. It is interesting observing that the principle of Nemawashi together with the Catchball process can be seen as principles that share similarities with the Delphi research methodology. In fact, a discussion on the application of Delphi for benefiting the Catchball process can be found in the literature (TENNANT; ROBERTS, 2001b).

Guideline #4 [central aspect: quality management capabilities]: The implementation of guideline #4 should involve a global concerning to intensively educate the collaborators on the concepts, the techniques and the procedures required for them to solve problems and manage their own work routine. Again, the focus in on the development of peoples' capabilities, thus the training activities should be complemented with continuous follow-up and improvement of peoples' capabilities. Within that, there is the important role of leadership, as it was mentioned in the guideline #2.

Guideline #5 [central aspect: ability to apply matrix management]: The application of guideline #5 may involve the establishment of continuous or temporary cross-functional teams to manage cross-functional issues, along with the already in place functional organizational chart. This might even involve the support of a business area focused on the development and management of projects. The cross-functional management structure in Hoshin Kanri actually provides an approach that may be useful to implement a concept that some authors within the Performance Management field regard as an integrated analysis of performance (NEELY; AL NAJJAR, 2006), i.e. an holistic analysis of the performance, rather than a strictly functional analysis.

Guideline #6 [central aspect: project management capabilities]: Guideline #6 involves the capabilities required to effectively carry out cross-functional and project management. It implies that the collaborators involved know the concepts, the techniques and the procedures involving the conduction of projects.

Guideline #7 [central aspect: administration and continuous improvement of Hoshin Kanri itself]: Guideline #7 implies that Hoshin Kanri must be a formal normalized corporate business process, with a manager or leader in charge. That way, it is subject to auditing and improvement activities.

Guideline #8 [central aspect: a vision that is challenging and relevant to all collaborators]: The implementation of this guideline involves not only designing a long-term vision that has the quality attributes addressed in the guideline, but also an intensive communication and formal dissemination of that vision.

Guideline #9 [central aspect: medium-term goals designed to encourage innovation]: The implementation of guideline #9 follows the same logic applied in the previous guideline. Also, a proper Strategic Planning process or system should be in place.

Guideline #10 [central aspect: annual policies focused only on a few breakthrough objectives along with the incremental objectives]: Firstly, guideline #10 implies that the annual priorities of top level management is communicated and disseminated to all levels and departments of the organization. Both guideline #10 and guidelines #8 and #9 imply that if the breakthrough strategic objectives aren't tangible, they might lead to poor action plans. Secondly, from this guideline it can be derived that a proper Strategic Planning process with Internal and External analyses should be in place. A recurring practice for that is the SWOT analysis technique (Strengths, Weaknesses, Opportunities and Threats). This technique, along with others, is often described in workbooks literature, this it can be seen elsewhere (JACKSON, 2006). Another implication is that there must be a clear understanding about the definitions of breakthrough and incremental objectives. For instance, the latter may be more associated with routine performance indicators, in such a way that an organization might even separate these two kinds of objectives within its structure of deployment.

Guideline #11 [central aspect: an appropriate design of policies: meaningful, challenging and balanced]: The guideline implies that the design of annual policies must be done carefully, in a manner that takes into account those three qualifying

attributes. The implementation of the guideline might involve proper training activities related to the Hoshin Kanri process and proper follow-up or auditing activities for assuring the application of these concepts globally in the organization.

Guideline #12 [central aspect: organization-wide participation in policy planning]: The guideline implies that the planning should be carried out until the operational levels of the organization, in a manner that people in the frontline of these operational processes are also involved before the final word on decision-making. One likeable practical implication is that one organization might choose not to involve the operational levels during the first cycles of Hoshin Kanri implementation, so that it matures its capability on Hoshin Kanri before getting to the operational levels.

Guideline #13 [central aspect: cascaded deployment of the policies through Catchball]: Guideline #13 makes explicit the need to cascade the policies not only vertically between the hierarchical levels, but also horizontally across departments and/or business functions of the company. This implies that other departments and business functions, or even suppliers, must be consulted during the planning, in a perspective of a customer-supplier relationship. It might even involve inter-organizational (supply chain) integration in mature applications. Similarly to the previous guideline, the horizontal deployment might represent an ability that matures overtime during the implementation of Hoshin Kanri, in a way that the first cycles might involve only vertical deployment.

Guideline #14 [central aspect: Catchball applied as an iterative process of consensus building]: The concept framed in guideline #14 is intrinsically associated to the Nemawashi principle. Thus, managers' leadership style plays an important role in the implementation of this guideline. Since Catchball is a two-way process, another practical implication is the degree in which successive iterations of Catchball are carried out. A low degree of iteration may imply in a poor debate, poor planning and poor agreement.

Guideline #15 [central aspect: planning based on causes analysis]: Guideline #15 is closely related to guideline #4, in the sense that collaborators must have the

capability to solve problems and apply PCDA-like management techniques, which in turn involve a deep understanding of conducting cause-and-effect analyses. The implementation of this guideline may be supported by the use of standard forms such as X-Matrix correlation matrices in order to boost and standardize the need to apply cause-and-effect analysis. In this case, expert practitioners say that the X-Matrix facilitates the process of cascading and planning the policies, by the simple rotation of the matrix. A central idea in the use of this kind of standardized correlation matrix chart is to embed it into visible management so that the planning process occurs in a highly visible, transparent and participative way. Another practical implication of that guideline is that, by conducting proper follow-up, leadership has a major opportunity to educate work teams and individuals about essential management capabilities, especially those regarded in guideline #4.

Guideline #16 [central aspect: incorporation of the policies into daily management]: Firstly, guideline #16 implies that the routine management activities are well defined and established in all levels and departments. The organization has to have a proper Process Management system in place, alongside with a proper Project Management system. Also, in order for the progress to be monitored, policies should be measurable.

Guideline #17 [central aspect: responsibility based on the task's scope, rather than strictly tied to a functional area]: The guideline brings the notion that, for both functional and cross-functional objectives, there must be a clear definition of who is in charge of the objective. This is especially important when addressing cross-functional objectives with cross-functional teams. The use of standard forms during Catchball such as X-Matrix correlation matrices may support this need.

Guideline #18 [central aspect: self-monitoring of targets within daily management]: This guideline is also closely related to guideline #4, as well as guideline #16. Leaders should work to develop the capabilities regarded in guideline #4 and to develop the sense of self-discipline that drives the self-monitoring of targets under a PDCA-based approach. Besides, the implementation of visible management (guideline #21) provides a scenario for the self-monitoring to be undertaken.

Guideline #19 [central aspect: periodic reports on performance]: The full statement of this guideline already provides further details on its implementation. Even so, two core points deserve being reinforced for the implementation of this guideline. First, performance reviews must boost the debate about action plans, between managers and work teams, founded on cause-and-effect-based analyses and reflections. For this to happen properly, the development of the capabilities regarded in guideline #4 is essential. Also, the standardization of reporting and presentation format is also a key feature. Combined with a regular agenda of performance reviews, these are features that help minimizing the amount of ad hoc reports generated in the company. A common practice mentioned by expert practitioners is the use of “bowling charts” within visual management for reviewing progress, in a manner that special attention is given the red targets in the chart. The discussion goes around how to turn the reds into greens, thus how to get the plan back on track, with no time for blaming or justifying, but rather with focus on what are the root causes and what the team should do to solve the problems. This leads to an interpretation that in order for the manager and the work teams to be able to carry out this kind of process-focused debate, a deep cause-and-effect analysis is required during the Catchball phase, which reinforces the importance of guideline #15. On that same account, the performance review meetings provide leadership with another opportunity to educate work teams and individuals about the capabilities comprised in guideline #4. Secondly, the multi-layered bottom-up nature of performance reviews is a core concept in Hoshin Kanri. Performance reviews should be undertaken from the operational levels upwards, in a way that the most important issues of each level are passed on to the upper levels, so that the top level gets a global understanding of progress. That way, the concept of multi-layered bottom-up review has the potential to provide an integrated analysis of performance, which is a concept that was mentioned in guideline #5. It also leads to an understanding that the combined use of bottom-up review and Catchball deployment could frame Hoshin Kanri in the perspective of a Dynamic Performance Measurement System (BITITCI; TURNER; BEGEMANN, 2000).

Guideline #20 [central aspect: managers engagement]: The managerial implication of this guideline is very similar to that of guideline #2. It is a task of every

manager assuring that systematic performance reviews are conducted regularly and properly.

Guideline #21 [central aspect: visible management]: This is a very practical guideline. Hoshin Kanri key data must be displayed in a highly visible manner with continuous updating for the progress to be tracked at any moment. The visible management provides a structure that enables the gemba-focused management style. The main idea is that the management process doesn't occur behind walls, but rather it is highly visible and transparent, in a manner that provides two gold benefits: it stimulates mutual debating and it fosters alignment. The visible management supported by the use of the "A3" paper sheet standard format for reporting information is a common practice.

Guideline #22 [central aspect: an annual diagnosis from top management focused on checking how the management of strategic issues is carried out in the work areas]: The implication of this guideline is straightforward, following its full statement: an annual diagnosis should be in place, which must be conducted by top-level managers in the work areas to check how well the work teams are managing and achieving their strategic policies.

Guideline #23 [central aspect: an appropriate conduction of the annual diagnosis: stimulating dialogue with people at all levels in order to potentiate operations capabilities]: Given the extensive statement of this guideline, its practical implications are also straightforward: during the annual diagnosis, top-level managers should stimulate mutual discussion between with people in the operational level. The full statement of the guideline also proposes the use of a recognized business excellence model as a basis for the audit process, in a way that also allows the institutionalization and sharing of best practices across the organization. Nevertheless, two important managerial implications deserve to be highlighted. Firstly, the annual diagnosis provides a mechanism through which top management can identify relevant issues in the operational levels, which in turn can then fuel the selection of the strategic priorities to be addressed in the near future. That way, the annual diagnosis is a mechanism that reinforces the RBV approach of strategy provided by Hoshin Kanri, as it was thoroughly explained before. Secondly, the

essence of the annual diagnosis is not to simply verify the compliance with pre-defined standards, but rather to develop capabilities. Thus, it is not a pure control mechanistic approach. Rather, it is an organic approach that encourages dialogue, interaction and knowledge exchanging, and which inclusively supports the emergence of new strategies. In that perspective, the annual diagnosis play a role which was addressed in the Performance Management literature as an interactive use of performance measurement systems (BOURNE; KENNERLEY; FRANCO-SANTOS, 2005; HENRI, 2006).

A last consideration regarding the managerial implication of the guidelines is that the context and the process dimensions can be seen as elements that exert influence upon each other. This can be defined as a property of mutual feedback. The context can be seen as the ground for the process application, not in the sense of a requirement, but rather in the sense of a foundation. While the enhancement of context-related guidelines may drive the enhancement of process-related guidelines, the opposite way is true as well.

3.6.3 Future research opportunities

For the engineering management knowledge community, the guidelines list can work as a basis for a research agenda for addressing 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; DALE, 1998);
- *The management of policy should be flexible enough to allow changes in targets when work becomes overtaken* (WITCHER; 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 have already been addressed within guideline #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 dimensions could be broken down into a broader set of topics or sub-dimensions to be investigated, based on the elements of the Network view presented in this work in Figure 3.2. Other references could also be applied, like this particular study regarding Performance Management Systems (BOURNE; KENNERLEY; FRANCO-SANTOS, 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 list presented in this paper.

3.7 CONCLUSION

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 twenty-three (23) guidelines to apply Hoshin Kanri. These guidelines address issues related to the context and the process of Hoshin Kanri application. The former comprises issues related to the organizational culture and the capabilities of the company, while the latter comprises issues related to the focus (providing the strategic focus), the alignment (aligning strategic priorities throughout the corporation), the integration (integrating the strategic priorities into management routines), and the review (providing a diagnosis of how people are managing the achievement of the strategic priorities in the work areas) of the *Hoshin Kanri* process.

The guidelines were derived from the literature by a systematic review supported by the use of content analysis technique with aid of a computational tool named *ATLAS.ti*. 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 researches applying the technique. 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, through the conduction of content analysis, are subjective processes. Also, the literature analyzed is comprehensive but not exhaustive, meaning that other guidelines not comprised here could be identified in further readings.

As a future work, the 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.

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4 ARTICLE #2 – HOSHIN KANRI GUIDELINES DEVELOPMENT AND DISCUSSION

The second article addresses the second specific research objective and consists in the development of the third phase of the research project. In order to refine and confirm the set of guidelines developed in the article #1, an empirical study was carried out based on successive refinements of the guidelines through the consultation with experts. The research procedure is described in detail in the article and the main findings are presented and discussed for each guideline. A great effort was placed on the collection and analysis of data, in such a manner that a report was developed for each interview conducted in the study. Together, the reports composed a complete technical report[1]. This effort also led to the development of a methodological contribution regarding guidelines for designing guidelines. The interviews with experts allowed collecting a great amount of empirical data[2], in such a manner that provided a solid foundation for the development of the exploratory cases addressed in the article #3.

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[1] The technical report is under edition for being published in the annals of the PUC-PR library.

[2] Together with the refinement of guidelines, the interviews allowed collecting empirical data about what are the some of the most recurring difficulties to Hoshin Kanri implementation. However, such analysis was omitted from this work both to keep methodological coherency and to avoid information excess. These findings will be considered in future publication following this dissertation. The future publication may also take the guidelines into account for an analysis regarding difficulties in implementing Hoshin Kanri and the relationship of these difficulties to the model of guidelines.

Hoshin Kanri Guidelines development and discussion: a study of successive refinements with experts

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Abstract

Hoshin Kanri is a strategic management framework conceived in Japan and applied usually in the context of TQM and Lean implementations. The framework is recognized for building the link between business strategy and business execution. The resurgence of interest about Hoshin Kanri implementation amongst western managers, who may face cultural challenges towards Hoshin Kanri implementation, leads to the necessity of systematizing a set of universally applicable guiding principles for Hoshin Kanri initiatives. For developing guidelines that are as relevant as possible in relation to the real-world context of companies, an empirical approach must be accomplished. This work fulfills this through the development of an empirical study that applied expert interviews, using as a starting point the model of guidelines that had been originated in a previous work supported by a systematic literature review. The results comprise the refined and confirmed model of guidelines regarding the process and the context of Hoshin Kanri and the discussion about the conceptual foundations of the model.

Keywords: Hoshin Kanri, Policy Deployment, Guidelines Systematization, Strategic Management, Total Quality Management, Management Context.

4.1 INTRODUCTION

Hoshin Kanri is a management framework concerned with the following primary tasks: providing a focus on corporate direction by setting few breakthrough strategic priorities to be achieved every year; aligning the strategic priorities throughout the corporation while fostering agreement and commitment to their achievement; integrating the strategic priorities into the routine management of processes and projects of the organization so that they are continually subject to checks and actions; and providing a systematic review of how well management is carried out in the work areas for the achievement of strategic priorities.

It is grounded on the advent of Total Quality Management (TQM) movement, which was raised in Japan during the 1950s and 1960s, and it can be regarded as the natural evolution of the Management by Objectives (MBO) approach, introduced by Peter Drucker at the beginning of the 1950s. Through the 1970s, Hoshin Kanri was already widely accepted in the Japanese industry, and it quickly became one of the central features in Japanese management models. In fact, Hoshin Kanri was eventually established as the main criterion in the assessment of the annual "Japan's Deming Prize" awards (SOLTERO, 2007).

The approach was first introduced to the western continents during the 1980s, in the period of the transfer of Japanese management knowledge. Unfortunately, since that time, few western organizations seem to have fully understood and applied its principles (WITCHER; CHAU, 2007).

From both the research and the practice community, it can be noted that, although Hoshin Kanri has been widely applied in Japan and also in some large companies over the past fifty years, it is not as widely applied nor explored in research papers as the BSC and other frameworks are, by far. Hence, there are few empirical studies about the conceptual assumptions and practical implications of Hoshin Kanri, in comparison to other strategic management frameworks.

Withal, some experts claim that there has been a seeming resurgence of interest in Hoshin Kanri implementation amongst western strategic management practitioners over the last couple of years, especially in American companies. This advent leads to an increasing interest upon the central principles of Hoshin Kanri along with the key factors for its successful application.

Apart from the fact that there is a scarcity in research literature around Hoshin Kanri concepts, there is also a context-related challenge regarding its implementation across western companies, since it is a framework that was firstly conceived within the context of Japanese culture. Thus, both the research and the practice community would benefit from the systematization of the main aspects that ensure the effective application of Hoshin Kanri in a universal manner.

For accomplishing this systematization, a previous work[3] (SILVEIRA et al., 2014a) applied a systematic literature review so that a set of guidelines (guiding principles) for the successful application of Hoshin Kanri was derived from the literature.

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[3] Working paper from Article #1.

However, the set of guidelines needs to be refined through a more empirical approach, in the light of a more practical perspective.

To accomplish the refinement of the Hoshin Kanri guidelines, the present work develops an in-depth study with consultation to experts in the field. In order to generate a robust refined set of guidelines, a well-structured procedure was designed and implemented for collecting, analyzing and synthesizing data from the qualitative assessment undertook by the experts.

The study was conducted in two rounds of consultation with experts. First, a round of individual interviews was conducted with a set of experts, and then a round of workshops was conducted for the final refinement and/or confirmation of the guidelines.

The result is a new version of the guidelines model, with the elimination of some guidelines, the revision of others and also the inclusion of a few new guidelines for the model to be more complete. The new version of the model is better delimitated and more objective than the original version.

This paper is organized as follows: the next section presents the main foundations applied in the study. Then, the research method applied is described in detail. After that, the findings are presented for each guideline and a set of methodological aspects for the task of developing guidelines is also discussed, and the general conclusions are drawn regarding application possibilities of the new model.

4.2 BACKGROUND OF THE ORIGINAL MODEL OF GUIDELINES

The architecture of the guidelines was built upon two leading frameworks: one regarding the dimensions of the Hoshin Kanri process and the other regarding the major dimensions of a strategic performance management system, each of which is presented and briefly discussed next.

There have been some adaptions of Hoshin Kanri to adapt it to the western management culture. The most relevant one, as is the most recurring, is the “FAIR” model developed by Witcher (WITCHER, 2003), which is presented next.

FAIR is an acronym that relates to the PDCA cycle: Focus (Act), Alignment (Plan), Integration (Do), and Review (Check). The four steps of FAIR are regarded as follows:

- **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 strategic purpose. 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 Catchball mechanism;
- **Integration:** the performance targets and action plans agreed by means of Catchball are then integrated into the work routine so that the progress on targets and plans are properly managed through the PDCA cycle. Policies will either be managed within daily process management routines or assume the form of strategic projects and, thus, be managed within project management routines;
- **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 Top Executive Audit (TEA), can be thoroughly seen in Witcher et al (WITCHER; CHAU; HARDING, 2006; WITCHER; CHAU, 2008). Following the analogous PDCA cycle, the annual review is the Check phase that provides feedback to take Action – which, in turn, is the Focus phase of FAIR. Thus, the annual diagnosis provides important insights that fuel the selection of strategic breakthrough priorities for the next annual cycle.

These four dimensions were applied as categories in the derivation of guidelines, as it was thoroughly explained in previous works[4] (SILVEIRA et al., 2013, 2014a). It is also worth noting that this work considers Hoshin Kanri as the annual cycle of strategy implementation. The definition separates Hoshin Kanri process and Strategic Planning process, as it was discussed in the previous work by means of the development of an adapted framework for the Hoshin Kanri process scope.

It is not the aim of this work to thoroughly examine the theory of Hoshin Kanri and the evolution of its research field. Further detail about Hoshin Kanri practices and the perspectives of different authors can be better seen in other work (LEE; DALE, 1998).

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[4] Previous work published in the proceedings of the International Conference on Production Research and Working paper from Article #1.

This paper considers a broader perspective of Hoshin Kanri, in order to identify and develop a complete and robust set of guidelines. It addresses Hoshin Kanri in a manner that the framework is regarded not only through its implementation process, but through an holistic perspective, based on the Pettigrew's framework (PETTIGREW, 2012). This framework shows the components that should be taken into account during a change management process.

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.

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.

The Context exerts influence upon how the Process is performed. The reciprocal is true. A useful interpretation adopted in this work is that the Context component is composed by elements that are not exclusively or strictly linked to the process under examination, but are also related to other process and systems of the company.

4.2.1 Original version of the model

The original version of the model of guidelines was accomplished in previous work[5] (SILVEIRA et al., 2014a). The full statement of the original guidelines is extensive, making it quite impractical to be fully shown in the present work. However, an overview must be shown for a better understanding of the resulting differences between the initial and the refined model. On that account, in order to provide a quick overview on the initial model, Table 4.1 gathers in a single page the central aspect alongside the main references authors for each of the twenty-three original guidelines.

[5] Working paper from Article #1.

Table 4.1 - Central aspects and references for each original Hoshin Kanri guideline

Category	#	Guideline	References
Organizational Culture	1	Management approach centered in the continuous improvement of business processes	(LEE; DALE, 1998; WITCHER; BUTTERWORTH, 2001)
	2	Active involvement of leadership	(KONDO, 1998; WITCHER, 2003)
	3	Decisions based on the Nemawashi philosophy	(LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER, 2003)
Capabilities	4	Quality management capabilities	(LEE; DALE, 1998; WITCHER; CHAU; HARDING, 2008; WITCHER, 2003)
	5	Ability to apply matrix management	Inspired by (CAMPOS, 2004; JACKSON, 2006; WITCHER, 2003)
	6	Project management capabilities	Inspired by (JACKSON, 2006; WITCHER, 2003)
	7	Administration and continuous improvement of Hoshin Kanri itself	(WITCHER; CHAU; HARDING, 2006; WITCHER, 2003)
Focus	8	A vision that is challenging and relevant to all collaborators	(LEE; DALE, 1998; ROBERTS; TENNANT, 2003)
	9	Medium-term goals designed to encourage innovation	(JOLAYEMI, 2008; LEE; DALE, 1998; WITCHER; CHAU, 2007)
	10	Annual policies focused only on a few breakthrough objectives along with incremental objectives	(GOAL/QPC RESEARCH COMMITTEE, 1994; JOLAYEMI, 2008; WITCHER; BUTTERWORTH, 2001; WITCHER; CHAU; HARDING, 2008; WITCHER, 2003; WOOD; MUNSHI, 1991)
	11	An appropriate design of policies: meaningful, challenging and balanced	(WITCHER; BUTTERWORTH, 2001; WITCHER; CHAU; HARDING, 2008)
Alignment	12	Organization-wide participation in policy planning	(GOAL/QPC RESEARCH COMMITTEE, 1994; LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER, 2003)
	13	Cascaded deployment of the policies through Catchball	(LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER, 2002, 2003)
	14	Catchball applied as an iterative process of consensus building	(LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER, 2003)
	15	Planning based on causes analysis	(GOAL/QPC RESEARCH COMMITTEE, 1994; WITCHER, 2002, 2003)
Integration	16	Incorporation of the policies into daily management	(JOLAYEMI, 2008; WITCHER; CHAU; HARDING, 2008; WITCHER, 2003)
	17	Responsibility based on the task's scope, rather than strictly tied to a functional area	(WITCHER; BUTTERWORTH, 2001; WITCHER, 2002, 2003)
	18	Self-monitoring of targets within daily management	(LEE; DALE, 1998; WITCHER; BUTTERWORTH, 2001; WITCHER, 2003)
	19	Periodic reports on performance	(JOLAYEMI, 2008; TENNANT; ROBERTS, 2001a; WITCHER; CHAU, 2007)
	20	Managers engagement	(WITCHER, 2002)
	21	Visible management	(LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER; BUTTERWORTH, 2001)
Review	22	An annual diagnosis from top management focused on checking how the management of strategic issues is carried out in the work areas	(KONDO, 1998; LEE; DALE, 1998; TENNANT; ROBERTS, 2001a; WITCHER; BUTTERWORTH, 2001; WITCHER; CHAU; HARDING, 2008)
	23	An appropriate conduction of the annual diagnosis: stimulating dialogue with people at all levels in order to potentiate operations capabilities	(KONDO, 1998; LEE; DALE, 1998; TENNANT; ROBERTS, 2001b; WITCHER; CHAU; HARDING, 2008)

4.3 RESEARCH DESIGN

In order to refine and consolidate the model of guidelines, a study was conducted with experts in the field. The main idea behind the choice of conducting a study that applied expert interviews was that their practical experience would allow collecting empirical data, and this would lead to enrich the model, since the original guidelines had been derived from the literature and needed to be seen through a practical perspective.

For the guidelines to be robust and, hence, to satisfactorily accomplish the purpose of the study, two features were needed: i) a proper selection of experienced experts; ii) a well-defined systematic procedure for collecting, analyzing and synthesizing data from the consultation with the experts.

The study consisted basically of two major rounds of refinement with experts: a round of individual interviews with nine (9) experts and a round of workshops attended by three (3) other experts. The former was accomplished through semi-structured interviews with successive refinement. The latter worked as a confirmation or final refinement of the results obtained in the first round, and it was accomplished through the conduction of two workshops that applied a similar procedure in relation to the individual interviews, but in the format of a decision forum, where the three experts debated and reached an agreement about the final version of the guidelines.

4.3.1 Characterization of experts consulted

The experts were characterized according to their experience. This was accomplished through the verification of their expertise, which included their experience time as well as the scope of their expertise. The characterization also observed the kinds of actuation in which the experts have taken part regarding Hoshin Kanri, which was: as practitioner, as consultant and/or as academic. Results for this characterization for the nine experts interviewed in the round of individual interviews are presented in Table 4.2. As it is depicted in the table of experts, the selection of experts took into account a quality of experiences balancing. That means that a balanced set of experts (in regard to their professional actuation universe) was desired in order to check the guidelines through a variety of perceptions.

Table 4.2 - Characterization of experts consulted

expert	*expertise summary*	*P*	*C*	*A*
#e01	The expert has approximately 30 years of experience as both consultant and executive. His expertise is on Lean, TQM, TPM and strategic management. The expert's involvement with Hoshin Kanri started in the 1990s; by the time he took courses with Yoji Akao, who is the author of the first prominent western publication about Hoshin Kanri. The expert was trained on the Japanese management methodologies through an intensive program carried out by Japanese consultants for developing consultants in the Southern Brazil. The program took years and included Hoshin Kanri among the management methodologies addressed. The expert has great experience applying Hoshin Kanri and other strategic management frameworks as consultant and also as executive director of companies positioned both in manufacturing and services industries.	X	X	
#e02	The expert has approximately 15 years of experience as consultant. His expertise is on Systemic Productive (in which he holds an MSc), Production Planning and Control, Lean, TOC, TQM and strategic management. As the expert #1, the expert #2 also been trained in the Japanese management methodologies, including Hoshin Kanri. He also took classes in Japan. He has great experience in applying Hoshin Kanri and other strategic management frameworks as a consultant.		X	X
#e03	The expert is Japanese. He lives in Brazil and has over 30 years of experience. His expertise is on Lean and TQM. He implements Hoshin Kanri since the 1990s. He helped implementing Hoshin Kanri in a Japanese subsidiary manufacturing company where he worked as manager for several years. In doing so, he took several coaching activities in the matrix in Japan. Nowadays, the is practically a Lean sensei, as he has been developing several consultancy projects, mostly for implementing Lean concepts and implementing Kaizen events, and ministers several trainings regarding Hoshin Kanri.	X	X	
#e04	The expert has almost a decade of experience. He is a teacher and holds an MSc, and his expertise is on Production Planning and Control and on Lean.			X
#e05	His expertise has approximately two decades of experience. His expertise is on Supply Chain Management and on Lean. He worked several years in a joint venture between corporations in the automobile industry, where he implemented Hoshin Kanri and Lean.	X		X
#e06	The expert has approximately 15 years of experience. His expertise and experience is very similar to the expert #6. He developed several consultancy projects for applying Hoshin Kanri in big companies in Brazil and also took courses in Japan.	X	X	
#e07	The expert has around 15 years of experience. Her expertise is on strategic management, in which she holds an MSc. She has implemented Hoshin Kanri practices in several consultancy projects and is experienced on working at the coordination of strategic management in companies.	X	X	X
#e08	The expert has around 15 years of experience. Her expertise is on Quality Management and on Lean. She worked as quality manager for several years in a corporation in the southern Brazil, where she applied Hoshin Kanri. She also has great experience as consultant and is a teacher with MSc, and minister classes of Hoshin Kanri and Quality Management.	X	X	X
#e09	The expert has almost a decade of experience. Her expertise is on Lean (in which she holds an MSc), and on TQM and Strategic Management. She worked as consultant for several years, and has experience in projects concerning the implementation of Hoshin Kanri practices. She is also a teacher in the Strategic Management and Quality Management fields.	X	X	X

Legend: [P] practitioner; [C] consultant; [A] academic

4.3.2 Foundations of the protocol for the study

The development of the guidelines refinement study took into account the concepts of the Cambridge Process Approach, which was initially developed to audit the process of manufacturing strategy formulation (PLATTS; GREGORY, 1990) and evolved to become a methodology that guides the designing and/or diagnosing of a process (PINHEIRO DE LIMA; GOUVÊA DA COSTA; REIS DE FARIA, 2009; PLATTS, 1994, 1993). It is considered as a research methodology native of Operations Management field, and it is applied to operationalize frameworks through a participative well-structured manner. In the present work, the methodology was applied as the conceptual basis to develop and apply the study protocol – which is indeed a process.

The Process Approach proposes four groups of characteristics, which work as guidelines for a process intervention to be successful: Project Management, Point of Entry, Procedure and Participation (PLATTS, 1994). Among these, the following aspects stand out for the development of the protocol for the current study:

- **Project management**: there must be a well-defined plan and a well-managed schedule of interventions in order to ensure that the right resources are applied in the process at the right time.
- **Point of entry**: there must be a proper introduction of the process to the people involved, in order to obtain buy-in, which implies that the expectations of interventions must be clearly defined and communicated.
- **Procedure**: there must be a well-defined process, along with a well-designed set of formularies for collecting and analyzing data, and also for the synthesis of the data, so that improvement opportunities are identified and reported.
- **Participation**: there must be an appropriate involvement of the people required in each intervention of the process, in a manner that a combination of individual and group interventions (workshops) is recommended. The latter allow people to undertake mutual debate and reach agreement in a decision forum.

The whole process applied since the selection of the experts until the establishment of the guidelines' final version is mapped in Figure 4.1, in the format of a BPMN (Business Process Management Notation) workflow, as it will be detailed next.

The process adopted in the study took four phases: Planning and management of the study, Design of the procedure, Implementation of the procedure and Use of the

procedure. Planning and managing refers to the development and management of a general plan for the study. From that point on, the process undertaken for applying the refinement rounds with experts (the scope of the study) was organized through a logic that was inspired by the framework of Bourne et al. (BOURNE et al., 2000), which was explained in previous work[6] (SILVEIRA et al., 2014a).

The framework is grounded in the Performance Management field, in which it is applied to the process of performance measurement: design the measures, implement the measures (the phase where performance data is collected) and use the measures (the phase where collected data is analyzed and synthesized). In the current study, as well as in the previous work mentioned above, the phases of design, implementation and use are applied under the same logic, with the only difference that, instead of performance measure, the object being addressed is the research data. Thus, “design” corresponds to the development of the necessary procedures, formularies and supportive material, while “implementation” refers to the gathering of data through the application of the procedures designed previously, and “use’ refers to the actual use of collected data – the analysis and synthesis of data through the application of proper procedures designed previously. Each of these phases is described in detail next.

4.3.3 Planning and management of the study

The first step in the process was the general planning of the study. This involved, firstly, the selection of the range of experts which would be invited for the study. The selection of the possible experts to be interviewed was based on their profile, which took into account mostly the experience factor, founded on the aspects characterized earlier in Table 4.2. Naturally, the accessibility factor (the feasibility of getting the interview with the expert) was also considered. This task resulted in a list of experts to be invited for attending in the study. The possible experts were then invited with a proper point of entry (following the concepts of the Cambridge Process Approach), that is, a clear and practical definition of the interview purpose and an alignment of expectations with a well-defined timetable plan for the interview. Secondly, an overall schedule was planned and managed (the project management characteristic of

[6] Working paper from Article #1.

Process Approach) during the study process, given that, naturally, there was a time constraint for the study to be carried out.

To the extent that the experts accepted the invitation to attend in the individual interviews, a prioritization was done in a manner that the most experienced experts were put in the beginning of the interviews queue. This was particularly important, given that the individual interviews applied a successive refinement approach, thus the order of the individual interviews was a relevant aspect in the process, which implied that the most experienced experts would have preference over the others – that is, they would take part in the interview before the others. As some experts would take more time to accept the invitation, the sequence of interviews was managed from the begging to the ending of the study.

4.3.4 Design of procedures

In the design phase the procedures, formularies and supportive were developed (the procedure characteristic of Process Approach), which involved, specifically:

i. The procedure for conducting the interviews and collecting the necessary data;
ii. The procedure for analyzing and synthesizing the data collected;
iii. Design of the formularies applied in the process (interview script and interview report);
iv. Design of supportive material required for conducting the interviews (the presentation media and the printed list of Hoshin Kanri guidelines);
v. Upgrading of the supportive material in advance to each interview's new iteration.

4.3.5 Implementation of the procedures

The implementation phase consisted of carrying out the interview procedures. Hence, it is the phase where the individual interviews were undertaken. Whenever a new expert came to be interviewed, a new interview process instance was initiated. So, logically, all experts who attended this phase were interviewed through the same procedure.

The interviews took two and a half (2.5) hours in general, with none of them lasting less than two (2.0) hours. This minor variation was expected, since the experts would have different rhythms to answer the questions.

The interview procedure comprised three stages: contextualization, analysis of guidelines and completeness analysis. Since each interview was an instance of the

same process, the description of the procedure will regard a relation of one-to-one – that is, one interview with one expert.

4.3.5.1 Interview conduction

The first stage of the interview was a contextualization which worked as a point of entry for the interview with the expert. The purpose of the interview was recalled and then the definition of the term “guideline” was explained to the expert. After that, the logic of the categories applied in the model of guidelines was explained, that is, Context, Process, Focus, Capabilities etc. Then, the expert was asked about its experiences with Hoshin Kanri and his or her general perceptions about the main difficulties faced by corporations in the application of Hoshin Kanri. The expert was also asked about his perception regarding the cultural differences existent between the western and the oriental approaches of strategic management. This brief questioning helped preparing the ground for the guidelines discussion, raising relevant qualitative information. It worked like a warm up for the analysis of guidelines, which would be the next step on the interview. The analysis of guidelines was the core of the whole study. Firstly, the expert was explained about the logic underlying the analysis which would be carried out. The logic was that, for each guideline, the expert would have to answer whether he or she agreed or not with that guideline. The answer for that question would start a discussion that would lead or not to an alteration on the guideline redaction. The complete analysis rationale which was explained to the expert is shown in Table 4.3. With all set up, the guidelines analysis was started. From that point, each guideline was presented by the researcher and analyzed by the expert in the following general manner:

- **Step #1**: Presentation of the guideline’s original version by the researcher
  - Original guidelines developed in previous work[7] (SILVEIRA et al., 2014a);
- **Step #2:** Presentation of brief historical of previous refinements by the researcher
  - A brief overview of the refinements’ evolution;
- **Step #3**: Presentation of the guideline’s last-iteration version by the researcher
  - The full statement refined by the last expert;
- **Step #4**: Analysis of the guideline’s last-iteration version by the expert
  - The rationale presented in Table 4.3.

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[7] Working paper from Article #1.

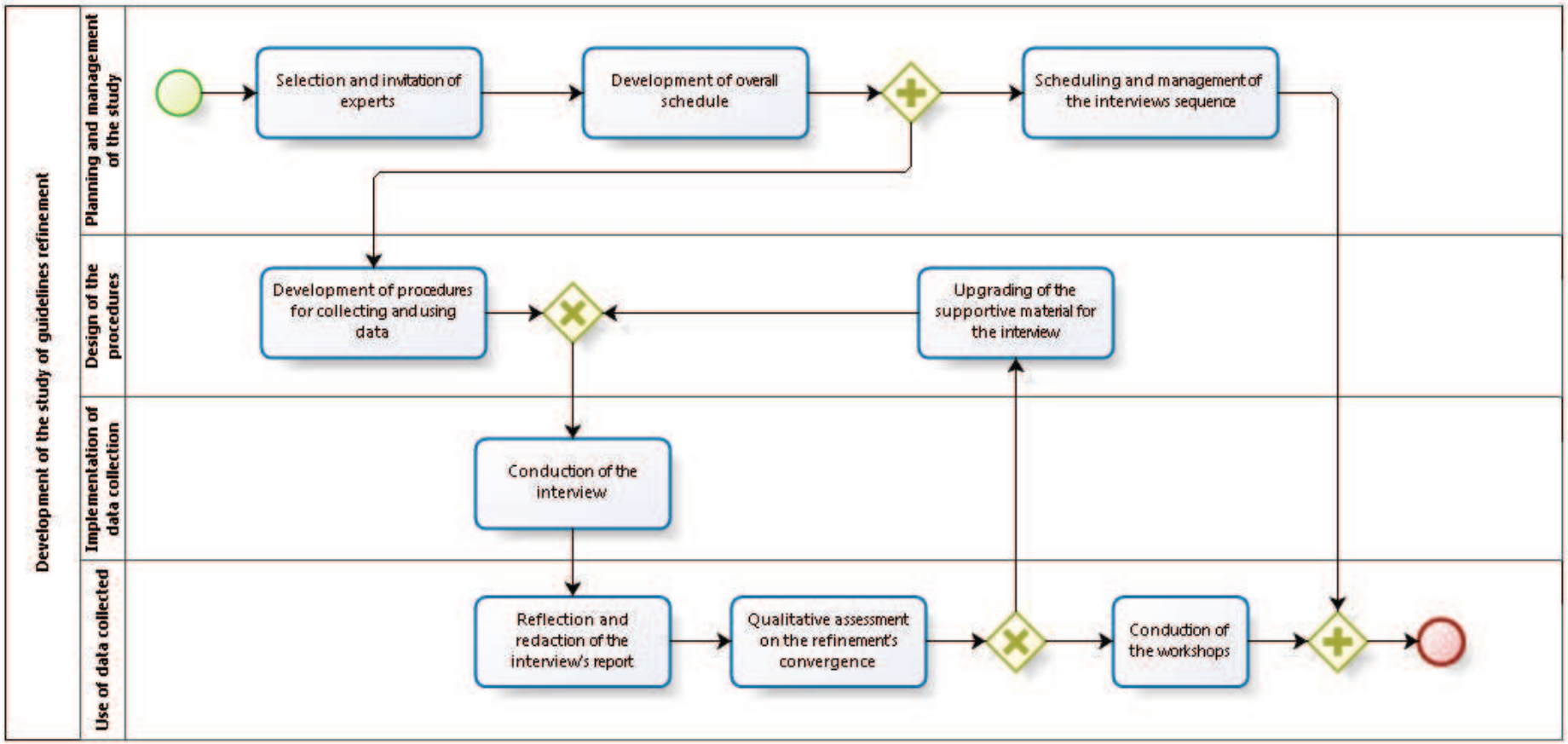

Figure 4.1 – Workflow of the study of guidelines refinement[8]

[8] note: parallel gate <+>: both paths are required; exclusive gate <x>: one path is required.

Table 4.3 - Rationale underlying the analysis of each guideline by the expert

Do you agree with this guideline?	
Yes	**No**
In your perception, is the guideline complete and distinctive or it should be addressed within a previous guideline of the model? Why? • *In the case of addressing it within a previous guideline, how the new unique guideline's redaction should be?* In your perception, is the guideline's redaction appropriate or does it need refinement? Why? • *In the case of refinement, how the guideline's redaction should be?*	In your perception, the guideline should be eliminated or should have its focus changed? Why? • *In the case of changing the guideline's focus, how the guideline's redaction should be?*

Each completed instance of the interview process is referred here with the term "iteration". Naturally, in the first interview there was no last-iteration version and no refinements' evolution. So, the first expert interviewed analyzed the guideline's original version, resulting in the first iteration of refinement. The second expert, in turn, analyzed the guideline refined by the first expert (first iteration), and so on.

If the guideline had been eliminated by the last expert (last iteration), the status "eliminated" would represent the refined version for the subsequent expert. If the guideline had not been altered by the last expert, then it would be maintained as the refined version for the subsequent expert.

Both the presentation of the guideline's original version (step 1) and the brief historical of refinements' evolution (step 2) in all iterations were important to keep structural integrity throughout the process. Firstly, if the guideline had been eliminated by the last expert, the analysis would make no sense for the subsequent expert if step 1 was not performed, because there would not be anything all to be analyzed by the subsequent expert. Secondly, if an expert decided to change significantly the focus of the guideline, the original focus alongside all the previous efforts of refinement (and their conceptual focus discussions) would be lost in the process if steps 1 and 2 were not performed. This is due to the fact that, in this case, the subsequent experts would have only the view of the conceptual focus addressed by the last expert, and this could possibly lead to critical biases. In that way, if the expert was an "outlier" for that guideline, in a sense that he had a much different

perception in relation to the other experts, the guideline refinement's result would have a poor or doubtful foundation.

By applying steps 1 and 2, the base of the discussion was sustained from iteration to iteration, and the concepts valued by the experts were also sustained as input from iteration to iteration. In doing so, the research's actor served as a focal point to share the vision of the experts, from one expert to another, in such a manner that the refinement was enriched over time. In that perspective, the successive refinement of guidelines was a kind of Nemawashi-flavored process – the concept of Nemawashi will be discussed in the section findings, in this paper.

As the result, the nature of the refinement generated by the expert in relation to the last-iteration version of the guideline would be one of the following:

- No change
- Semantic or syntactic refinement
- Changing on the guideline focus
- Elimination of the guideline
- Resuming of the refinement of an earlier version

For an overview of the nature of refinement of each guideline by each expert, see Table 4.4. Closing the interview, the expert was asked about the completeness of the mode, with the following rationale:

- In your perception, is there a recommendation missing in the model? Is that a key feature not covered in the model? In this respect, should there be a new recommendation for a non-covered topic for the model to be complete? In the case of adding a new recommendation, how the new guideline's redaction should be?

The result of this last consultation with the expert would not generate any changes to the model. Thus, it would not interfere in the subsequent interview iteration, that is, it would not result in a new guideline to be refined by the subsequent expert. Hence, the results of the completeness analysis were handled as a suggestions database.

4.3.6 Use of the procedures

For the analysis and synthesis of data collected in the individual interviews, a procedure was developed in the Design phase. The foundation of the procedure was that collected data should be registered and organized, in such manner that enabled the researcher to perform a reflection about the results of the interview. The

reflection, in turn, should also be registered and organized, and should be undertaken iteratively, following each interview. These tasks were accomplished through a procedure that applied a standard document for the reporting and reflection of the interview. The structure of this reporting and reflection procedure is presented next.

4.3.6.1 Redaction of the interview report

The interview report was structured in the following manner:

- Reporting of the contextualization stage of the interview, which included:
    - Description of the expert experience;
    - Description of the expert's perceptions about possible cultural differences (western versus oriental) in the application of Hoshin Kanri;
    - Description of the expert's perceptions about the main difficulties regarding the implementation of Hoshin Kanri;
- Reporting of the guidelines analysis stage of the interview, which included the following script for each guideline:
    - Reporting of the guideline's content:
        - Redaction of the guideline's original version
        - Redaction of the guideline's last-iteration version
        - Redaction of the guideline's refined version by the expert
    - Reporting of the guideline's discussion:
        - Reporting of the analysis undertaken by the expert, with the description of the criteria taken into account by the expert.
    - Critical reflection by the researcher:
        - Redaction of a critical reflection about the content of the guideline's refined version, and also about the analysis undertaken by the expert.
- Reporting of the completeness analysis stage of the interview, which included (if the expert had actually made a suggestion):
    - Reporting of the new guidelines' content:
        - Redaction of the new guidelines' full statement;
    - Reporting of the new guidelines' discussion:

        - Reporting of the analysis undertaken by the expert, with the description of the criteria taken into account by the expert.
    - Critical reflection by the researcher:
        - Redaction of a critical reflection about the content of the new guidelines, and also about the analysis undertaken by the expert.
- Reporting of an overall critical reflection about the interview, which included:
    - Critical reflection about the issues raised during the Contextualization stage;
    - General critical reflection about the guidelines refinement:
        - A synthesis of important issues raised about the guidelines and common denominators discussed in relation to the previous iterations (the previous interviews with other experts), thus an overview of the guidelines refinement;
    - Critical reflection about the structure of the model:
        - Common denominators raised in the completeness analysis of the model;
        - Insights and reflections about guidelines for the task of developing guidelines (methodological guidelines);
        - Insights and reflections about the use of the model or about the research method and any other relevant subject to the research.

Hence, for each interview a report was developed, which generated a complete technical report about this study. This procedure was essential for deepening the discussion about the guidelines and the model as a whole. It even resulted in a proposition of guidelines to the task of developing guidelines, which will be detailed in the findings section of this work.

4.3.6.2 Qualitative assessment on the refinements' convergence

With the interview report set up, a qualitative assessment was done regarding the refinements converge. The criterion applied in the assessment was the nature of the refinements generated by the expert, which was presented earlier in this section: i) no change; ii) semantic or syntactic refinement; iii) changing on the guideline focus;

iv) elimination of the guideline; and v) resuming of the refinement of an earlier version. These criteria provided a view on the evolution of the refinements, in such a manner that it was possible to verify whether the guidelines were converging or not to a consensus among the experts consulted. In doing so, it was possible to carry out the following qualitative analysis: *a new refinement with a new expert is desirable?* The overall view of this assessment is found in the findings section of this work.

4.3.6.3 Workshops conduction

Having decided that the sample of refinements was robust enough and that it presented a satisfactory convergence, the study proceeded on to its last activity. The purpose of the workshops was not so much to thoroughly examine the guidelines and collect new data, but rather to undertake a last refinement and confirm the final version of the guidelines.

By following the foundations of the Cambridge Process Approach (described earlier), it was decided that an approach that combined both individual and group activities was needed (which is the “participation” characteristic of the Process Approach). The conduction of workshops was, so, the group activity, and it was applied as a decision forum. This would help overcoming possible biases of the individual interviews, given that this time a consensus would have to be reached among the consulted experts.

Two workshops were conducted with a group of three experts, who did not attend in the round of individual interviews. The workshops lasted two (2.0) hours each.

In the first workshop, a brief seminar was conducted about the study. This step worked as a point of entry to the round of workshops. Differently of the round of individual interviews, the experts were not asked about their perceptions about the cultural differences and about the main difficulties regarding the application of Hoshin Kanri, since the aim of the workshops was not to collect new data, but rather to analyze data.

After the experts were introduced to the foundations of the study, the analysis of each guideline was started. This task followed the same four steps rationale described earlier. In order to help overcoming possible biases of the individual interviews, the order of the guidelines analysis was changed: first the experts analyzed the process-related guidelines, and then they analyzed the context-related

guidelines. As the result, the final version of the model was generated, as it will be presented next, in the findings section.

The method applied in this study allowed a noteworthy effort of semantic (and syntactic) analysis, which led to a deepening of the discussion about the model and its usefulness.

4.4 FINDINGS

Table 4.4 presents the evolution of the refinements of guidelines through a rationale of qualitative assessment on the convergence of refinements. This rationale provides a basis to drawn some conclusions about the refinement process.

4.4.1 Analysis on the convergence of refinements

Firstly, the table rows with a recurrence of white areas indicate guidelines that reached a higher degree of agreement between the experts consulted, given that the legend “N” implies that the expert agreed with the previous version of the guideline.

Secondly, the table rows with gray areas also represent a degree of agreement. This is due to the fact the both the “R” and the “S” legends represent a minor change in the semantics or syntax of the guideline, which means that the central focus of the original guideline remained very similar. The refinements in these cases were more of an orthographic nature. In these cases, the experts were trying to enhance the guideline’s redaction, mostly with two strands:

i) to reach a more simple redaction;
ii) to reach a self-explanatory redaction;
iii) to reach a more generic redaction by focusing on principles and purposes rather than on specific tools and techniques.

Thirdly, the table rows with a recurrence of dark grey areas indicate guidelines that reached a certain degree of disagreement of experts in relation to the focus of the original guideline. This is due to the fact that the refinements in these cases were more related to the concept addressed in the guideline. In these cases, the aim of the experts was not so much about creating a complete new guideline as it was about emphasizing a different side of the guideline concept which had not been directly addressed in the redaction.

Table 4.4 - Qualitative assessment on the guidelines' refinements convergence

Guideline	EXPERT								
	#e1	***#e2***	***#e3***	***#e4***	***#e5***	***#e6***	***#e7***	***#e8***	***#e9***
#1	C	C	C	N	C	R	N	C	R
#2	S	R	N	N	N	N	N	N	N
#3	E	R	C	N	N	S	N	N	S
#4	S	S	N	S	C	C	S	R	R
#5	S	C	N	N	C	C	E	R	C
#6	S	E	N	N	R	E	R	E	R
#7	E	N	N	N	N	N	N	N	N
#8	E	R	E	R	S	E	R	S	S
#9	S	S	N	S	R	S	N	S	S
#10	S	S	N	N	N	N	N	S	S
#11	E	R	N	N	N	N	E	R	N
#12	S	N	N	N	N	N	N	N	S
#13	S	N	S	N	S	N	N	R	R
#14	E	N	N	N	N	N	N	N	N
#15	S	S	N	N	N	S	N	N	S
#16	S	S	S	N	S	R	N	N	N
#17	E	C	C	N	N	S	N	S	S
#18	E	N	C	E	N	R	N	N	N
#19	S	S	C	N	N	S	N	N	N
#20	E	N	N	N	N	N	N	N	N
#21	S	R	S	N	N	N	N	S	S
#22	C	C	C	N	N	N	N	S	N
#23	S	C	E	N	N	N	N	N	N

Legend regarding the previous version of the guideline:	
N	no change
S	refinement in semantics and syntax
C	changing on the guideline focus
E	elimination of the guideline
R	resuming of the refinement of an earlier version

Fourthly, the table rows with a recurrence of black areas indicate guidelines with certain degree of disagreement between the experts in relation to the decision to either eliminate or not the guideline. On the other hand, there are four rows that received an “E” followed by a sequence of “N” legends until the last column. In these cases, there was a high degree of agreement, given that the experts agreed with the decision to eliminate the guideline. Hence, those four guidelines were eliminated from the model, which are: Guideline #7, Guideline #14; Guideline #20 and Guideline #23. All of these guidelines were eliminated because the experts agreed that the

central aspect of the guideline was already addressed in other guidelines of the model.

Another analysis can be done regarding the dark grey areas. Proportionally, the greatest percentage of evaluations[9] with the “C” legend occurred for the context-related guidelines – which is the set of guidelines that goes from Guideline #1 to #7. The proportion[10] of those evaluations was calculated as 19% for the context-related guidelines, against 6% for the process-related guidelines. This is explained for the fact that the context-related guidelines are of a broader nature than the process-related ones, which led to a broader universe of interpretation and discussion. Indeed, the deepest discussions about the guidelines in the interviews occurred for the context-related ones.

Overall, the refinement of the process-related guidelines reached a proportion[11] of 87% convergence in the evaluations, taking into account the legends “N”, “S” and “R”. Regarding the overall universe of evaluations in the model, the proportion of convergence reached 82%. These numbers demonstrate a high degree of convergence on the refinements leading to the final version of the model.

The same rationale was applied to calculate the percentage of overall guidelines convergence after each refinement’s iteration. Thus, the evaluations that would indicate a divergence were the ones with “E” or “C” legends. Each refinement’s iteration was correspondent to a round of interview with an expert. The percentage of convergence for each refinement’s iteration is depicted in Figure 4.2. As it can be observed, the first three iterations reached a low degree of convergence and also varied substantially between each other. Then, a high degree of convergence (96%) was obtained in the fourth iteration. However, it was not desirable to stop the rounds of refinement with experts, for two main reasons: i) the previous refinements hadn’t reached a certain level of stability indicating a tendency of convergence; ii) one of the guidelines had been eliminated in that iteration, and that decision still needed to pass through the critical assessment of other experts. The fifth and sixth iterations started to present a higher level of stability. However, the overall convergence was

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[9] An evaluation is a “square” in the table, that is, the evaluation of an expert over a guideline.

[10] The proportion was calculated as the frequency of targeted legends (squares) divided by the sum of squares in the table, both regarding the universe of rows 1 to 7, which represent the context-related guidelines.

[11] The same rationale of the previous note, but regarding the universe of evaluations for the process-related guidelines, and taking into account the legends “N”, “S” and “R”.

decreasing. The seventh and the eighth iteration finally reached a considerable level of stability and convergence. Finally, the ninth iteration reached an overall convergence of 96%. At that point, it was decided that the refinement iterations had reached a satisfactory convergence and the research procedure went on to the last phase, in which the guidelines were confirmed with few minor orthographic refinements carried out in two workshops with another set of experts.

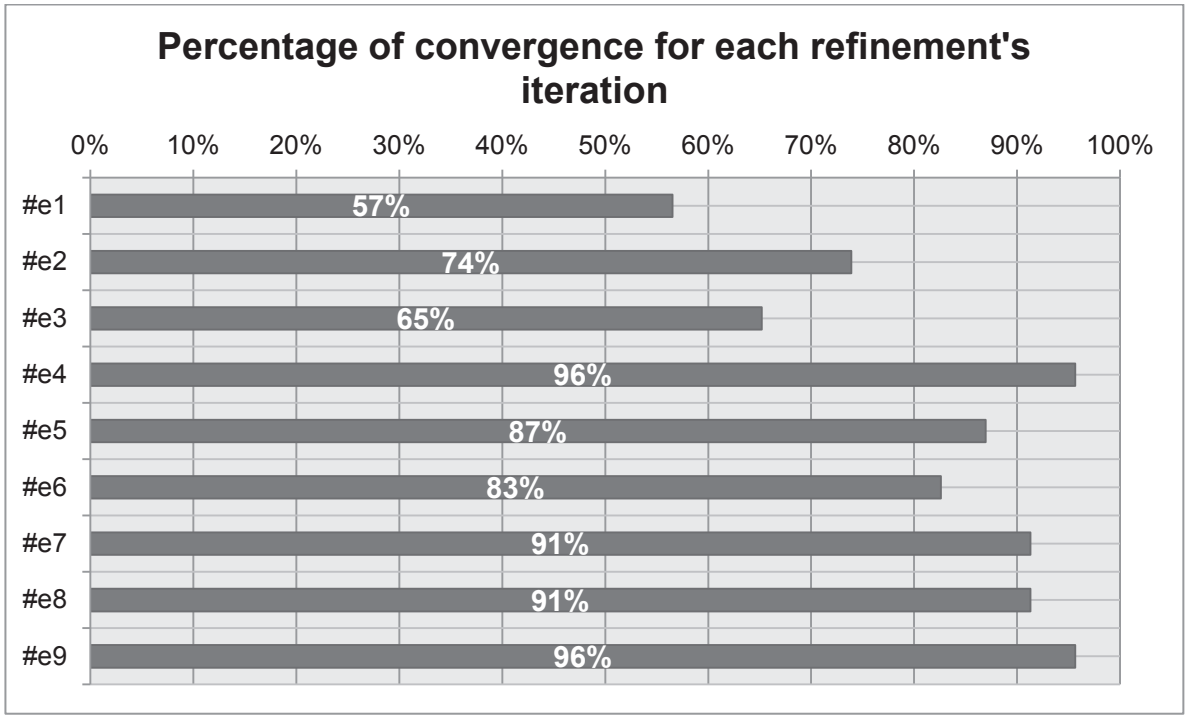

Figure 4.2 - Percentage of convergence for each refinement's iteration

4.4.2 Summary of changes derived from the refinement

The Table 4.5 and Table 4.6 present the original versus refined set of central aspects of the model. The former lists the changings in the process-related central aspects, and the latter lists the changings for the context-related ones. By the differences present in the redaction of the central aspect, it is possible to have a quick overview of the direction taken by the experts in the refinement study. It is evidenced that the experts made an effort to simplify the guidelines with the rationale mentioned earlier. As it was described earlier, the guidelines #14, #20, #23 and #7 were eliminated. As to the guideline #5, it was the only guideline that had its focus changed in the ninth iteration. After the conduction of workshops, it was decided to maintain the changed version refined by the ninth expert, but the guideline was considered as a new guideline, rather than a refinement from the original Guideline #5. For that reason, the original Guideline #5 is shown in Table 4.6 as an eliminated guideline.

Table 4.5 - Original vs refined Central aspects of Hoshin Kanri process-related guidelines

Original vs refined central aspects of Hoshin Kanri process-related guidelines			
Focus			
#	**Original central aspect**	**#**	**Refined central aspect**
8	A vision that is challenging and relevant to all collaborators	8	A long-term vision that is meaningful to all collaborators
9	Medium-term goals designed to encourage innovation	9	Medium-term goals that are measurable and innovative
10	Annual policies focused only on a few breakthrough objectives along with incremental objectives	10	Vital few annual policies focused on business growth and improvement
Alignment			
#	**Original central aspect**	**#**	**Final central aspect**
11*	An appropriate design of policies: meaningful, challenging and balanced	11	An appropriate design of policies: meaningful, balanced and sufficient
12	Organization-wide participation in policy planning	12	Organization-wide participation in policy planning
13	Cascaded deployment of the policies through Catchball	13	Cascaded deployment of policies through mutual adjustment between levels and departments
14	Catchball applied as an iterative process of consensus building	-	ELIMINATED
15	Planning based on causes analysis	14	Planning based on cause-and-effect analysis
Integration			
#	**Original central aspect**	**#**	**Final central aspect**
16	Incorporation of the policies into daily management	15	Integration of the targets into management routines
17	Responsibility based on the task's scope, rather than strictly tied to a functional area	16	Assignment of responsibility over functional and cross-functional targets
18	Self-monitoring of targets within daily management	17	Self-discipline in managing targets within the daily routine
19	Periodic reports on performance	18	Periodic reviews on progress with mutual debate in all workplaces
20	Managers engagement	-	ELIMINATED
20	Visible management	19	Visible management of performance alongside upcoming actions in all workplaces
Review			
#	**Original central aspect**	**#**	**Final central aspect**
22	An annual diagnosis from top management focused on checking how the management of strategic issues is carried out in the work areas	20	A periodic diagnosis from top management in the workplaces to check difficulties in operations and stimulate good practices
23	An appropriate conduction of the annual diagnosis: stimulating dialogue with people at all levels in order to potentiate operations capabilities	-	ELIMINATED
*The guideline #11 was reordered from the Focus category to the Alignment category.			

As it was aforementioned, the refinement of Guideline #5 led to the development of a new guideline, whose central aspect is presented in Table 4.6 as Guideline #5 in the Final central aspect column. Naturally, as it is a new guideline, it had not been addressed in the original model. Another guideline that had not been addressed in the original model is Guideline #2 in the Final central aspect column. The full version of all guidelines is presented in Table 4.8.

Table 4.6 - Central aspects of Context-related Hoshin Kanri guidelines

Original vs refined central aspects of Hoshin Kanri context-related guidelines			
Organizational Culture			
#	**Original central aspect**	**#**	**Final central aspect**
1	Management approach centered in the continuous improvement of business processes	1	Continuous improvement and learning culture
-	NOT ADDRESSED	2	High-impact performance orientation
2	Active involvement of leadership	3	Active involvement of leaders in all workplaces
3	Decisions based on the Nemawashi philosophy	4	Conciliation of different views of parties involved in decision-making
Capabilities			
#	**Original central aspect**	**#**	**Final central aspect**
-	NOT ADDRESSED	5	Overall-performance oriented teams
4	Quality management capabilities	6	Collaborators capable to troubleshoot and manage their routine
5	Ability to apply matrix management	-	ELIMINATED
6	Project management capabilities	7	Cross-functional management capability
7	Administration and continuous improvement of Hoshin Kanri itself	-	ELIMINATED

4.4.3 Conceptual interrelationship in the model

In addition to the development of a declarative model, a robust systematization effort requires an organization of how the concepts relate to each other, preferably in a graphical manner. To accomplish this, the central aspects of the refined model of guidelines are organized through the network view presented in Figure 4.3. It can be seen as an updating of the network view designed in previous work[12] (SILVEIRA et al., 2014a).

The network view shows the interrelationship between the categories of Focus, Alignment, Integration and Review (FAIR). The relationship is of the same nature of

[12] Working paper from Article #1.

how the PDCA steps relate to each other. For each of the FAIR categories, the central concepts are broken down.

Each category in turn is depicted as part of the major dimension of Process. The same rationale applies to the dimension of Context. Finally there is an interrelationship between the dimensions of Context and Process. That relationship can be seen in the light of a property of mutual feedback.

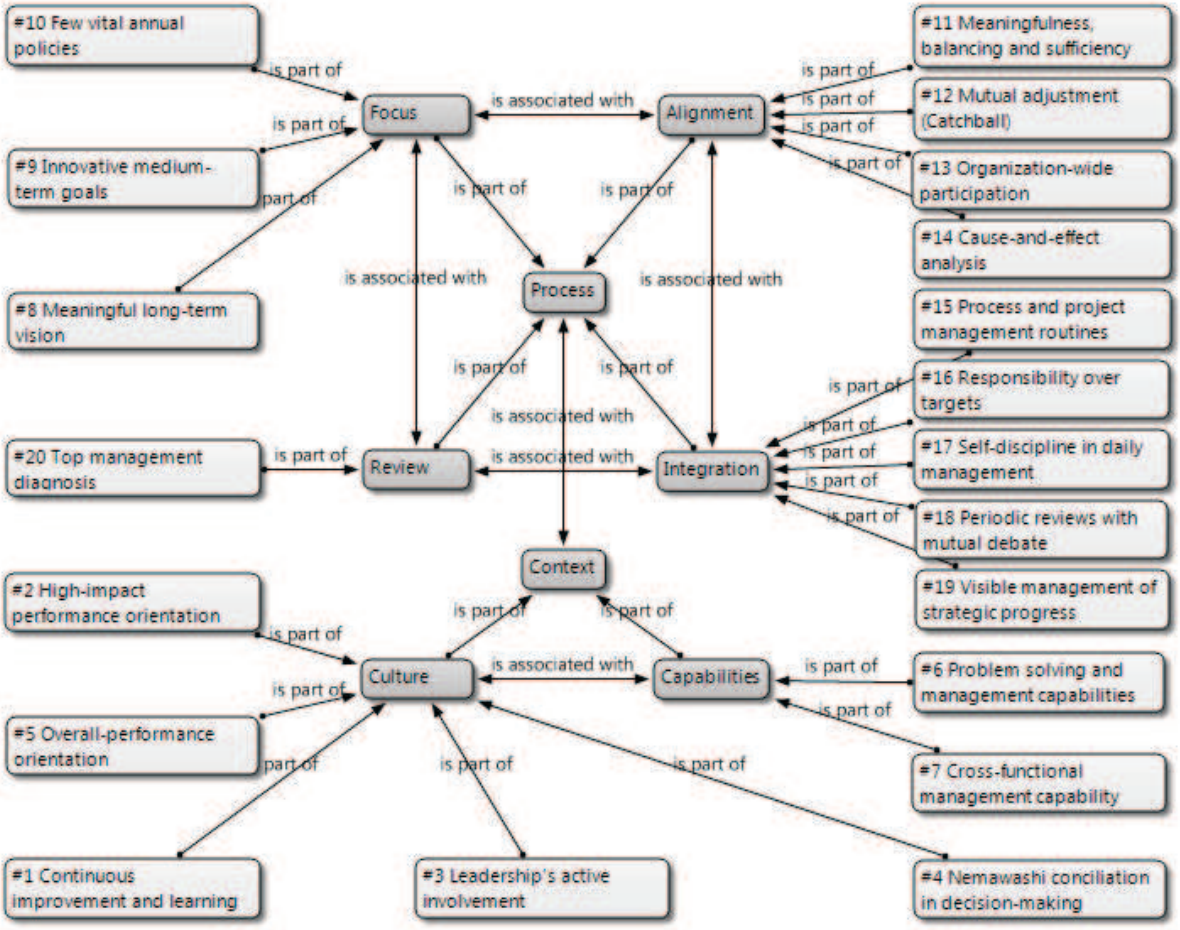

Figure 4.3 - Network view of Hoshin Kanri central concepts

The enhancement of the aspects on one dimension leads to the enhancement of the other dimension. However, the network view does not make possible to depict this mutual feedback in the most appropriate way. For that reason, Figure 4.4 is suggested.

Figure 4.4 shows the Hoshin Kanri Context as a broader dimension than the Process. It is broader because it represents features that may be considered as the “ground features”. That means that these features function to prepare the ground for the effective implementation of Hoshin Kanri. It may be made an analogy with a

house. If the house is built upon a weak foundation, then it will be difficult to sustain its structure. The context-related features also work as the ground for the implementation of other systems and processes of the organization. Thus, these features do not belong exclusively to Hoshin Kanri, but to a greater context associated to the organization-wide management model. In essence, the context-related features address aspects that are directly involved to the people in the organization – their knowledge, skills, behaviors etc.

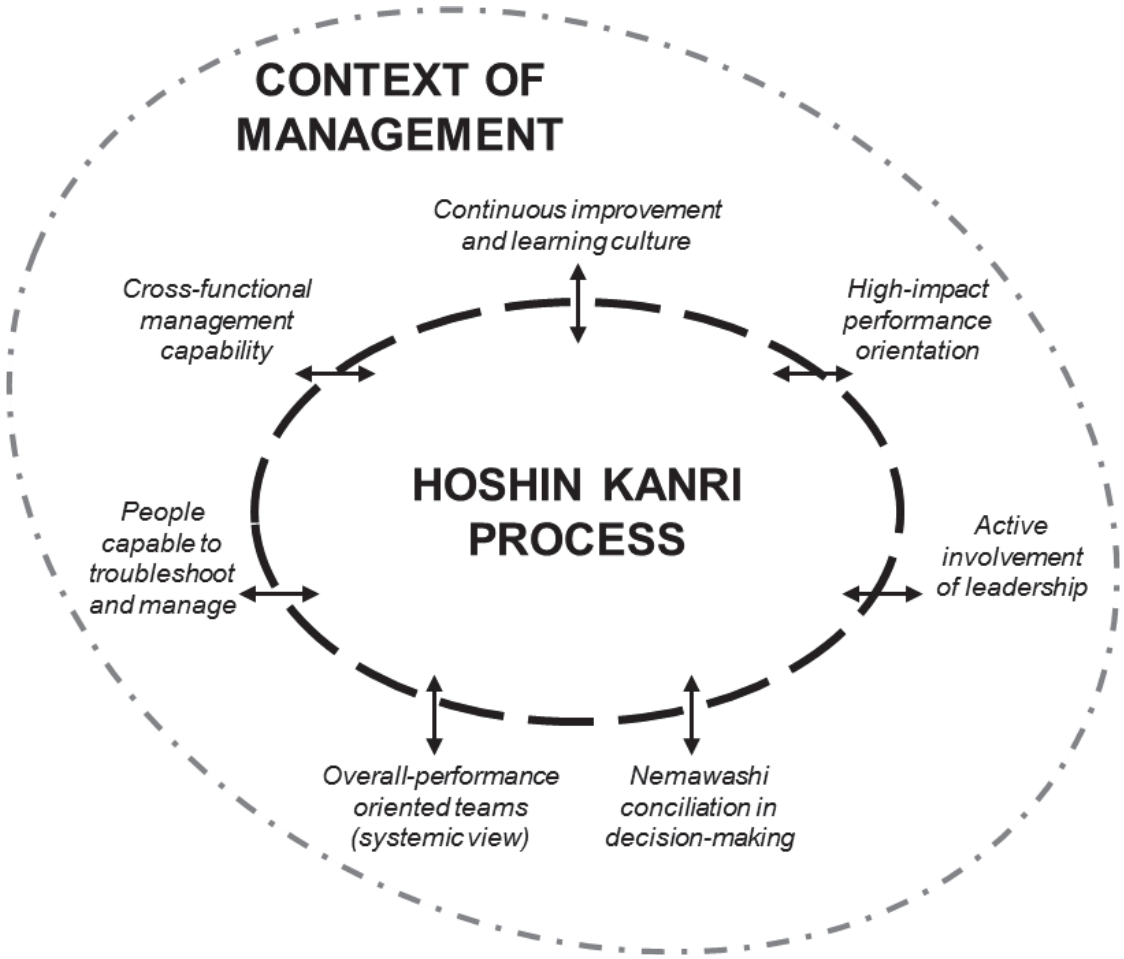

Figure 4.4 - Hoshin Kanri context-related features and the mutual feedback property

Without a proper development of these aspects, the foundation of Hoshin Kanri implementation may become weak. That conception entails the following analyses:

- Firstly, the context features are aspects that are prior to Hoshin Kanri implementation, to a greater or lesser degree. However, they cannot be seen as requirements. Rather, it can be suggested that there is a feedback process, as it was aforementioned. On that account, and given the strategic function of Hoshin

Kanri, an appropriate implementation of Hoshin Kanri could be applied in the benefit of developing organization-wide capabilities. In that way, Hoshin Kanri could be regarded as a dynamic capability, as it was described in previous work[13] (SILVEIRA et al., 2014a) and elsewhere (WITCHER; CHAU; HARDING, 2008; WITCHER; CHAU, 2007). The mutual feedback property implies that the context-related aspects do not work as mandatory prerequisites for applying Hoshin Kanri, even though they are prior to Hoshin Kanri process in the sense that they are broader than the process.

- Secondly, all of the aspects of the model seen in Figure 4.3 network view considered in this work are homogeneous and have the same weight. They are all necessary for an ideal implementation of Hoshin Kanri. Hence, the model developed in this work does not establish precedence relations or hierarchical relationships among its aspects. Nor does the model prescribe a timeline for the implementation of the guidelines. In that sense, for both the design and the diagnostic use of the model, it is suggested that the organization will need to focus both on the Context and on the Process features. Aligned with the concept of mutual feedback property, it is suggested that both the context and the process aspects may be developed in parallel to one another.
- Thirdly, the Context is influenced by aspects outside the organization. However, this work does not propose to examine these aspects. The Context aspects are listed in this work as part of the internal context of the organization. Moreover, they are aspects related to how the organization is managed. For that reason, Figure 4.4 depicts the Context dimension as being limited to the context of management. The context of management is also related to how the organization handles the change on internal and external variables. In that sense, although the model developed in this work does not prescribe contingency aspects, the context-related features are aspects whose enhancement may lead to a better management of change.

[13] Working paper from Article #1.

4.4.4 Methodological contribution

This was an effort that aimed to systematize a model of universally applicable guiding principles for Hoshin Kanri implementation. It is important to outline some of the conceptual assumptions or implications around that systematization effort.

The point that the model should define a universal guide implies that the essential principles for a Hoshin Kanri should be defined regardless of the context in which the organization operates. One might argue, for instance, that the best implementation of Hoshin Kanri is one that applies advanced management methodologies, such as Six Sigma, as supportive capabilities for the achievement of annual policies. However, the complexity degree that is associated to this kind of methodology may derail its implementation in many organizations – depending on the organization's managerial maturity or even on its business priorities. The guidelines should address, thus, guiding principles that can be implemented in various ways, allowing organizations to implement these principles in simple or advanced ways.

These assumptions were kept in mind for the design of this research, especially for the design of expert interviews. The conduction of the interviews had a major role on deepening the comprehension about the systematization of a model of guidelines. This was possible mostly because of the analysis and synthesis effort enabled through the reflection and redaction of each interview report. This effort led to the development of a set of recommendations for the structure and content of a model of guidelines, which is presented in Table 4.7.

Table 4.7 - Recommendations for guideline models structure and content

#	Recommendations for guideline models structure and content
1	*The model should be universal, in such a manner that it is applicable for different contexts.*
2	*The model should define a homogeneous set of guidelines, in such a manner that the level of difficulty should be a matter of the guideline's implementation, and not a matter of the guideline's conception.*
3	*The model should not define more than one guideline for addressing a certain principle.*
4	*The model should define the purpose or principle, rather than tools or techniques.*
5	*The redaction of guidelines should have a self-explanatory language, always as possible. Additional detail could be included in the explanation of the guideline, and not in the guideline itself.*
6	*The redaction of guidelines should ideally define not only an expected result, but also should minimally qualify that expected result.*
7	*The redaction of guidelines should have an appropriate level of specificity. The language should be specific enough for the central principles to be put in the spotlight, and generic enough for the implementation possibilities to be diverse and not restricted to a certain technique or tool.*

Some of the major implications of these recommendations are described next:

- **Recommendation #1:** the recommendation #1 implies that guidelines should be applicable to different contexts, for instance: the context of manufacturing industries, the context of services industries; the context of oriental culture management approach; the context of western culture management approach. On that account, the refinement of Guideline #3 developed an effort to effectively translate the meanings of Nemawashi principle, so that its implementation is not restricted to only an oriental culture management approach, in which the principle is grounded, but it can be effectively adapted to the western culture. Also, some other guidelines were refined with a concern to not restrict the context of the company that will implement the guideline. For instance, the original redaction of Guideline #19 stated the words “shop floor”, which was restricting the guideline only to companies that operate in a context of manufacturing industry, and for that reason the term “shop floor” was exchanged to the term “workplace”.
- **Recommendation #2:** the recommendation #2 implies that the guidelines should represent an ideal implementation reference, rather than a collection of the best tools and techniques “in the market”. Thus, there should not be guidelines that are “basic” and others that are “advanced”. The guideline should all be at the same homogeneous level of difficulty. This homogeneity relies on addressing the purpose, rather than the implementation modes.
- **Recommendation #3:** the recommendation #3 emerged from the convergence of refinements, in which all the experts agreed on the perception that it was not necessary having two guidelines regarding the Catchball principle (original guidelines #13 and #14), nor two guidelines regarding the Top Management Diagnosis principle (original guidelines #22 and #23) and nor two guidelines regarding the Active Involvement of Leadership principle (original guidelines #2 and #20). On that account, the experts also considered that the original guideline #7 addressed a principle that was already covered in guideline #1, with the following rationale: if the company implements the principle of continuous improvement, then the company already has concern to enhance its processes, being the Hoshin Kanri one of those processes.

- **Recommendation #4:** the recommendation #4 implies that, ideally, the model should not define specific tools or techniques, because these are a matter of how the principle is implemented, and thereby the tools and techniques applied by the organization may vary depending on its advancement level in the implementation of the principles. On that account, the guideline #1, for instance, had the terms TQM, Lean and PDCA omitted to the extent that the experts preferred a simplified guideline that would address the principles, rather than the tools.
- **Recommendation #5:** the recommendation #5 implies that the redaction of guidelines has to be clear enough to leave no doubts. For that reason, the redaction language should be kept simple and self-explanatory. For achieving this, the guideline should not be extensive. Thus, some additional detail may be addressed in the explanation of the guideline, and not in the guideline redaction itself.
- **Recommendation #6:** the recommendation #6 implies that the guidelines should not work on a binary manner. For instance, the redaction of Guideline #13 states that the Catchball principle should be implemented in such a manner that it leads to fostering mutual adjustment. In other words, is not only a matter of having Catchball in place or not (a binary sense); it is a matter of how the Catchball works. This rationale was applied on the refinement of all guidelines.
- **Recommendation #7:** the recommendation #7 implies that the guideline should have a balanced language. If it is too much generic, it fails to put focus into the central principle, leading to an excessively opened range of implementation possibilities, without assuring that the real purpose intended is being addressed.

This is a methodological contribution that can be interpreted as a set of guidelines for the development of guidelines. The model complements the methodological contribution from previous work[14] (SILVEIRA et al., 2014a), which organized the steps for carrying out a process of content analysis for identifying guidelines from the literature. The process of expert interviews undertook in the present article, and which was mapped in Figure 3.7, can also be taken into account as a methodological contribution. All of these contributions may be taken into account by other researchers for the development of similar systematization research efforts.

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[14] Working paper from Article #1.

4.4.5 The refined version of the model

The Table 4.8 describes the full statement of all guidelines developed in this study. The summary of changes on each guideline is presented next. The assumptions and implications of each original guideline had been discussed in previous work (SILVEIRA et al., 2014a)[15]. Given that the refined version led to changes that were mostly of a semantic and/or syntactic nature, the assumptions and implications of the guidelines remained practically the same, and will not be replicated here, except for the case of the new guidelines.

- Guideline #1: in general, the experts agreed the concept that is maybe the most important on Hoshin Kanri was missing in the model: the concept of organizational learning. This is mainly due to the fact the Hoshin Kanri has a great focus on the means the lead to ends. However, it is a concept that is closely aligned to the concept of continuous improvement. Some of the experts even tried to establish a relationship between these two concepts. The continuous improvement can be considered as a dynamic capability (ANAND et al., 2009), and the organizational learning may be considered as an advanced implementation stage of continuous improvement in a scale of maturity the development of such dynamic capability (BESSANT; DAVID FRANCIS, 1999). By taking into account the consideration that Hoshin Kanri is a high-order dynamic capability (WITCHER; CHAU; HARDING, 2008), the guideline #1 could be seen as a dynamic capability that is nested in the context of Hoshin Kanri, and which can benefit from the Hoshin Kanri process.
- Guideline #2: the guideline #2 was originated in the discussions about guideline #1. Several of the experts claimed that the continuous improvement culture and the focus on organizational learning are not enough. It is also necessary to develop a high-impact performance orientation, with a concern on achieving breakthrough performance improvement, rather than incremental. This is a perception that is aligned to a more western way of strategic management: the appropriate selection, design, implementation and use of measures to drive strategic changes. This contribution brought an important balance to model, so that it is closer to its aim to being universally applicable. The implication of this

[15] Working paper from Article #1.

guideline is that the company may combine a balanced culture of both high-impact performance orientation and continuous improvement combined with organizational learning. For accomplishing a high-impact, the company should involve the collaborators in a context of management for results, with proper performance targets in place to foster challenging achievements.

- Guideline #3: the active involvement of leadership was a constant since the first refinement iteration. All experts agreed. The notion of mobilization was added to the guideline, so as to emphasize the important role of leadership in the "animation" and communication of the Hoshin Kanri process.
- Guideline #4: the refinements of this guideline led to an in-depth discussion on the real meaning of Nemawashi. The literature often translates Nemawashi as a process for consensus-building. However, this translation may lead to an erroneous interpretation of what Nemawashi truly is, because it brings a sensation of "democracy", where the majority wins in the decision-making process. The Nemawashi was described as an expert as a "necessary evil", which is an analogy that is usually applied on the concept of inventories. It is a necessary evil because if people were aligned – with the same knowledge, the same mindset and the same purposes and principles – then it would not be necessary to undertake Nemawashi. However, the case in real life is one of recurring misalignments and conflicts. On that account, the Nemawashi should be seen as a matter of conflict-dealing and alignment, and not so much about consensus. Nemawashi can lead to reaching consensus, but the main purpose is to provide better alignment, with the conciliation of the views of the different parts involved in the decision-making process. It may be not feasible to always reach consensus, but the conciliation of the different views should be taken into account to provide alignment, while also enhancing people's knowledge and systemic view. In that manner, the refinement of this guideline can be seen as an effort to translate to a more Western approach this principle that is deeply rooted in the Japanese culture.
- Guideline #5: this guideline was originated part as an evolution of the refinement of the original guideline that addressed the concept of matrix management. The experts varied on the consideration of the main principle and purpose of that original guideline, but the notion of systemic view was kept practically intact through the refinements. For a consideration of the notion of systemic view in the

light of Hoshin Kanri on a more practical manner, the characteristic that was highlighted is the overall-performance orientation behavior among people in the organization. The lack of overall-performance orientation may lead to dysfunctional behavior, such as hampering other areas results. This kind of dysfunctional behavior cannot occur in a context of Hoshin Kanri strategy management. Hence, it was decided that the overall-performance orientation is the critical aspect that should be part of the model of guidelines.

- Guideline #6: the necessity to develop people's skills was another point of consensus. The experts considered that all collaborator in the organization, irrespective of his or her position in the hierarchical structure, should know at least the basics of problem solving, teamwork and management methods, so that he or she is able to manage his or her own daily work routine, which is essential for the performance targets to be achieved. Of course, the level on the development of these skills will vary depending on the collaborator's function and hierarchical position. The people who work with projects, for instance, should be trained on skills for project management. However, the guideline focuses on the principles and purposes, rather than on specific techniques and tools. In doing so, it does not limit its implementation possibilities.
- Guideline #7: this guideline was maintained and it can be seen as a combination of the original guidelines #5 and #6. The important notion here is that for an organization that is applying Hoshin Kanri, it is essential to develop ways for addressing systemic issues and for integrating the functional areas. This implies the involvement of people of all hierarchic levels in activities that are designed to improve integration between functional areas. It also involves practices designed to improve cross-functional understanding of problems. It also involves practices designed to improve cross-functional solving of problems. Thus, it is a matter of designing practices for better cross-functional management. Also, the majority of these cross-functional practices require a cross-functional team, whose work will need a structured approach for conducting project management.
- Guideline #8: the important notion on this guideline is that the long-term vision should be disseminated throughout the corporation, at all levels, and it needs to be meaningful for people at all workplaces. The sense of meaningfulness implies that people must be able to relate their daily work to the long-term vision of the corporation.

- Guideline #9: this guideline incorporated a changing on the medium-term time horizon. It was claimed that for organizations that operate in a highly dynamic market, such as technology, the time horizon of two years can already be considered as a medium-term. The other important and “assessable” concept of the guideline is that the medium-term should be designed to be measurable, and not only in an abstract manner. Also, the term “innovative [goals]” was preferred over “breakthrough [goals]”, because it is easier to be understood.
- Guideline #10: the notion of “a few vital” was maintained. As to the concepts of breakthrough combined with incremental targets, the experts extended to a broader sense: the policies should target both the growth of the business and the improvement of its critical areas.
- Guideline #11: the notion of challenging was discarded since it is hard to assess. In its place, another concept was incorporated: the need to achieve sufficiency in in the policy planning. That means that the combination of the planned policies of a work team, for instance, should be sufficient to the achievement of the planned policies of the manager.
- Guideline #12: this guideline was an overall consensus in the refinements. People at the more operational levels may not have a large negotiation margin, but they should be at least involved in the planning in a way that they take part in the planning process before the final word is taken on the action plans.
- Guideline #13: the important concept on Catchball is derived from the same conceptual discussion undertaken for the Nemawashi concept. The main idea behind Catchball is not about consensus in the sense of a democratic process. It is about fostering Nemawashi with the aim to carry out mutual adjustment between the levels and functional areas. It is actually a process that should occur in successive iterations, so as to deepen the planning of policies. Without successive iterations, the Catchball process loses the benefits provided through Nemawashi and actually becomes to resemble more to the MBO (Management by Objectives) way (TENNANT; ROBERTS, 2001b) than the Hoshin Kanri way.
- Guideline #14: this guideline was an overall consensus in the refinements. It is closely associated to the necessity of developing on troubleshooting capabilities.
- Guideline #15: this guideline was also an overall consensus, in the sense that the performance targets must be incorporated into the management routines of

process and projects, in such a way that it is possible to measure the progress towards the achievement of the intended performance.

- Guideline #16: the original guideline #17 was not clear, in the perception of the experts. They preferred a more straightforward version, which states the necessity of assign responsibilities over both functional and cross-functional performance targets;
- Guideline #17: this guideline had its focus slightly changed. The focus was placed on the necessity to develop a sense of discipline in the work teams for the management routines to be followed on a regularly basis.
- Guideline #18: this guideline reached a much simpler redaction than its original version. The main concepts were considered as being the preparation in advance for the report activities, the appropriate interval of reviews, the necessity to carry out the performance reviews all over the organization, and the necessity to conduct the reviews in such a manner that the work teams and the managers undertake a mutual discussion about the action plans.
- Guideline #19: the important concept on visible management is that the information should lead to action. It is not enough only reporting performance. The workplaces should make use of visible management in a dynamic and interactive way, so that the information is as up-to-date as possible.
- Guideline #20: the experts considered that the most important concept on the top management diagnosis is about hearing and understanding the difficulties of the work areas, so as to provide support, aiming at improving the conditions for the work teams to achieve the performance targets. Furthermore, this king of diagnosis could be undertaken periodically, not exclusively on a yearly basis. The involvement of top management must be dynamic and close to the work areas. The top management representatives should foster mutual discussions with the work teams, not with a corrective behavior, but rather in a sense of enhancing learning about the management practices, both for the top management representatives and to the work teams. This could even lead to the sharing of good practices throughout the corporation. It is clearly a practice to benefit organizational learning, which is addressed in guideline #1.

Table 4.8 - Refined version of the guidelines

#	**Organizational culture**
01	*It is necessary to establish a culture of continuous improvement combined with a culture of learning organization.*
02	*It is necessary to develop management for results with challenging targets to drive high-impact performance improvements.*
03	*The active involvement of leadership at all levels of the organization is needed to foster mobilization, alignment and commitment, as well as to ensure the effective use of management methodologies.*
04	*The Nemawashi principle should be used to deal with conflicts in decision-making, seeking a conciliation of the different views of the parties involved.*
05	*It is necessary to develop an orientation to the systemic view, so that each team seeks to reach its results without harming the results of other areas and the overall results.*
#	**Capabilities**
06	*It is necessary to develop the collaborators' orientation to troubleshooting and teamwork, so that they are able to apply structured methods for the management of the processes and/or projects of their routine work.*
07	*It is necessary to develop the ability to address systemic issues by using cross-functional teams and a structured methodology for project management.*
#	**Focus**
08	*There needs to be a long-term vision that is meaningful to people at all levels and departments.*
09	*The long-term vision must be translated into medium-term goals required for the next two-to-five years, which should be measurable and encourage innovation.*
10	*The medium-term goals must be translated into a few vital annual policies, which should target both the business growth and the improvement of its critical areas.*
#	**Alignment**
11	*The annual policies should be designed at each level so as to be: meaningful to the work team, balanced in relation to performance dimensions and sufficient to achieve the overall results.*
12	*Everyone in the organization, at all levels and departments, must be involved to a greater or lesser degree in the annual planning so as to increase adherence to the strategy execution.*
13	*Each policy must be deployed with Catchball between the different levels and departments of the organization so as to foster the mutual adjustment of the planning.*
14	*The targets and means must be defined based on cause-and-effect analysis.*
#	**Integration**
15	*The targets must be integrated into the routines of process management or project management, so that progress can be measured.*
16	*The cascaded deployment must assign the responsibility for the management and achievement of the targets, whether they are of a departmental or cross-functional nature.*
17	*It is necessary to develop self-discipline in the work teams for the completion of the activities related to the progress on targets within the daily routine.*
18	*Periodic reports on performance must be developed to be presented during meetings, which must be performed at appropriate intervals throughout the organization in a way that fosters mutual discussions between managers and work teams.*
19	*Key information of strategy planning and execution must be kept visible and updated in all workplaces so that everyone can understand, at any time, what is happening and what needs to be done.*
#	**Review**
20	*A periodic diagnosis must be conducted by senior management representatives in order to hear and understand the teams' difficulties in achieving the targets, and thereby provide support, in a way that fosters the mutual discussion about management practices.*

4.5 CONCLUSION

The main objective of this work was to refine and discuss a model of guidelines that had been developed in previous work. This was accomplished through the design and implementation of an empirical study that applied expert interviews. The study was designed so that the guidelines were refined in successive iterations until they reached a satisfactory level of convergence. The completeness of the model was also assessed, so that new guidelines could be added to the model.

The original set of twenty-three (23) guidelines was refined and updated, resulting in a set of twenty (20) guidelines. Five (5) guidelines from the original model were eliminated, whereas two (2) new guidelines were added for the completeness of the model. The study also generated methodological contributions for the process of systematizing guidelines.

The empirical approach applied in the study provided a solid basis to develop guidelines that are more relevant to the practice community, and led to deepening the conceptual foundations of the model. The study allows verifying important aspects of the model, such as the concepts of Nemawashi, Catchball, organizational learning and high-impact performance orientation, and their cultural assumptions and implications.

A limitation to this work comes from the fact that the qualitative study, although designed to minimize bias through a systematic and iterative process, is still limited to the subjectivity of the experts consulted, to a lesser or greater degree. Also, the set of experts consulted, although satisfactory to reach convergence on the successive refinements, is comprehensive but not exhaustive, meaning that other expert interviews could lead to new results.

As a future work, the guidelines, although have been refined by means of an empirical study with a systematic procedure, still need to be assessed in the real-context of corporations. This will be done through the development of an assessment tool to be used for evaluating the Hoshin Kanri implementation in different organizations in a set of case studies. In doing so, the guidelines could be confirmed to be used as both a diagnosis and a (re)design tool for Hoshin Kanri initiatives.

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5 ARTICLE #3 – ASSESSMENT OF HOSHIN KANRI GUIDELINES APPLICATION

The final article addresses the third specific research objective and consists in the final phase of the research. In order to verify the model application, an assessment rationale is designed so that the implementation of the guidelines can be evaluated in a set of companies. The study conducts three[16] exploratory cases in corporations that apply Hoshin Kanri and compete in different industries. The result is an assessment that discusses the capability of the corporations in managing strategy implementation. The model of guidelines together with the assessment rationale provides a framework that has the potential to aid in the design and diagnosis of the strategy's implementation management capability. It is also possible to verify from the cases that this framework provides a solid basis upon which a maturity model may be developed for the evolutionary development of such capability.

[16] A fourth case was also conducted, regarding a small-to-medium size company. The aim was to verify how the model could aid in the design of Hoshin Kanri in a company that does not implements a structured strategy implementation management system. The case was investigated through the conduction of two interviews that took 2 hours, along with direct observations. However, the case was omitted from this work both to keep methodological coherency and to avoid information excess. The case will be considered for future publication following this dissertation.

Assessment of Hoshin Kanri Guidelines application: an exploratory evaluation on the development of strategy's implementation management capability

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Abstract

Corporations often struggle to link business strategy and business execution. Hoshin Kanri is a strategy management framework precisely recognized for building this link. The limited universe of western scientific publications of a more empirical nature concerning this traditional framework conceived in Japan, added to a resurgence of interest amongst western managers, who may face cultural challenges towards its implementation, leads to the necessity of systematizing a set of universally applicable guiding principles for Hoshin Kanri initiatives. Such guidelines may be used for the design and diagnosis of strategy management in corporations. This work develops an assessment tool rationale for evaluating the implementation level of twenty guidelines in the real-context of corporations. The guidelines regard not only the process of Hoshin Kanri, but its context as well. The assessment tool is applied in a set of exploratory cases. Given that the framework provided by Hoshin Kanri can be regarded as a capability to manage the corporate strategy, the result is an analysis related to the capability of three different big-sized corporations in managing its strategy.

Keywords: Hoshin Kanri, Policy Deployment, Strategy Management Capability, Management Context, Strategy Management Cultural Challenges.

5.1 INTRODUCTION

Corporations struggle to link business strategy and business execution. Hoshin Kanri is a management framework that is precisely recognized for building this link. It is concerned with the following primary tasks: providing a focus on corporate direction by setting few breakthrough strategic priorities to be achieved every year; aligning the strategic priorities throughout the corporation while fostering agreement and commitment to their achievement; integrating the strategic priorities into the routine management of processes and projects of the organization so that they are

continually subject to checks and actions; and providing a systematic review of how well management is carried out in the work areas for the achievement of strategic priorities. The framework provided by Hoshin Kanri can be regarded as a capability to manage the implementation of corporate strategy. Furthermore, it can be regarded as a high-order dynamic capability, since it has the power to manage the development of other strategic capabilities throughout the corporation.

The approach was first introduced to the western continents during the 1980s, in the period of the transfer of Japanese management knowledge. Unfortunately, since that time, few western organizations seem to have fully understood and applied its principles (WITCHER; CHAU, 2007). However, some experts claim that there has been a seeming resurgence of interest in Hoshin Kanri implementation amongst western strategic management practitioners over the last couple of years, especially in American companies. This advent leads to an increasing interest upon the central principles of Hoshin Kanri along with the key factors for its successful application.

Managers may face context-related challenges regarding its implementation across western companies, since it is a framework that was firstly conceived within the context of Japanese culture. Thus, both the research and the practice community would benefit from the systematization of the main aspects that ensure the effective application of Hoshin Kanri in a universal manner.

For accomplishing this systematization, previous works[17] (SILVEIRA et al., 2013, 2014a, 2014b) applied a systematic literature review followed by a study that applied interviews with experts in the field, so that a model of guidelines (guiding principles) for the successful application of Hoshin Kanri was developed.

However, the guidelines application needs to be verified in a set of cases, within real-life corporate contexts. To accomplish this verification, the present work presents an assessment tool with a rationale for the guidelines application to be assessed in a set of exploratory cases. The exploratory cases were conducted in three corporations positioned in different industries.

The result is an evaluation of the capability level of three different corporations in managing the implementation of its strategy. The applicability of the guidelines model is also confirmed.

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[17] Working paper from Article #1 and Working paper from Article #2.

This paper is organized as follows: the next section presents the research method applied in this work. Then, the findings of the exploratory cases are described in detail. After that, a cross-case analysis is done. Finally, general conclusions are drawn regarding the implications of the model of guidelines.

5.2 RESERCH DESIGN

In an exploratory case, any fact that is relevant to the phenomenon under examination may be considered as potential information for the study, given that the real context of the phenomenon is important. The case study is an empirical study that investigates a given contemporary phenomenon within its real context (YIN, 2003) It is a research method that makes use of multiple data collection instruments and may rely on multiple sources of evidence, which may be not only qualitative, but also quantitative. Some examples of information sources may include interviews, direct observations and documental analysis. The case selection can be undertaken through a qualitative analysis when the universe of possible cases is considered either unknown or irrelevant, in the case of a research of an exploratory nature – which is the case of the present research work.

This work undertook a set of exploratory case studies. Although the cases are of an exploratory nature, the selection of cases was dependent on a few similarities, which were: the companies should have a strategic planning system in place alongside the application of Hoshin Kanri, or a variation of it. Since the universe of companies applying Hoshin Kanri does not represent an extensive population, the possible cases also shared a common context: big size companies that apply Lean or TQM management models. By having meeting the similarity criterion, the selection of the cases was qualitative and based on diversity.

For the assessment of the guidelines application in the case studies, the Likert's scale of five points was applied in the form of a quality assessment: very poor, below average, average, above average and excellent. This scale was chosen due to the fact that it consists in a scale that it has already been extensively tested and validated in the literature, and because it provides a simple assessment approach, making it simple and quick to apply. Although subjective, the boundaries between each scale point are usually well-understood by people, both because of its simplicity and because of its extensive application in surveys throughout the world.

The assessment tool comprises the guidelines, their central aspect and the evaluation of their implementation level, as it is shown in Table 5.1 and Table 5.2.
It is not the aim to recapitulate the foundations and details of the model of guidelines in this work. The detailed description of the model can be found in previous works[18] (SILVEIRA et al., 2014a, 2014b).

Table 5.1 - Hoshin Kanri Assessment Tool - Context

ASSESSMENT ON THE DEVELOPMENT OF HOSHIN KANRI CAPABILITY				Assessment					
1: Very poor | 2: Below average | 3: Average | 4: Above average | 5: Excellent			**0**	**1**	**2**	**3**	**4**	**5**
Context			**0**	0	0	0	0	0
#	**Central aspect**	**Organizational culture**	**0**	0	0	0	0	0
1	#1 Continuous improvement and learning culture	*It is necessary to establish a culture of continuous improvement combined with a culture of learning organization.*	0					
2	#2 High-impact performance orientation	*It is necessary to develop management for results with challenging targets to drive high-impact performance improvements.*	0					
3	#3 Active involvement of leaders in all workplaces	*The active involvement of leadership at all levels of the organization is needed to foster mobilization, alignment and commitment, as well as to ensure the effective use of management methodologies.*	0					
4	#4 Conciliation of different views of parties involved in decision-making	*The Nemawashi principle should be used to deal with conflicts in decision-making, seeking a conciliation of the different views of the parties involved.*	0					
5	#5 Overall-performance oriented teams	*It is necessary to develop an orientation to the systemic view, so that each team seeks to reach its results without harming the results of other areas and the overall results.*	0					
#	**Central aspect**	**Capabilities**	**0**	0	0	0	0	0
6	#6 Collaborators capable to troubleshoot and manage their routine	*It is necessary to develop the collaborators' orientation to troubleshooting and teamwork, so that they are able to apply structured methods for the management of the processes and/or projects of their routine work.*	0					
7	#7 Cross-functional management capability	*It is necessary to develop the ability to address systemic issues by using cross-functional teams and a structured methodology for project management.*	0					

The planning of this study took into account the development of a research protocol, which was basically a breakdown of the guidelines into information requirements. For each guideline, a set of sources of evidence was listed along with the correspondent information requirements (the evidences of practices). This process was based on a rationale applied elsewhere for the assessment of enterprise engineering guidelines (DESCHAMPS, 2013; DESCHAMPS et al., 2013a, 2013b). However, the aim of the exploratory cases was to provide a rationale so that the corporations' representatives

[18] Working paper from Article #1 and Working paper from Article #2.

who were interviewed were able to undertake a self-assessment on the implementation level of each guideline. Hence, the protocol was applied in an indirect manner, since it worked specifically as a reference to deepen the investigation about each guideline during the interviews and direct observations activities. It is also worth noting that the researchers didn't interfere in the assignment of the score, which was a task done by the corporations' representatives. Hence, in order to avoid assessment biases, the researchers behave neutrally, as much as possible, and would only make questions to deepen the investigation required for the guidelines to be assessed by the people interviewed. The collection of data was done mainly through the conduction of interviews and direct observations, which are both primary sources of evidence. It can be said that the main objective of the researchers was to investigate the reasons that led to the assignment of high or low scores on the guidelines assessment. The interviews took about two and a half hours (2,5h), and were conducted by means of the following sequence:

i. a brief contextualization of the research objective and the rationale of the assessment tool by the researchers;
ii. a contextualization about the company and its strategic management process by the interviewee(s);
iii. a round of individual assessment of the guidelines by the interviewee(s);
iv. a round of examination of the guidelines assessment criteria by the researchers, that is, an investigation on the "whys" for the score assigned for each guideline by the interviewee(s).

The score for each category was obtained in two strands: the mode and also the median of the scores obtained for the guidelines of that category. Since the sample is quite small, these metrics were applied to provide a clearer perception about the differences between the companies, avoiding comparisons based on decimal values. For the calculation of the overall score, the overall mean was applied. All guidelines took part in the calculation with the same weight. The cases were reported by means of a radar chart, which aimed at depicting the level of alignment between the company's guideline implementation and the guidelines model's prescription. Besides, the radar chart is an appropriate tool to demonstrate performance gaps in a visual manner. Together with the radar chart, the findings of the exploratory case studies were summarized and organized by means of the guidelines model categories. Finally a cross-case analysis was undertaken to verify similarities and dissimilarities across the cases. The findings of the exploratory cases are presented next.

Table 5.2 - Hoshin Kanri Assessment Tool - Process

ASSESSMENT ON THE DEVELOPMENT OF HOSHIN KANRI CAPABILITY				Assessment					
1: Very poor | 2: Below average | 3: Average | 4: Above average | 5: Excellent			0	1	2	3	4	5
Process			**0**	**0**	**0**	**0**	**0**	**0**
#	**Central aspect**	**Focus**	**0**	0	0	0	0	0
8	#8 A long-term vision that is meaningful to all collaborators	*There needs to be a long-term vision that is meaningful to people at all levels and departments.*	0					
9	#9 Medium-term goals that are measurable and innovative	*The long-term vision must be translated into medium-term goals required for the next two-to-five years, which should be measurable and encourage innovation.*	0					
10	#10 Vital few annual policies focused on business growth and improvement	*The medium-term goals must be translated into a few vital annual policies, which should target both the business growth and the improvement of its critical areas.*	0					
#	**Central aspect**	**Alignment**	**0**	0	0	0	0	0
11	#11 An appropriate design of policies: meaningful, balanced and sufficient	*The annual policies should be designed at each level so as to be: meaningful to the work team, balanced in relation to performance dimensions and sufficient to achieve the overall results.*	0					
12	#12 Organization-wide participation in policy planning	*Everyone in the organization, at all levels and departments, must be involved to a greater or lesser degree in the annual planning so as to increase adherence to the strategy execution.*	0					
13	#13 Cascaded deployment of policies through mutual adjustment between levels and departments	*Each policy must be deployed with Catchball between the different levels and departments of the organization so as to foster the mutual adjustment of the planning.*	0					
14	#14 Planning based on cause-and-effect analysis	*The targets and means must be defined based on cause-and-effect analysis.*	0					
#	**Central aspect**	**Integration**	**0**	0	0	0	0	0
15	#15 Integration of the targets into management routines	*The targets must be integrated into the routines of process management or project management, so that progress can be measured.*	0					
16	#16 Assignment of responsibility over functional and cross-functional targets	*The cascaded deployment must assign the responsibility for the management and achievement of the targets, whether they are of a departmental or cross-functional nature.*	0					
17	#17 Self-discipline in managing targets within the daily routine	*It is necessary to develop self-discipline in the work teams for the completion of the activities related to the progress on targets within the daily routine.*	0					
18	#18 Periodic reviews on progress with mutual debate in all workplaces	*Periodic reports on performance must be developed to be presented during meetings, which must be performed at appropriate intervals throughout the organization in a way that fosters mutual discussions between managers and work teams.*	0					
19	#19 Visible management of performance alongside upcoming actions in all workplaces	*Key information of strategy planning and execution must be kept visible and updated in all workplaces so that everyone can understand, at any time, what is happening and what needs to be done.*	0					
#	**Central aspect**	**Review**	**0**	0	0	0	0	0
20	#20 A periodic diagnosis from top management in the workplaces to check difficulties in operations and stimulate good practices	*A periodic diagnosis must be conducted by senior management representatives in order to hear and understand the teams' difficulties in achieving the targets, and thereby provide support, in a way that fosters the mutual discussion about management practices.*	0					

5.3 EXPLORATORY CASES DESCRIPTION

This section presents a description of the three exploratory cases conducted to evaluate the application of the Hoshin Kanri guidelines. Given that the study addresses strategic issues, in general there was an expected research difficulty with having access to in-depth information. Nevertheless, it was possible to have access to a satisfactory amount of relevant and helpful information. Thus, both the companies and the interviewees assessed are codified here in order to keep confidentiality.

For the same reason, some information such as the official denomination of some strategic practices and programs applied by the company are also codified and described in a more generic manner, without describing specific particularities which are perceived by the company as strategic information.

Firstly, a brief contextualization is done concerning the company's size and structure, alongside its industrial positioning and other relevant aspects in the light of this research. Then, the interviewee(s) is (are) presented concerning its (their) function and experience within the company. After having set up the necessary contextualization, the summary of findings is presented following the categorization of the Hoshin Kanri guidelines model. Thus, the findings are presented for both the Process and the Context dimensions, and are grouped both by the process-related sub dimensions of Focus, Alignment, Integration and Review and by the context-related sub dimensions of Capabilities and Organizational culture.

The findings are presented in a different sequence than that of the guidelines model. First, the process-related findings are described through the sequence of Focus, Alignment, Integration and Review. Then, the context-related findings are described through the sequence of Capabilities and lastly the Organizational culture. This sequence was considered more appropriate to describe the cases due to the nesting of concept dimensions. The context dimension is considered as broader than the process dimension, and so is displayed secondly. Furthermore, the "organizational culture" sub dimension is considered as broader than the "capabilities" sub dimension, and so is displayed last.

5.3.1 CASE 1: Alpha Corporation

The first exploratory case was conducted in a large-sized corporation positioned as a supplier in the automobile industry. The corporation has its matrix in Europe, and several corporate subsidiaries and plants across the globe. Product development and production technologies are among its competitive strengths. The corporate unity focused in this assessment study is situated in the southern Brazil and has hundreds of collaborators. The scope of the corporate unity under examination comprises an industrial plant alongside a structure of project offices focused on the development of new products and strategic improvement projects. The interviewee is a manager in charge of the quality management system. The corporation addresses quality management in two strands: i) quality in the productive operations, which comprises the industrial plants, and; ii) quality management system, which crosses business functions and has an integrative role aimed at overall quality. Thereby, the interviewee has also important assignments within the project offices structure. He reports directly to the President of the South America region. Hence, the interviewee has an overall comprehension of the corporation's strategy and its implementation and management process. The summary of findings is presented next, starting by the assessment of the overall score of Hoshin Kanri guidelines.

5.3.1.1 Overall score of Hoshin Kanri guidelines

The *Alpha Corporation* reached an overall implementation score of 4.45. This high score demonstrates that the company's capability in implementing its strategic purpose is closely aligned with the capability that was prescribed in the model of Hoshin Kanri guidelines. Figure 5.1 depicts the score for each category of the model.

5.3.1.2 Assessment of Process-related guidelines

Figure 5.2 breaks down the score for each process-related guideline. Both the median and the mode for the processes guidelines remained five (5.0), which consists in the maximum excellent score. Only Guideline #17 reached a score lower than four (4). Next, the summary of findings is discussed for each process-related category.

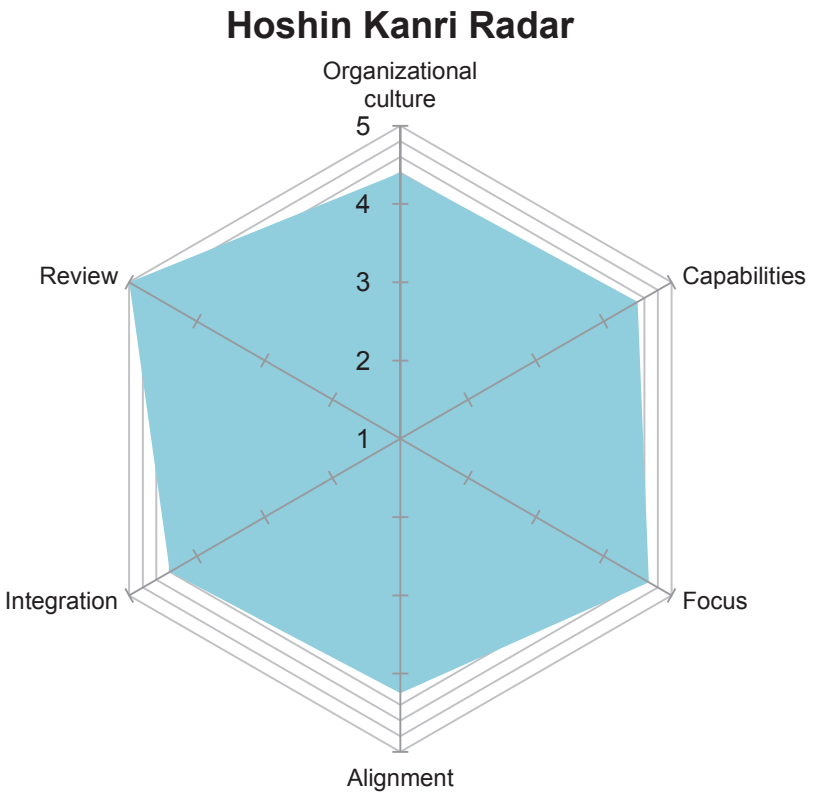

Figure 5.1 - Hoshin Kanri Radar for Case 1

Summary for the Focus sub dimension

A great effort is dedicated to the activities related to the corporation's growth planning. This effort entails a strong communication about the corporation's long-term vision and medium-term strategic goals. The medium-term view comprises a time frame of three (3) to five (5) years, which is constantly reviewed, in such a manner that it may be reviewed along with the annual business plan even three times in a year, given the market dynamic conditions.

The company applies a mature system of strategic planning, by conducting an in-depth analysis of both the external conditions of market and the internal conditions of resources and operations. The analysis takes into account a pipeline of proposals for strategic initiatives and investments. Eventually, a strategy map is updated following the Balanced Scorecard (BSC) concepts. Thus, the strategy map depicts the cause-and-effect relationship between strategic objectives, which in turn are distributed within four major performance perspectives: finances, customers, processes and learning. The strategy map also unfolds the objectives into two strands: the strategic performance improvement objectives and the routine indicators required to sustain

the business performance level. Then, an annual business plan is formulated regarding each business segment and containing the annual policies to be developed and achieved at that year cycle. The manager who was interviewed believes that although it is a process that is well structured, the formulation of the annual business plan still has room for improvement and, therefore, a score of four was assigned to Guideline #10.

Summary for the Alignment sub dimension

The business plan for each business segment is adjusted and validated between businesses segment directors and senior management members, including the regional presidents. The corporate unity under examination takes into account, during this process, a chart of market strategy assumptions which was developed by market intelligence experts. In that manner, the business plan is built upon previously-studied market strategy assumptions, which has the power to focalize and to enrich the exercise of strategy discussion. Eventually, each market strategy assumption becomes an annual policy to be deployed with Catchball. This can also be perceived as a practice that enhances the likelihood to plan policies that may effectively accomplish the strategic results aimed by the company. In that way, it is a practice that works in the benefit of the sufficiency attribute which is tackled in Guideline #11. Although the process is robust, the interviewee believes that it has not yet reached an excellence stage, because there are some specific difficulties faced by some of the people involved. Thus, in other words, the process is not yet at a hundred percent (100%) level.

After the validation by top management, the business plan is deployed and refined throughout the company's levels and functions, following an A3-based Catchball. The A3 formularies comprise information such as the targets and their owners, alongside the current and future situation related to each target. These formularies are designed to be simple-to-fill, and do not comprise information such as correlation matrices. According to the respondent, the Catchball process was in recent past one of the main difficulties for the company in the application of Hoshin Kanri. Before, the company struggled to fulfill detailed formularies during the cascaded deployment of strategic policies. In his perception, the process was too complicated to be carried out by people because it had too much papers, information and criteria. The adoption of a simplified A3-based Catchball seems to have overcome this difficulty. However,

the interviewee believes that the people's sense of critical analysis can be enhanced in the Catchall process, especially in regard to the horizontal alignment across functions, which entails the necessity of a broad understanding of relationship between functional areas.

In regard to the participation of people in the planning process, the quality management system manager says that not all levels are involved in the adjustment of plans. In the operational level, people are more likely to be informed, that is, they will receive the action plan and there will be practically no room for adjustment, because at this point the action plan will have already been thoroughly established and refined by the upper levels. The manager considers, nevertheless, that this does not affect the buy-in for implementing the actions. He recognizes, however, that the involvement of the more operational level in the adjustment of planning can be an operational strength in a context of self-managing teams.

Closing the alignment-related analyses, there is a compliance with Guideline #14. The plans are accomplished based on cause-and-effect analyses. Techniques, tools or methodologies such as PDCA, Ishikawa, Five (5) Whys, Pareto's principle (or "80-20 rule") and Mind maps are applied with that purpose, especially in manufacturing areas.

Summary for the Integration sub dimension

The *Alpha Corporation* has a management system in place for integrating its annual targets into well-defined daily routines. The daily management system is implemented all over the company, with a clear assignment of responsibility over performance targets.

However, the interviewee observes that there is a certain lack of self-discipline among people for an effective application of daily management routines, reason through which the guideline #17 had a score of three (3), the lowest of the evaluation. The interviewee sees in that point the opportunity to enhance people's commitment to their daily management routines, which is an issue that could be tackled by means of a program of managerial and behavioral development, for instance.

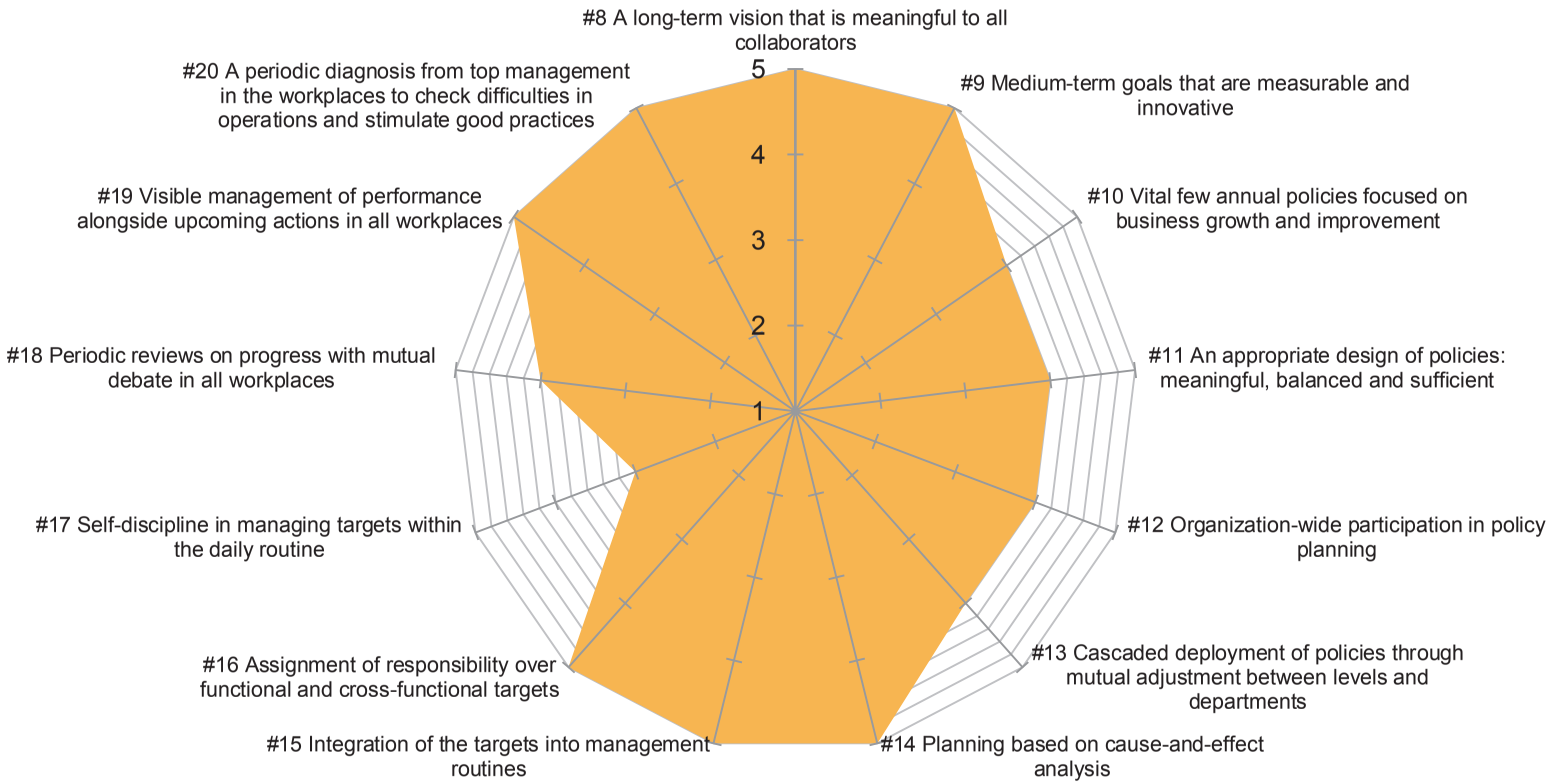

Figure 5.2 - Hoshin Kanri’s Process Radar for Case 1

In regard to the conduction of periodic reviews on targets' progress, the manager assigns a good score, given that the reviews occur in a well-defined routine of performance review meetings, but they can be improved by means of greater critical analyses and critical reflections about performance. The operational leaders follow a weekly agenda for conducting performance follow-up. The relevant aspects are escalated to the plant's operational review, which stratifies the relevant issues to be reported to the president.

The manager says that a monitoring-related issue that has been discussed among managers is the difficulty of monitoring metrics of routine processes along with metrics of strategic initiatives (the ones that are related to the achievement of the company's strategy). There is a certain overlap between routine and strategy. The strategic metrics usually represent the effect of routine metrics issues. That way, in order to accomplish the strategic targets, a set of routine metrics needs to be monitored, in a cause-and-effect relationship. However, the design and implementation of routine metrics generates a substantial effort, in such a manner that the management of strategic targets can become difficult, because a great amount of energy is being placed on routine issues. This can be seen as a matter of a balancing in the workload related to performance measurement, or as a concern to avoid "bloating" the daily management routines. It is an issue that is valid not only for the productive workplaces, but also for supportive areas and for the project office. Thus, the discussion's core revolves around the cost benefit of measurement: is it more effective maintaining a broad set of routine metrics or designing a leaner set of metrics for tracking progress in a more aggregated manner?

Information such as the overall time table for the strategic initiatives and the progress status on each target are displayed and updated in a visible management system, especially on production areas. The follow-up on progress applies a "traffic light" criterion – that is: red, yellow and green ranges of performance achievement – so that the priorities are identified and are put in the spot light in order for identifying and taking the proper countermeasures required. The company has been improving its visible management system, and has determined a policy for maintaining a lean visible management with only strictly required information. Other information (not found on the visible management boards) is easily accessible through the information systems.

Summary for the Review sub dimension

The involvement of top management in the workplaces for checking difficulties in operations and for stimulating good practices occurs in a more informal manner. Instead of conducting a periodic formal diagnosis, the president constantly involves itself with the teams and discusses ways for boosting and accelerating the achievement of the company`s results. For the interviewee, the involvement of the president is very dynamic and close to the operations, and has an important positive impact on teams' performance. The interviewee advocates that the closeness of the president is made transparent for the whole company, in such a manner that the president is accessible to any collaborator. As an example, the interviewee mentions a recent improvement which was boosted and closely monitored by the president. In fact, the president even helped with implementing the change. The particular case mentioned by the interviewee refers to a management methodology that was conceived by the president to be deployed throughout the company and had the power to significantly enhance performance.

This is an alternative approach for carrying out guideline #20, as related to the approach described elsewhere as Top Executive Audits (WITCHER; CHAU; HARDING, 2006, 2008; WITCHER; CHAU, 2008). It is also interesting to note that the approach closes itself with the concept described elsewhere as the "interactive mode" of performance management (HENRI, 2006).

Last but not least, the Top Executive Audits approach described in the literature plays an important role of assessing the competences and capabilities of an organization in such a manner that top management is able to understand bottom-up issues that may be potentiated as strategic strengths, in the light of the resource-based view of the firm (EISENHARDT; MARTIN, 2000; HAYES; PISANO, 1994). In the perspective of the manager interviewed, this role is addressed at *Alpha Corporation* through a layered process audit system. Of course not all opportunities identified in the audits may represent an issue that can potentiate the company`s strategic resources and capabilities, but the audit does apply a structured framework to assess competences and capabilities. Next, the summary of findings is discussed for the context dimension.

5.3.1.3 Assessment of Context-related guidelines

Figure 5.3 breaks down the score for each context-related guideline. The guidelines for context received scores that varied from an above average score to an excellent one. Both the median and the mode remained four (4.0). Each context-related guideline is assessed next.

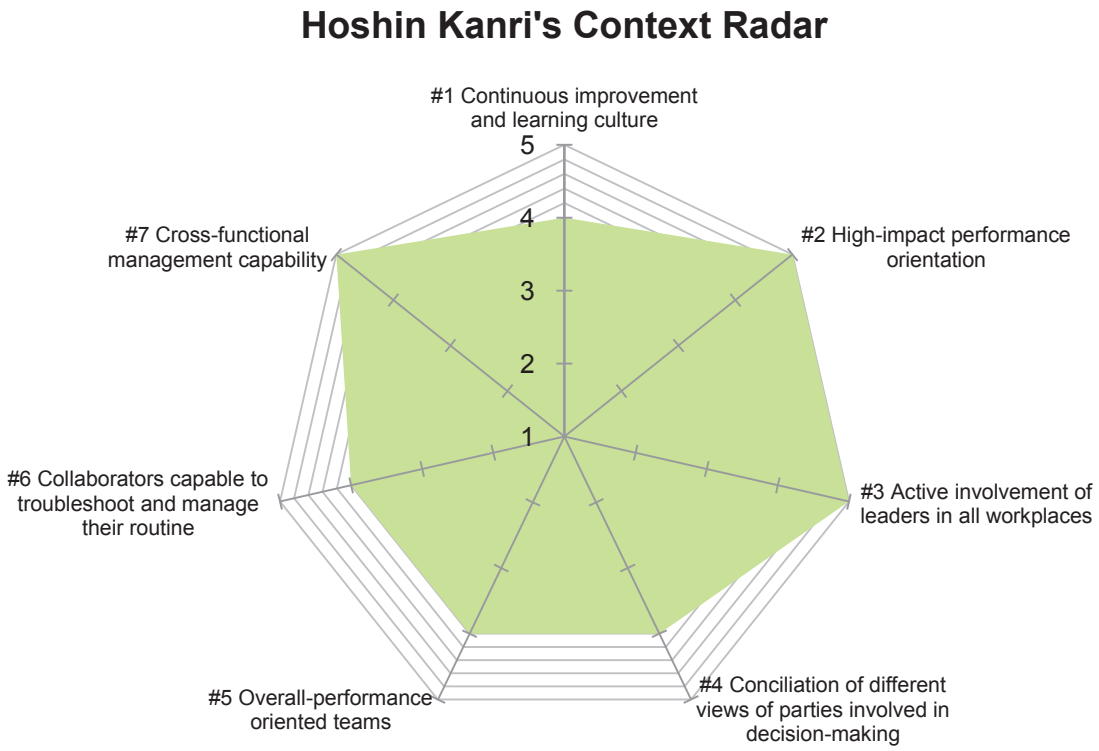

Figure 5.3 - Hoshin Kanri`s Context Radar for Case 1

Summary for the Capabilities sub dimension

The capability to solve problems and use management methodologies to manage the work routine is currently developed throughout the company by means of a company-wide structured training program, which is managed by human resources area. In fact, this is a program that was originated through Hoshin Kanri in the form of an annual policy determined by top management in the recent past.

The training program takes into account a very mature methodology for assessing the development of peoples' skills. This methodology is based on a skill matrix along with a well-defined set of criteria to monitor the evolution on the development stage of each skill in regard to each collaborator. The thorough development of the skill takes into account not only the collaborator's attendance to training courses, but also

the involvement of the collaborators with other people who are experienced on that skill so that the collaborator is able to learn through the sharing of experiences, and finally (and mostly) an intensive on-the-job training. An evolution scale of skills development bases the assessment of each collaborator's proficiency on each skill, in such a manner that a proficient collaborator will have the competence not only to apply the skill, but also to teach other collaborators. This methodology provides a framework that allows managers to identify gaps of capabilities, so that they are able to drive priority training actions. Although this is a very mature program, the quality management system manager believes that in the broad perspective the peoples' capability to troubleshoot and manage could reach a higher threshold. In his perspective, what it seems to be lacking is a greater level of resilience, engagement and accountability.

Resilience refers to the ability to recover quickly from instability periods. Especially in a very dynamic industry, the company or some areas may face temporary periods of instability, which hampers the sustaining of the regular management routines. However, once the instability has vanished, people should have the ability to get back to their regular management routines. Engagement refers to the sense of striving for accomplishing a purpose. It refers to endeavor in the prosecution of a purpose; also, a sense of involving itself proactively in a task, and not only in a passive way. Accountability refers to the compromise and liability of a person for accomplishing the combined and/or planned tasks. It refers to the state of a person being responsible for its own actions and results thereof. In that matter, on a broad sense, not only do people have to be committed to their own actions and results thereof, but they must also avoid throwing the responsibility to other areas, especially when a problem occurs.

In regard to guideline #7, the company has also a very mature structure in place to tackle systemic issues. The project office is responsible for evaluating and managing breakthrough improvement initiatives and investments. These improvement initiatives address organization-wide issues, and may be aimed at improvements such as reducing costs with product development, reducing inventories in the supply-chain, developing a new manufacturing process etc. The initiatives are conducted as improvement projects, which may comprise the conduction of Kaizen events. Indeed, the project office plans and manages an annual schedule of Kaizen events. The projects are managed through a well-defined methodology, applying the concepts of

PMBOK. The portfolio of projects is managed as a pipeline of improvement ideas. For an idea to be implemented, an assessment has to be undertaken. Thus, each idea is evaluated in relation to its potential financial outcomes against costs. The assessment of the ideas pipeline is done on a weekly basis with aid of a bar chart in such a manner that it allows selecting and prioritizing the ideas that will become improvement projects. Ideas that are not implemented remain in a database.

Summary for the Organizational culture sub dimension

In the perception of the manager who was interviewed, the development of continuous improvement and learning culture is a natural necessity for the companies that compete in the automobile industry, because of its dynamics. Thus, the *Alpha Corporation* has an overall orientation to the guiding principles of continuous improvement and learning. The project office is an organization-wide structure that takes these principles into practice. The learning culture is supported by the register of lessons learned in each improvement project and its reuse in future projects. The company also implements the institutionalization of best practices across business functions. However, the manager believes that people could be more proactive to learn and pursuit continuous improvement, which is related with the concept of engagement, described earlier.

An excellent five (5) score was assigned both for the guiding principle of high-impact performance orientation and for the guiding principle of active involvement of leaders in all workplaces. The latter is supported by the close and dynamic involvement of the president with the work teams. It is also reinforced through the involvement of leaders in every function and level of the company. Furthermore, there is a structured training practice aimed at developing key people to multiply knowledge to other collaborators. The idea behind this practice is to assign ownership over these collaborators, in such a manner that they will be responsible to train other collaborators. In doing so, the collaborator will be likely to be better engaged to learn the skills or practices which he or she is responsible to teach to the colleagues, and it will act as a semi-leader multiplier, extending the leadership reach.

As to the company's orientation to high-impact performance, the excellent score that was reached is supported by the robust strategic planning system applied in the company, which was thoroughly described earlier. It comprises a medium-term goal that may be reviewed even more than once a year. It also combines the use of

Hoshin Kanri with the use of BSC strategy maps at the top management level, which is a modern practice mentioned in the current strategic management literature (SERDAR ASAN; TANYAŞ, 2007; WITCHER; CHAU, 2007; YANG; YEH, 2009; YAZDI; MENNATIB, 2011). The concern with market strategy intelligence, as it was described earlier, also emphasizes the company's orientation to high-impact performance. Withal, perhaps the most relevant organizational framework that works in that purpose is the structure of project office, which is clearly aimed at high-impact performance achievements.

Closing the assessment of guidelines for the organizational culture sub dimension, a score of four (4) was assigned to guidelines #4 and #5. The quality management system manager evaluates that people's critical analysis could be enhanced in what concerns their understanding of relationship between functional areas. People could put themselves more in the role of internal suppliers by consulting the other areas more regularly in order to intensify alignment with these areas. This perception brings guidelines #4 and #5 close to one another, because a closer communication would benefit both of these principles. In that sense, the manager reports an improvement example that has enhanced the implementation of these principles. In the past, the lack of an adjustment of the annual plan between production and product development teams led to some difficulties both for the achievement of the planned targets and for the achievement of the company's overall performance. To the extent that the company matured its capabilities in the project office and evolved to product lifecycle management, these difficulties have been minimized.

5.3.1.4 Lessons learned synthesis

The lower score of the *Alpha Corporation* was obtained for the guideline #17, which is related to self-discipline of collaborators in the management of the targets within daily routines. It is possible to suggest that the development of the concepts of resilience, engagement and accountability, which were described earlier, could result in a higher level of self-discipline, and thereby enhance the score of the guideline #17.

When asked about the usefulness and completeness of the model of guidelines, the manager evaluated that the guidelines provide a broad view of the structure necessary for the strategy to be effectively operationalized throughout the company.

However, an organization may not reach a good result in its strategy implementation if a proper level of energy is not applied by the collaborators. In his words, the set of guidelines provide a good structure for the implementation of Hoshin Kanri, which could be seen as its skeleton. But this skeleton has also to have flesh. Not only the strategy content must be appropriate, but also the energy and skill of people. Without having collaborators with a proper level of resilience, engagement and accountability, the company will run the risk of having a good strategy and good implementation process and structure, but with poor results because the energy applied in the implementation process was not appropriate.

The manager's evaluation reinforces the importance of the context-related guidelines. A broad view which does not strictly considers the dimension of process is necessary for an appropriate proposition of Hoshin Kanri guidelines. Thus, it can be suggested that the context-related guidelines play an essential role in the model. Also, the concepts of resilience, engagement and accountability together could be regarded in proposition for a new guideline for the organizational culture category. Although this is a guideline that may be difficult to be assessed, it may provide insights for the managerial community.

5.3.2 CASE 2: Beta Corporation

The second exploratory case was conducted in a large-sized corporation positioned in the logistics services industry. The corporation operates in the regions of South and Central America and has several corporate unities and business subsidiaries across these regions. The corporate unity focused in this assessment study is situated in the southern Brazil and has hundreds of collaborators. The corporation applies Hoshin Kanri for about a decade, using a denomination that is a Brazilian translation for the methodology, which in English can be described as Management by Policies. Two representatives were interviewed: a coordinator and an analyst. Both work in a supportive area of the company, which is also part of the corporation's shared services structure and have even evolved to compose a distinct company within the corporate structure.

Within the corporation's organizational hierarchy structure, the coordinator reports to a manager who in turn reports to a superintendent. The latter reports to the directors board, which in turn finally report to the presidency. Below the coordinator, there are process leaders and analysts, and below the latter there are the technicians and

operators. Hence, this exploratory case focused on a middle management level of a supportive area of the corporation.

Given the exploratory nature of this study and the resulting choice of diversity as the sub criterion for cases selection, it is suggested that the assessment of a middle management level of a supportive area of a big-sized corporation in the services industry has the potential to raise different aspects and variables into the study. For instance, the fact that the middle management hierarchy level is nearer the operational level can be insightful to analyze the notion related to how are the strategic priorities being translated from the top management and how are them being understood in the operational level. Moreover, insightful aspects may come up through the fact that this assessment focuses on a supportive area, rather than a core business area.

The possibility to interview two representatives of the corporation was useful to reach a more systemic analysis, since the respondents have different experiences in the company. That way, the perception of a respondent could be confronted by the other respondent and vice-versa. This confrontation was boosted by the method applied in the assessment. Each respondent assessed the guidelines individually, then the researcher conducted the interview with both in such a manner that they would have to discuss the guideline and reach a consensus. The summary of findings is presented next, starting by the assessment of the overall score of Hoshin Kanri guidelines.

5.3.2.1 Overall score of Hoshin Kanri guidelines

The *Beta Corporation* reached an overall implementation score of 2.95. This average score demonstrates that the company's capability in implementing its strategic purpose has substantial dissimilarities in relation to the capability that was prescribed in the model of Hoshin Kanri guidelines. Figure 5.4 depicts the score for each category of the model. Next, the findings for the process dimension are discussed.

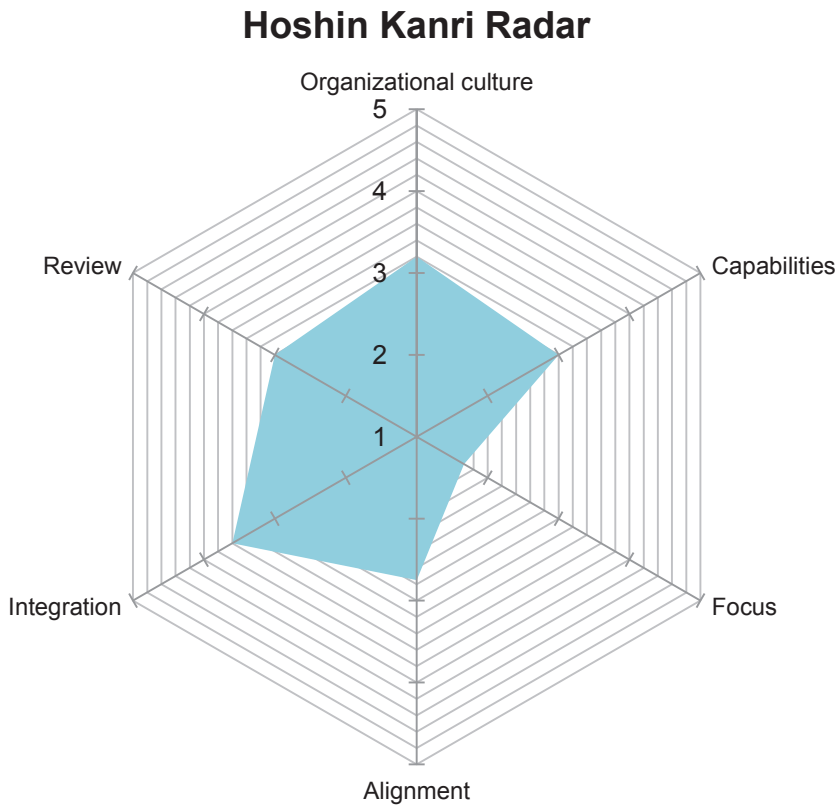

Figure 5.4 - Hoshin Kanri Radar for Case 2

5.3.2.2 Assessment of Process-related guidelines

Figure 5.5 breaks down the score for each process-related guideline. As it can be observed, the guidelines' evaluation varied substantially. Both the median and the mode remained three (3.0), which is an average score. Some of the guidelines were even evaluated with a very poor score and only four guidelines exceeded the average score. Next, the summary of findings is discussed for each process-related category.

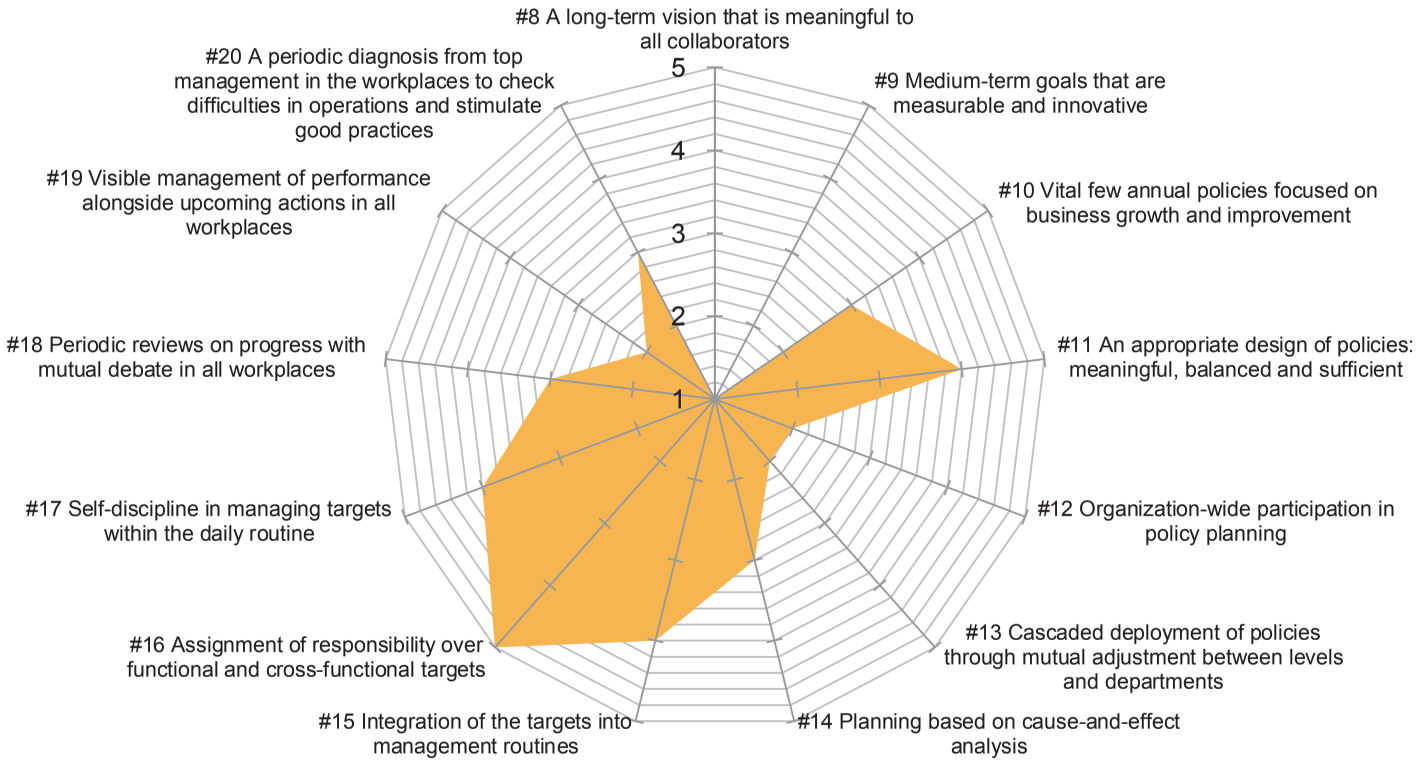

Figure 5.5 - Hoshin Kanri's Process Radar for Case 2

Summary for the Focus sub dimension

In the *Beta Corporation*, the strategic planning process for the next yearly cycle is carried out in the last quarter of the current year. It begins when the top management meets to discuss the strategic intents and finishes when the operational teams define their action plans to achieve the annual policies. At the same time, the upper hierarchical levels (from managers upwards) are involved in the development and consolidation of the budget planning.

The company has a big focus on results, but the dissemination of the medium and long-term purpose does not reach the middle management and the operational level. For this reason, both guidelines #8 and #9 received a very poor score.

The focus is rather on the annual policies. However, in general, people have only knowledge of the policies of the previous hierarchy level. The top management annual policies of the company are not so much widespread.

In the past, the policies were more evident with the use of visible management charts. The practice of visible management was reduced to the extent that the company increased the use of an online information system for performance target management. Although the top management policies are not widely disseminated, one can have access to this kind of information in the information system. That way, the respondents believe that the focus-related strategic capability could be enhanced, with use of more communication about the strategy.

The annual policies are structured in two strands: the improvement targets and the routine indicators. The improvement targets are deployed in cascade until the individual level, that is, the collaborators have individual performance targets related to the strategic purpose of the corporation. Also, there is an incentive system with a variable financial remuneration which is directly related to the achievement of these targets. The routine indicators are composed by the performance indicators of the areas. They are measured in terms of service level and represent indicators that are shared among the individuals. There is also an incentive system in place for these shared indicators. A competition is held between the areas in such a manner that the area with the best performance will receive an award. The competition runs on a quarterly basis. In general, people in the more operational hierarchy level, which is composed of technicians and operators, do not have individual performance improvement targets, but they take part in the responsibility over the shared

indicators. That way, they don’t have a variable remuneration but have the possibility to win the shared award of the competition between areas.

The hierarchic levels that go from analysts upwards are subject to variable remuneration, which is conditioned to a few criteria. Among these criteria, the following stand out: i) the individual has to beat a given percentage of his or her performance target; ii) the immediate superior of the individual has to beat a given percentage of his or her performance target (which is dependent on the achievements of the team); and iii) the director has to beat a given percentage of his or her performance target. As an example, the variable remuneration may be conditioned to the achievement of a target of fixed-costs reduction.

The concern to limit the number of targets and thereby focus the effort of the individuals is given by the following rationale: an individual has to have a minimum of five targets and a maximum of eight. The progress on shared targets can be consulted by the individuals in the information system aforementioned.

Summary for the Alignment sub dimension

Based on the company’s previous overall performance reports, the respondents assess the meaningfulness and the sufficiency of the policies with a score of four (4). The balancing property was mentioned as an improvement opportunity. Especially on the operational level, there is little concern to a balanced set of performance targets, other than cost targets, which receive a high focus all over the corporation.

In what regards to collaborators' participation in the planning process, the respondents evaluate that the operational level is practically not involved. In a general manner, the involvement of people in the planning process is poor.

The adjustment of targets and action plans is also poor. The policies of the manager are communicated and then the action plan is developed usually in a single planning meeting. The focus is almost exclusively on the definition of the required targets for each individual in order for their manager’s targets to be achieved. There is little debate about the action plan. Correspondingly, the level of the conduction of planning based on cause-and-effect analysis is not high, despite the fact that the collaborators are trained in methodologies such as PDCA, Ishikawa and Pareto principle.

Summary for the Integration sub dimension

The best score on the implementation of Hoshin Kanri process is on the Integration sub dimension. All collaborators have clearly defined targets to monitor within the daily routine, given that there is a strong culture of orientation to results, which entails a high focus on the achievement of performance targets all over the corporation. Howsoever, the respondents believe that there is room for improvement, especially in relation to measuring progress on goals. They claim that in moments like performance target audits or performance reviews, managers often identify the need to reconfigure how progress is measured. The assignment of responsibility for each performance target is very clear. The collaborators have individual and team targets to achieve, and there is a strong call for the achievement of targets. Since people are charged for the achievement of targets (both for individual targets as for shared targets), most have a high sense of self-discipline.

In regard to the performance reviews, monthly meetings are undertaken throughout the company. Each hierarchic level has a meeting with the immediate superior level and a meeting with the immediate lower level. The meetings are conducted with a focus on the problems, the red targets. The meetings are prepared in advance with aid of a standard slide show template, which defines the topics of the meeting. The focus in on solving the problems and the collaborators make use of standardized templates for carrying out Ishikawa and Pareto examinations. However, the respondents claim that the templates are often used superficially, without real causal analysis. It is common to see people using templates in a reactive way, just to follow company standards, instead of the use with aim of carrying out a detailed cause-and-effect analysis. The respondents also claim that sometimes the discussion focus deviates, in a certain degree, from the process-related causal analysis and assume a character of justification of problems.

The company used to have visible management charts, but it has decreased their use at the same time as it has increased the use of an online information system for performance target management. According to the respondents, the information was usually outdated and thus the visible management was not effective.

Summary for the Review sub dimension

Given that the supportive area where the assessment was done is also a distinct company, there are two kinds of review in which the top management representatives take part: i) a semiannual meeting between the corporate presidency

and the managers of the distinct company, and also a few coordinators who are selected by sweepstake; and ii) a quarterly meeting between the corporate presidency and the directory board together with the corporate superintendence, and also a few managers who are selected by sweepstake. In both cases, the directors, superintendents, managers and coordinators who take part in the meetings are responsible to present the results of the period, making use of standard templates. The coordinators also attend the quarterly meeting, but as viewers. This meeting also may also count with other activities such as motivational lectures.

Another practice related to the communication between the presidency and the work areas is the monthly bulletin of presidency, which presents a summary of important topics and achievements.

Although these meetings have the presence of top management representatives, the degree of interaction with the more operational level is limited. From the notions of interactive use and diagnostic use of performance reviews described elsewhere (HENRI, 2006), it can be suggested that the involvement of top management is more similar to a diagnostic mode. That way, the review may not be an effort that is as concerned with the identification, understanding and enhancement of bottom-up issues and capabilities as the approach described by Witcher et al. (WITCHER; CHAU; HARDING, 2008). One of the practices in place in *Beta Corporation* that is concerned with a methodological issue regarding the management of targets is the conduction of targets audit. However, this practice is more focused on preventing the miscalculation of performance than on the development of capabilities.

5.3.2.3 Assessment of Context-related guidelines

Figure 5.6 breaks the score for each context-related guideline. The score of these guidelines revolved around average. As it occurred in the case of the process-related guidelines, both the median and the mode remained three (3.0). Given that it is suggested that the features of context and process exert mutual feedback upon one another, it makes sense that the score of both is aligned. The context-related guidelines are assessed next.

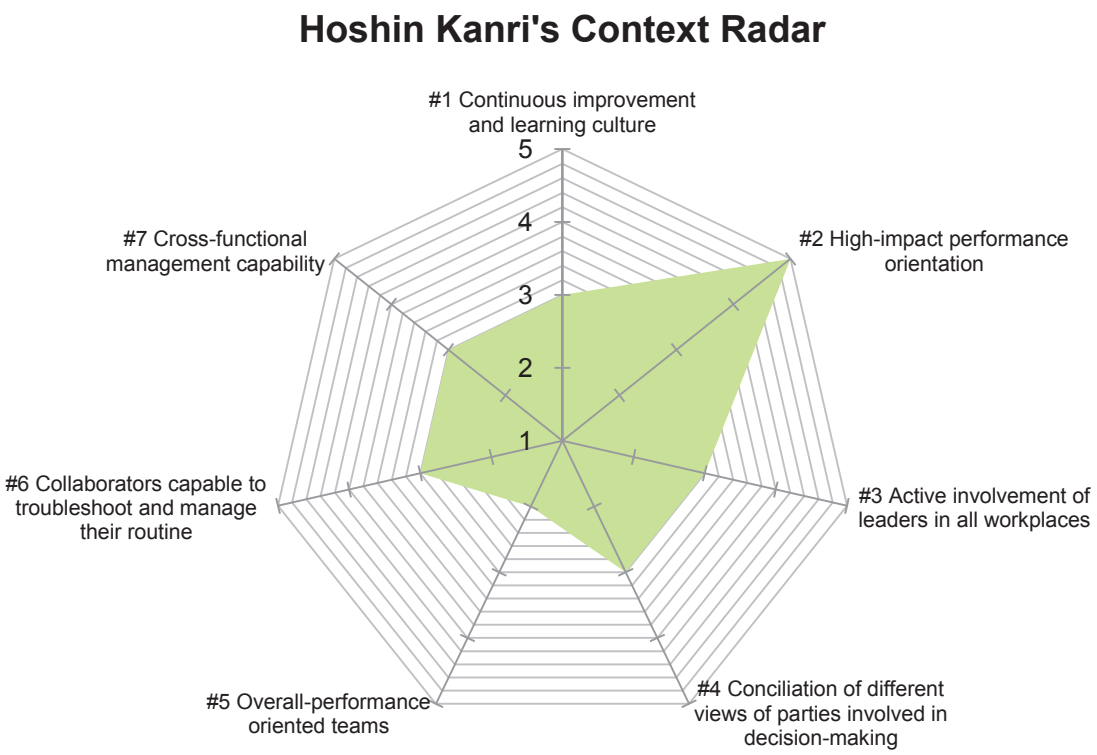

Figure 5.6 - Hoshin Kanri's Context Radar for Case 2

Summary for the Capabilities sub dimension

According to the respondents, the company provides training on the capability to solve problems and use management methodologies to manage the work routine. However, the training is focused on the tools, rather than on the principles and the purpose behind the tools. The respondents perceive that people have difficulty in making a clear relation between what is learned in the training and what is experienced in day-to-day situations. That way, the collaborators has not yet developed a true problem solving capability. The respondents claim that this can be observed in people's attitude in face of their routine problems. On that account, there is little proactive sense and little critical reflection.

Another aspect that brings difficulty is a lack of understanding about the others' work, that is, a lack of understanding about the content and the purpose of the work performed by other collaborators and other areas. A better understanding of others' work would help preventing and correcting many of the problems that arise in the daily work.

The respondents note that the corporation has placed a big focus on its growth over the last years, which resulted in several structural changes. In the midst of it, the

concern with the development of capabilities seems to have been placed into the background. The focus nowadays is on financial efficiency. Similarly, another practice that seems to have fallen into disuse is the quality central system for the standardization of processes. It is reasonable to conclude that a great structural change aimed at a corporation's growth entails the necessity of efficiency improvement efforts. However, it is also reasonable observing that a better capability to solve problems and apply management methodologies would aid in such an efficiency improvement effort.

In regard to cross-functional management capability, there is a project management structure aimed at continuous improvement. The continuous improvement team conducts best practices sharing activities, but this is something that lies on the managerial level. A recent effort has begun the implementation of a training program on Kaizen along with Six Sigma techniques.

Summary for the Organizational culture sub dimension

The evaluation of the respondents is that the company posits the necessity of using the PDCA methodology on all departments, but there is a lack of effort related to the follow-up on people's capability in applying the methodology. Thereby, there is little continuous improvement of PDCA capability.

Although there is an area with a team assigned to continuous improvement, the focus of their effort is still of a more corrective and reactive focus. The continuous improvement team defines projects and programs related to improvement. These initiatives are passed on to the work areas, but little support is given to the work areas in what concerns the planning and the follow-up of the initiative. This might be one of the causes that lead to people's resistance in such initiatives. The scope of perception of the respondents lies on middle management and also on the operational level. In that context, the respondents evaluate that many people make the improvement initiatives because it is an obligation. They also evaluate that the middle management level finds difficulties in trying to disseminate the continuous improvement philosophy onto the operational level. Some middle managers and coordinators even leave this effort in the background. Although the continuous improvement philosophy is stated as one of the corporate values, it seems there is a lack of understanding about what it truly means. There is a constant call for the

improvement, but the “whys” of the improvement might be missing in the communication.

There is also the lack of learning culture. This has to be better systematized throughout the company, with the development of registers of lessons learned. Although in general the processes are standardized, important pieces of knowledge may go away when a collaborator leaves the company.

The culture of high-impact performance orientation is maybe the aspect that is more clearly rooted in the corporation. The great objective of a collaborator is to achieve targets and/or sustain shared indicators within the acceptable range of performance. Everyone is charged for that.

The respondents perceive the involvement of leaders in a more corrective sense. The managers usually get involved in the occurrence of problems and errors. It is not so much an involvement aimed at foster mobilization and alignment or to ensure the effective use of management methodologies. While there is a great concern with the achievement of targets, the respondents believe there is a lack of concern with the method to achieve the targets. There could be a more intensive work for the coaching about the management methods, with more follow-up of the learning and not only through punctual training actions.

In what regards the conciliation of the different parties involved in decision-making processes, the respondents say that the company begun a set of initiatives that are expected to improve the communication and the collaborative work between the functional areas. As part of the initiatives, the company is providing training activities to enhance communication and is also implementing a program for developing collaborators on applying Six Sigma techniques.

According to the respondents, the constant call for achieving targets may lead sometimes to a dysfunctional behavior. Some people may not care if their actions may harm other areas. This reflects an overall behavior that is much more focused on the short-term than on the long-term. An example of a short-term behavior is related to budget management. The company will usually cut off expenses in the last quarter of the year so that the cost and profit targets are met. Many people who perceive this practice behave in such a manner that they spend their entire budget in the beginning of the year. However, it can be said that this is not a difficulty specific from the *Beta Corporation*. Many companies struggle to succeed in budget management. For example, the example of difficulty mentioned here is an opposite

side of another well-known difficulty related to budget management: spending the budget in the ending of the year to avoid a substantial reduction on the following year's budget.

5.3.2.4 Lessons learned synthesis

The *Beta Corporation* has reached an average score in the implementation of Hoshin Kanri guidelines. This does not mean, though, that the organizational results of the corporation have not been going well. Such a causal understanding requires an in-depth historical analysis of the corporate results, especially in terms of finances and market. The average score indicates that the capability of strategy implementation management is being implemented in a different manner from what is prescribed in the literature, even though the company implements its strategy avowedly from Hoshin Kanri concepts.

Thus, this assessment does not have the aim to evaluate whether the corporation's capability to manage the strategy implementation is good or not. The assessment is strictly related to how the company's practices align to the Hoshin Kanri universally applicable guiding principles. On that account, the assessment allowed to identify improvement opportunities related to the implementation of strategy.

The analysis is also limited to the perception of the respondents, which work in a supportive area of a specific corporate unity, and do not compose the top management level. However, the corporate unity is of great relevance within the corporate structure. It can be suggested that the fact that the respondents are from the middle management level (and also from the operational level) provides an important perception about how the strategic policies are being aligned and integrated in the more operational levels, which is considered one of the greatest strengths of Hoshin Kanri.

The lower scores were obtained in the guidelines #8 and #9, which are related to the dissemination of the long and medium-term strategic purpose of the corporation. Interestingly, the higher score was obtained for guidelines #2 and #16. The latter is related to the assignment of responsibility over targets, and the former is related to the culture of high-impact performance orientation. Although the long and medium-term strategic goals are not broadly disseminated, the company has a great orientation to the achievement of high-impact results. The interrelation between these

two aspects may be on a certain degree of short-term orientation to high-impact results. This may be explained in part by the corporation's current moment, which is a moment of substantial growth that entails big structural changes.

The current panorama presented in this assessment seems to approximate the corporation’s practices to an implementation of MBO, that is, the current practices seem to be more aligned to the Peter Drucker’s Management by Objectives framework than to the Hoshin Kanri framework – which is considered as an evolution of MBO (TENNANT; ROBERTS, 2001a).

The respondents evaluated that the assessment tool provides broad scenery to reflect about the strategic management practices of the organization. Thereby, it provides a frame that helps bringing powerful insights for improvement of the capability to manage the implementation of strategy. However, the frame of guidelines is extensive, which makes it difficult to use, because of time restrictions.

5.3.3 CASE 3: Gamma Corporation

The third exploratory case was conducted in a large-sized centenary Japanese corporation positioned in several technology industries all over the world. The corporate unity focused in this assessment study is a subsidiary situated in the southern Brazil. Although situated in Brazil, it also meets markets outside the country. This corporate unity is a manufacturing plant and is positioned in the Telecommunications industry. It has hundreds of collaborators and applies Hoshin Kanri for about two decades, under the original Japanese denomination of the methodology, despite operating in Brazil.

Two representatives were interviewed: an ex-manager and a production chief. The former was part of the team who implemented Hoshin Kanri in de 1990s. He worked for several years as the industrial manager. Nowadays, he is an independent consultant, but still provides services for the company, being responsible for training the collaborators on Hoshin Kanri and other management methodologies, and also working as a leader on Kaizen activities. The latter is a production chief that is in charge of one of the three major production lines of the company – each production line manufactures a distinct set of SKUs, applying different material and technology. The production line chief reports directly to the industrial manager, who in turn reports to the general manager of the South America region’s corporate unities. The other plants of this region are conditioned to the corporate unity examined in this

work. The corporate unity, in turn, is conditioned to the general matrix, which is situated in Japan.

As it was possible to interview two representatives of the company, the procedure applied for reaching a consensus was the same as the procedure used in the Case 2. The summary of findings is presented next, starting by the assessment of the overall score of Hoshin Kanri guidelines.

5.3.3.1 Overall score of Hoshin Kanri guidelines

The *Gamma Corporation* reached an overall implementation score of 4.25. This above average score demonstrates that the company's capability in implementing its strategic purpose is closely aligned to the capability that was prescribed in the model of Hoshin Kanri guidelines. Figure 5.7 depicts the score for each category of the model.

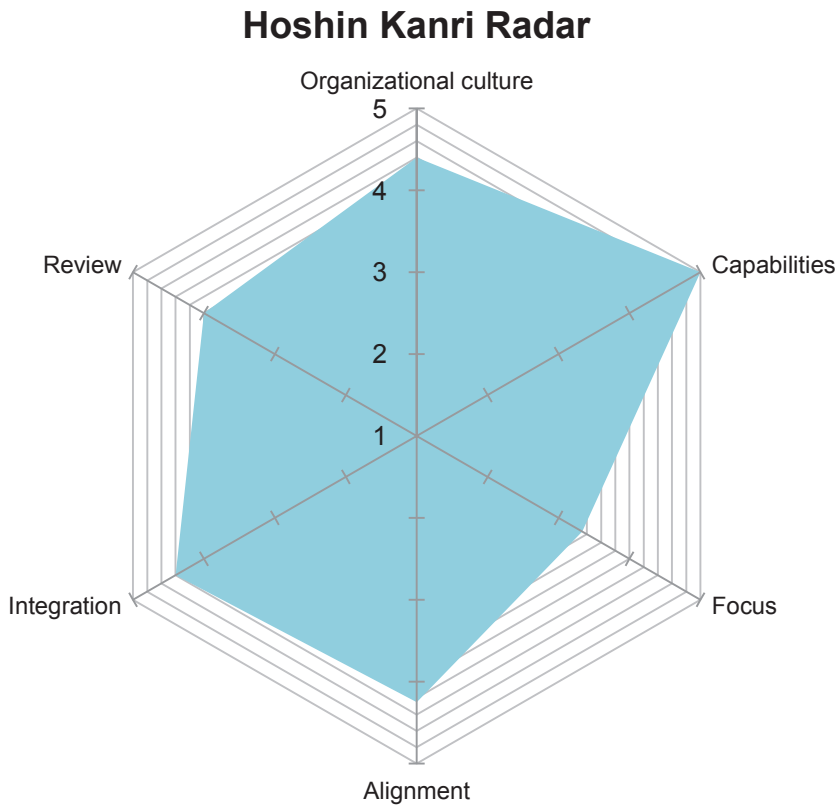

Figure 5.7 - Hoshin Kanri Radar for Case 3

5.3.3.2 Assessment of Process-related guidelines

Figure 5.8 breaks down the score for each process-related guideline. The scores ranged around the above average level. Both the median and the mode remained four (4.0). Next, the summary of findings is discussed for each process-related category.

Summary for the Focus sub dimension

The strategic planning at top management includes the use of BSC strategy maps and a medium-term plan for the next three years. The definition of the annual policies starts with the corporate matrix, whose annual policies are deployed down to the corporate unities over the world. The corporate unity under examination in this study reports directly to the corporate matrix. The corporate unity develops its own annual business plan and adjusts the annual policies with the matrix. Then, the business plan is deployed down to the other unities of the South America region, since these latter are conditioned to the corporate unity under examination. Thus, based on the annual policies that were received from the corporate unity, the other unities of the South America develop their own business plan and adjust the business plan with the corporate unity.

This process has recently passed through an improvement. Before, the corporate matrix and the corporate unity had different planning calendars. Now, the strategic planning calendar of the corporate unity fits to the Japanese calendar, so that the strategic planning effort became more productive. That way, the strategic planning is carried out through January until March, so that the strategy cycle starts lasts from April of the current year until March of the following year.

The communication of the annual policies from the corporate unity top management follows a format recurrently mentioned in the literature: strategic policies in the form of slogans. Both the company's growth and the improvement of its critical areas are targeted. The annual policies of the corporate unity are actually separated in two strands: the main improvement targets which are strongly linked to the achievement of the annual policies, and the targets that are clearly related to daily management issues. By means of the few set of slogans defined for the communication of the annual policies, it is noteworthy that the company focuses on only a few vital breakthrough priorities, in the way prescribed in the literature and consequently

prescribed in the guidelines model. Besides the annual policies of the corporate unities, the industrial managers, general managers and directors also have their own Hoshin Kanri plans with individual performance targets. These personal plans are used on the assessment of their performance in their assignments as managers, and such assessment is linked to their variable finance remuneration.

The annual strategy is clearly communicated throughout the corporation. The medium-term goals and the long-term vision are not disseminated in the same degree, though, as they remain more in the top management level – although one can find these goals in the corporate intranet system.

Summary for the Alignment sub dimension

After the validation of the business plan, the business plan is deployed in cascade, being adjusted throughout the company's levels and functions, following an A3-based Catchball. The A3 formularies are carefully designed. At the top of the formularies, the few vital slogans are sustained throughout the levels and departments in the cascading deployment process, in order to effectively communicate the main annual policies of the company.

The targets are classified in a balanced set of six performance dimensions, which include dimensions such as quality, cost and delivery. In fact, before the adoption of Hoshin Kanri, the company used to call its strategic management system as "the six main targets", which is a direct reference to the performance dimensions.

The A3 formularies comprise a standard information design. To the extent that the policies are deployed to the following hierarchy level, the central structure of information is maintained and relevant details are added. A3 Catchball formularies may contain information such as: performance dimension; objective intended ("what"); expected effect; target; responsible work team; strategy to achieve the objective ("how"); PDCA phase (whether the intended initiative is part of the Plan, Do, Check or Action phase of PDCA) and an annual month-to-month schedule (similar to a bowling chart). It is interesting noting that these formularies are under constant improvement. As an example, the aforementioned column "PDCA phase" was added to the formularies as a recent improvement. The aim is to help focusing the planning, in such a manner that the annual schedule of strategic initiatives is planned and displayed in terms of each phase of the PDCA. This detail provides managers with a better understanding of the planned schedule, which leads to better management of

resources. For instance, some initiatives may take a few months of planning activities before being placed into practice. By defining the planned schedule for each phase of the strategic initiatives in the formularies, both managers and work teams have an overview about the leveling of strategy-related workload on a monthly basis.

The formularies are designed to be simple-to-fill. There are no correlation matrices, which some authors and experts describe as a recommended practice to aid in the application of Catchball (JACKSON, 2006; SOLTERO, 2007).

The annual policies are deployed by means of the following rationale: first the annual business plan is adjusted between the corporate unity and the Japanese matrix. Both the regional general manager and the industrial manager take part in this process together with the directory board of the corporate matrix. Then, the annual plan is adjusted between the corporate unity and the other unities of the South America region which are conditioned to the corporate unity. Both the regional general manager and the industrial manager of the corporate unity under examination take part in this process together with the other plants' managers. According to the interviewee who worked several years as the industrial manager, this is a very dynamic process. In his own words (making the analogy with the term "Catchball") the ball is thrown forwards and backwards several times. The plan will be refined successive times until it reaches a final version. Thus, a lot of energy is devoted to the planning of policies. The budget planning is carried out in the same way, as a Catchball-like process.

Then, the annual plan of the corporate unity is adjusted between the industrial manager and department managers. The annual plan in the productive department includes, among others, the department of materials, the maintenance department and the engineering department. The productive department breaks the plan into the three production lines. The production line chief adjusts the annual plan with group leaders, who in turn adjust the plan with their work teams. That way, the organization-wide participation in policy planning is an aspect that stands out among the alignment-related guidelines.

The actions are planned with use of cause-and-effect analyses, supported by techniques and methodologies such as PDCA, Ishikawa, Five (5) Whys and Pareto's principle. At the productive operational level, the result of the Catchball process is the Hoshin Kanri plan for each group.

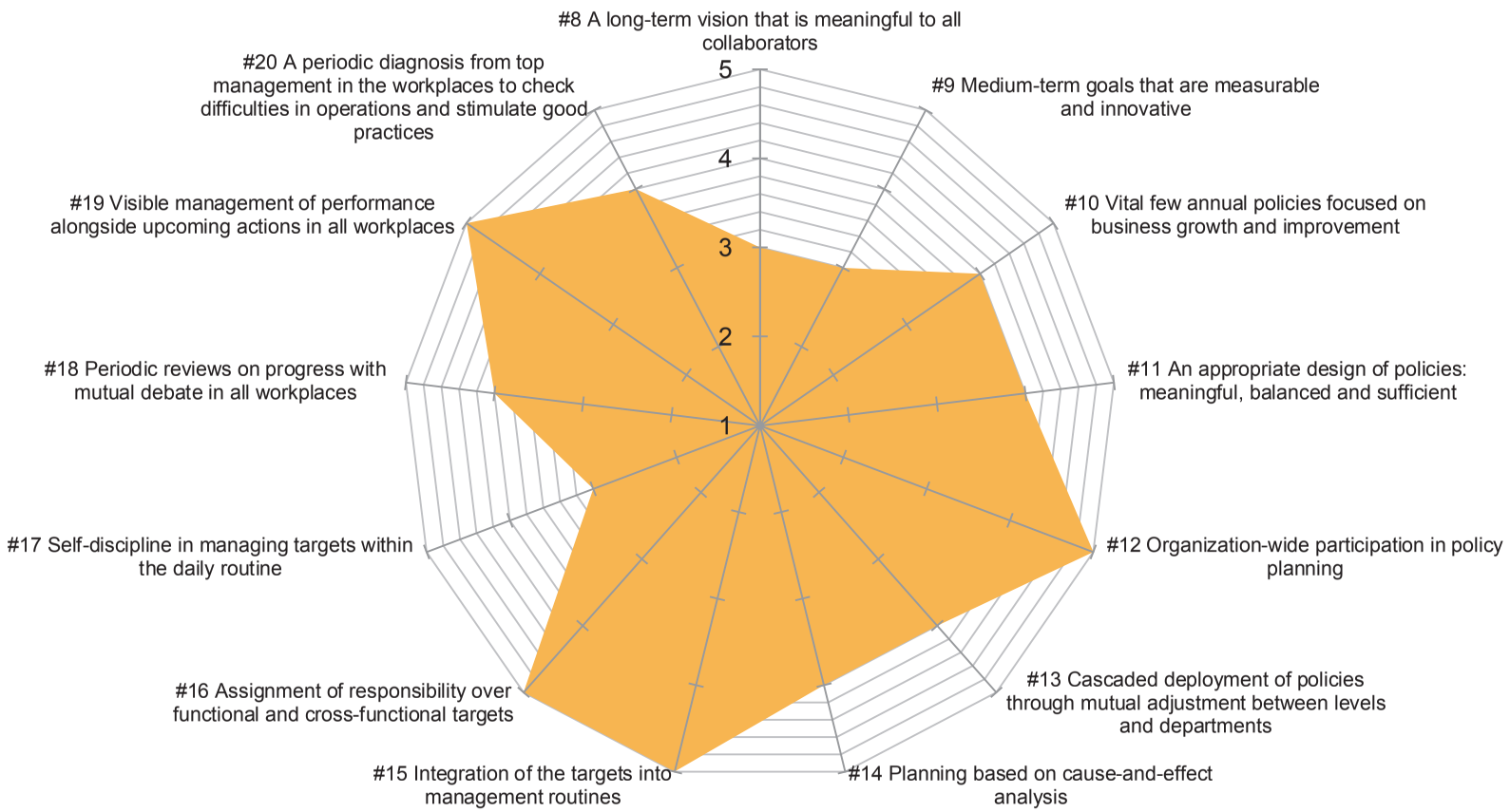

Figure 5.8 - Hoshin Kanri's Process Radar for Case 3

Summary for the Integration sub dimension

The mature Catchball process of the company leads to a clear assignment of responsibility over the performance targets. It also supports the company in integrating its annual targets into well-defined daily routines. There is a daily concern with the achievement of performance targets. The management routines include, for instance, the “quality minute”, which is literally a three-to-five minutes daily meeting carried out between operators and group leaders to verify daily management issues. The managers, chiefs and leaders even developed a pocket version of the Hoshin Kanri Plan, so that they can have quick access to the plans at any time. On that account, both guidelines #16 and 17 received a maximum score.

Although there are well-defined routines, the respondents evaluate that the people’s self-discipline sense could be enhanced.

The performance review meetings occur all over the company on a monthly basis. Group leaders undertake the monthly follow-up meetings with the participation of the production line chief and the industrial manager. A few operators are invited to take part in the meeting. The general manager may participate or not. An interesting practice that is applied in *Gamma Corporation* is that each group has two leaders, and each leader is accountable for two different groups. That way, the leaders have an inherent cross-functional responsibility. This organizational structure implies that the leaders take part in the review meetings of the two groups they are accountable for.

The meetings occur on the “gemba”, which is a term for “shop floor”. The progress on the achievement of performance targets is reviewed right in front of the visible management boards. The focus is not so much to discuss the numbers as it is to discuss the actions and countermeasures for critical points (“red” targets).

There is also a general monthly follow-up meeting, which is carried out between the managers of all departments together with the general manager.

The company makes use of visible management in a broad manner, especially on the manufacturing areas. The visible management boards contain a standardized set of information about performance, including not only the numbers, but the oncoming actions and countermeasures. Both the work teams and managers make use of the visible management boards in a very interactive manner. The structure of the performance graphics are standardized so that anyone is able to understand the performance achievement of any work area. There is also a big visible management

board in the hall of the manufacturing area, which contains the company's annual policies for the year and the summary of achievements on each area. Moreover, alongside the big visible management board there is another board which presents the results of Kaizen activities conducted by the work teams.

Summary for the Review sub dimension

The company used to have a practice in place to involve top management representatives (usually a member of the corporate staff) in the workplaces for checking difficulties in operations and for stimulating good practices. The practice can be described as a "top management visit". As the respondents describe, the aim of the practice was literally to hear the collaborators in the work areas. On the one hand, this was not a practice with the same degree of formalization found in the Top Executive Audits (TEAs), which is mentioned in the literature (WITCHER; CHAU; HARDING, 2006, 2008). On the other hand, the practice had the same nature of providing an open communication with the people who implement the strategic goals in the work areas (the top management representative actually talked directly to the operators), and it used to happen on a monthly basis, rather than annual – which is the case in the TEAs. Howsoever, the "top management visit" is currently in standby and has not been applied for months.

5.3.3.3 Assessment of Context-related guidelines

Figure 5.9 breaks down the score for each context-related guideline. The score of these guidelines vary from four (4) to five (5), with both the median and the mode totalized in four (5.0). That way, the overall score for context is aligned with the overall score for process. The context-related guidelines are assessed next.

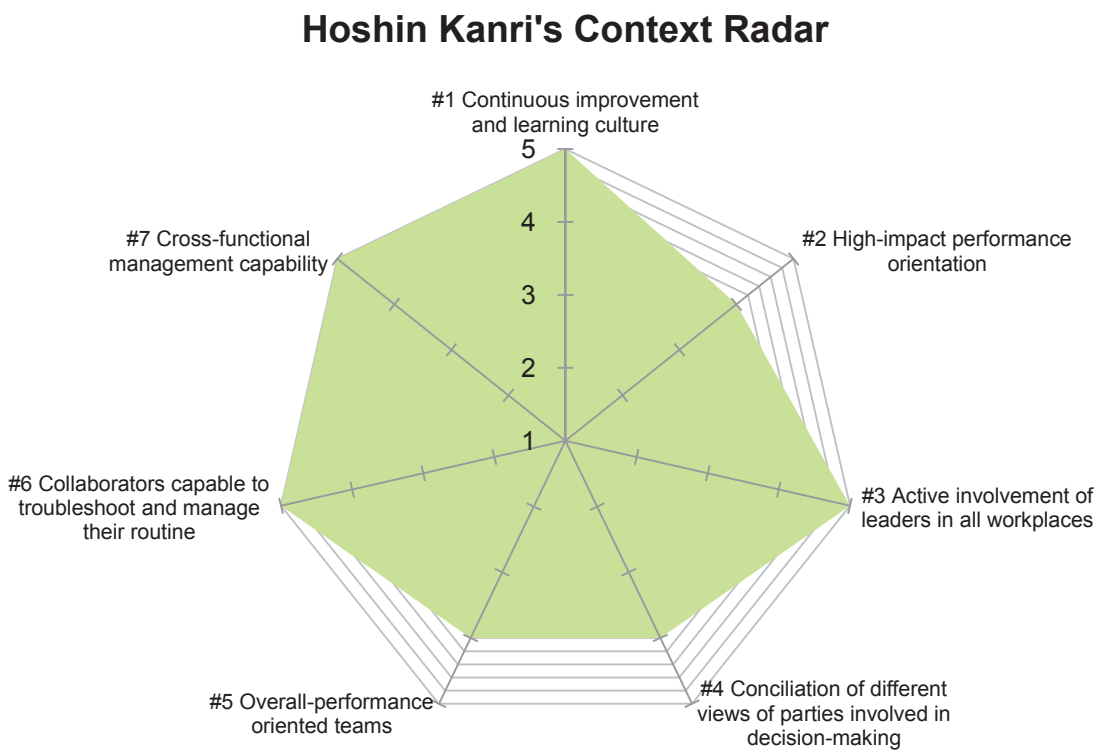

Figure 5.9 - Hoshin Kanri's Context Radar for Case 3

Summary for the Capabilities sub dimension

The company has a great concern with developing people in troubleshooting and management capabilities. It has also a great concern with developing people's orientation to teamwork. This is evidenced through a set of initiatives.

The ex-manager who was interviewed played a key role in the implementation of these initiatives by the time he worked as a coordinator for the education of collaborators (before he reached the position of industrial manager). Back then, he worked alongside two other coordinators with the aim of developing an intensive training program to develop people's skills. The difficulty to find qualified labor (which was more of a social problem) has even led to the necessity of developing initiatives to educate operators in basic concepts of mathematics and language, for instance.

Nowadays, there is a well-defined program for developing people's skills. The collaborators are constantly involved in trainings. There is also an intensive on-the-job training. For instance, when an operator learns how to operate in a workstation, he has to repeat the operational procedures several times until the leader feels comfortable to allow the operator to work in that workstation.

The on-the-job training is also carried in the form of a program that involves small groups of collaborators in improvement activities. The groups are usually composed by operators from at least two areas. Individuals from supportive areas such as maintenance are usually involved too. This cross-functional team has the aim to solve an operational issue. The issue does not have to be necessarily an anomaly of the productive process. More often than not, the issue consists in a defined challenge to improve the efficiency and/or productivity of a production line, for example. Thus, it is a practice that benefits the development of both of the capability-related guidelines. The small group is led by one of the trained operators. In that way, the improvement work relies on the team itself, rather than on a top-down approach. On that account, the leaders in the hierarchical structure are involved only for providing support to the small groups. This program is systematic. The improvement groups are formed in a proactive manner, on a regular basis, rather than in a reactive manner to solve problems when they arise. The small groups have to apply the problem solving methods they have learned, which consist mostly in the conduction of cause-and-effect analysis through the use of Brainstorming, Ishikawa and Five Whys. They are also responsible for making a presentation of the results. The results of these initiatives are presented on a monthly basis to the industrial manager and other people involved. The results are placed in visible management boards, and the presentations occur in front of these boards. Once a year, these works are presented in an event undertaken to everyone in the organization. The best works are awarded with a visit to the matrix located in Japan, where they will present the work for the top managers. There are also criteria for bonus incentives linked to these works. The aim of this program is not so much about achieving performance improvements as it is about developing people's skills on troubleshooting, teamwork orientation and management methodologies.

Another practice that works in the benefit to enhance the cross-functional management capability (guideline #7) is the implementation of a permanent cross-functional organizational structure. This structure is composed by a team of experienced analysts dedicated to a cross-functional support for the functional areas. Thus, it is a supportive team.

Each analyst is in charge of a particular cross-functional topic, which may include, for instance: quality management, scrap and inventory management, productivity and cost management, training management etc.

Some of the tasks of these analysts are:

i. Provide cross-functional support in collecting data
ii. Provide cross-functional support in performance measurement
iii. Undertake an integrated (cross-functional) performance analysis
iv. Provide a cross-functional support in improvement initiatives

The cross-functional analysts play an important role for the integration of the functional areas. They also help releasing the leaders and work teams for carrying out other activities. For instance, the work teams may concentrate on the improvement actions, rather than on data collection activities. It is noteworthy the role of cross-functional team for performance management. The permanent cross-functional team structure can be seen as an implementation of the concept of "integrated performance analysis", which is discussed by prominent authors in the performance management field (NEELY; AL NAJJAR, 2006).

There is also a systematic performance review regarding the issues handled by the cross-functional analysts. The review meetings are carried out between the analysts and the production line chiefs, together with the industrial manager. The meetings are held after the Hoshin Kanri performance reviews, working on the benefit of allowing the managers to identify cross-functional issues that may be affecting on the achievement of the annual policies.

Summary for the Organizational culture sub dimension

The corporation operates with an organization-wide management approach that is based on Lean and TQM principles. It is actually similar to the Toyota Production System House, which is well known in the field of Lean Production. Thereby, the company has its own version of Lean, which receives the denomination of "Gamma Production System". This is an approach that is not only used to disseminate management principles, but also culture values of the organization. Among these cultural values, the culture of leadership, continuous improvement and organizational learning stand out. The practices aforementioned for the development of capabilities are an evidence of that. Besides, all of these practices can be also considered as an effort to develop a better sense of integration and collaboration, which also benefits in the development of guidelines #4 and #5. The case study demonstrates that the development of one context-related guideline has the potential to reinforce the

development of the other. Furthermore, it demonstrates the importance and the power that the context-related guidelines exert in the model.

5.3.3.4 Lessons learned synthesis

The assessment demonstrated that Hoshin Kanri implementation in *Gamma Corporation* is being constantly improved. During the conduction of the interview, it was interesting noting that the respondents of this case had a tendency to assign a score of four (4) on the assessment of the guidelines implementation, even with sometimes practically no specific reason to explain why the score was not excellent. This might be another demonstration of the continuous improvement culture established in the corporation - a certain sense of never getting satisfied with the current performance (SPEAR; BOWEN, 1999).

The *Gamma Corporation* has a great focus on organizational learning. It applies a Hoshin Kanri implementation approach that is very similar to the literature prescriptions, especially in terms of organizational culture and capabilities. This might be largely explained due to the fact that the corporation is Japanese. The fact that the corporate unity examined in the study is located in Brazil confirms that the applicability of Hoshin Kanri principles is not valid only in the Japanese culture. The great point in the more Japanese-flavored approach for Hoshin Kanri is its focus on organizational learning, which is evidenced in this case study. It was possible to identify through the interview and direct observations that the leaders in *Gamma Corporation* have a great concern with the methods that lead to organizational results. If the result is achieved without the accomplishment of the planned actions, then it is considered as a matter of “luck”. In that case, there are no guarantees that the results are going to be sustained over time. For the *Gamma Corporation*, without a proper concern with the means that lead to ends, there is no real organizational learning culture.

5.4 CROSS-CASE ANALYSIS

One might say that the implementation of *Gamma Corporation* is less aligned to the Hoshin Kanri Guidelines prescription than the implementation of *Alpha Corporation* is, because of the difference in the assessment overall score. However, it must be

noted that the scores were assigned by the respondents, in the form of a self-assessment. This self-assessment was qualitative and conditioned to the subjectivity of the respondents. Moreover, the difference between these two corporations remained in decimals, in such a way that their implementation levels are practically in the same threshold. On the other hand, the *Beta Corporation* obtained an average score, but that does not mean that it fails to manage strategy implementation and deliver the strategic outcomes sought. The average score means that the way of implementing strategy in this organization is less aligned to the way prescribed in the model of guidelines - that is, it is less aligned than the way of *Alpha* and *Gamma*.

The following tables provide a comparative summary of the findings from the exploratory case studies. The tables present the main aspects and practices found for each category of the guidelines model. Both positive aspects and negative aspects (improvement opportunities) are described. All tables contain the contextualization description of the companies, regarding three main features: the size of the company, the industry in which the company competes and the world region where the company's matrix is located. Table 5.3 presents the comparative summary for the focus and alignment categories, while Table 5.4 presents it for the integration and review categories. Finally, Table 5.5 presents the comparative summary for the capabilities category and Table 5.6 presents it for the organizational culture category.

Table 5.3 - Comparative summary of the findings from case studies for the focus and alignment categories

	ALPHA	BETA	GAMMA
Description	Large-sized Automobile industry European matrix	Large-sized Logistics services industry South American matrix	Large-sized Telecommunications industry Japanese matrix
Focus	+ strong communication about the long-term vision and the medium-term goals + constant review on the medium-term (three-to-five years) goals and on the annual business plan + robust strategic planning system with use of strategy maps (BSC) and a dynamic pipeline of proposal for breakthrough initiatives and investments + combining of Hoshin Kanri and BSC + objectives in two strands: strategic improvement and routine indicators + annual business plans with policies for each business segment	+ strong focus on performance achievements - very poor dissemination of the medium and long-term goals to the middle and operational levels + online MIS for performance target management +objectives in two strands: strategic individual performance targets and shared (functional) routine indicators + incentive system with variable remuneration over individual and shared targets + limitation rationale for the number of targets	+ strategic planning with a medium-term plan (three years) and strategy maps + combining of Hoshin Kanri and BSC + annual business plans with policies for each corporate unity + objectives in two strands: strategic improvement targets and targets related to daily management issues + focus on only a few vital breakthrough priorities disseminated as annual policies in the form of slogans + individual Hoshin Kanri plans (linked to variable remuneration) for the directors, industrial managers and general managers - average dissemination of the long and medium-term goals to the operational level
Alignment	+ chart of previously-studied market strategy (intelligence) assumptions to the base strategy discussion + simple-to-fill A3-based Catchball of annual policies - necessity of a better sense of critical analysis and cross-functional understanding during Catchball + planning with use of PDCA, Ishikawa, Five Whys, 80-20 rule and Mind Maps	- in practice, there is little concern to a balanced set of goals, other than cost targets - poor involvement of people in the planning process - poor adjustment of targets and action plans (usually only a single meeting is held, with little debate about the action plan - lack of cause-and-effect analysis (despite the dissemination of quality tools)	+ simple-to-fill A3-based Catchball of annual policies + balanced set of performance dimensions + continuous improvement of A3 formularies + planned schedule for the leveling of strategy-related workload + successive refinement of the action plans until the final version is reached (great energy devoted to the planning process) + organization-wide participation in policy planning + planning with use of PDCA, Ishikawa, Five Whys and 80-20 rule (Pareto's principle)
Legend: [+] positive aspect; [-] negative aspect			

Table 5.4 - Comparative summary of the findings from case studies for the integration and review categories

	ALPHA	BETA	GAMMA
Description	Large-sized Automobile industry European matrix	Large-sized Logistics services industry South American matrix	Large-sized Telecommunications industry Japanese matrix
Integration	+ wide application of daily routine management + clear assignment of responsibility over performance targets - lack of self-discipline in daily management + systematic performance review meetings - necessity of greater critical analysis about performance + weekly operational performance review and bottom-up stratification of performance issues - difficulty related to the bloating of daily management routines (a matter of balancing the workload related to performance measurement) and the overlap between routine metrics and strategic metrics (cause-and-effect relation) + a lean visible management system, with only strictly required information	+ clearly defined targets to monitor within daily routine - difficulties related to how progress is measured + clear assignment of responsibility over individual and team targets + high sense of self-discipline + layered performance reviews - cause-and-effect analysis conducted reactively (aiming at following the company standards) and superficially (without real investigation)	+ well-defined daily routines (for instance, the "quality minute") + clear assignment of responsibility over performance targets + pocket version of the annual plans, so that the leaders have quick access to the plans - necessity of a better sense of self-discipline + layered performance reviews on a monthly basis + a practice of making each group leader accountable for two different groups + gemba-based performance reviews (right in front of visible management boards) + interactive use of visible management across the work areas
Review	+ dynamic and close involvement of the president with the work teams, in an interactive mode + layered process audits with a structured framework to assess competences and capabilities	+ quarterly and semiannual meetings with the top management board and middle-management members + monthly bulletin of presidency - limited involvement of top management members with the operational level, in a more diagnostic mode and less interactive - methodological audits regarding performance targets are more focused on preventing miscalculation than on the development of capabilities	- disuse of the monthly "top management visit", which was aimed at hearing the collaborators in the work areas for checking their difficulties and stimulating good practices
Legend: [+] positive aspect; [-] negative aspect			

Table 5.5 - Comparative summary of the findings from case studies for the capabilities category

	ALPHA	BETA	GAMMA
Description	Large-sized Automobile industry European matrix	Large-sized Logistics services industry South American matrix	Large-sized Telecommunications industry Japanese matrix
Capabilities	+ a company-wide training program with a structured methodology for the assessment of peoples' skills development + intensive on-the-job training - necessity of a greater level of resilience, engagement and accountability + a project office that evaluates and manages breakthrough improvements initiatives and investments, with use of PMBOK and Kaizen methodologies	+ collaborators trained in PDCA, Ishikawa, Pareto principle etc. - difficulty in relating the tools to day-to-day situations - lack of cross-functional understanding + a project office for continuous improvement with best practice sharing activities + implementation of Kaizen and Six Sigma training programs - the company's concern with capabilities development has been placed in the background	+ a great concern with developing people in troubleshooting and management capabilities + a great concern with developing people's orientation to teamwork + a well-defined program for developing people's skills and capabilities + intensive on-the-job training + a program that involves small cross-functional teams of collaborators in improvement activities (the aim is not so much about solving operational issues as it is about developing people's skills on trouble shooting and teamwork orientation) + bonus incentives linked to the activities of the small cross-functional improvement teams + a permanent cross-functional organizational structure composed by a supportive team of cross-functional analysts + systematic performance reviews regarding the issues handled by the cross-functional analysts
Legend: [+] positive aspect; [-] negative aspect			

Table 5.6 - Comparative summary of the findings from case studies for the organizational culture category

	ALPHA	BETA	GAMMA
Description	Large-sized Automobile industry European matrix	Large-sized Logistics services industry South American matrix	Large-sized Telecommunications industry Japanese matrix
Culture	+ a strong culture of leadership and continuous improvement + a strong culture of organizational learning (with the register and use of lessons learned in improvement projects and institutionalization of best practices across business functions) - necessity of a greater level of proactivity on people for better learning and improvement (relates to concept of engagement) + active involvement of leadership (with assignment of ownership over key collaborators for them to train other collaborators (semi-leaders multipliers) + strong orientation to high-performance achievements - necessity of people's better critical analysis and systemic understanding about the relation between functional areas in day-to-day	- lack of continuous improvement of people's PDCA capability - lack of support by the continuous improvement team onto the work areas - difficulties in the dissemination of the purpose (the "whys") of continuous improvement philosophy and its application on a day-to-day basis - lack of organizational learning culture + strong orientation to high-performance achievements - involvement of leaders mostly in a corrective sense, with lack of concern with the method applied by the work teams to achieve the targets - dysfunctional behavior	+ an organization-wide management approach based on Lean and TQM (used to disseminate not only management principles, but also culture values of the organization) + a big effort to develop integration and collaboration + a strong culture of leadership and continuous improvement + a big focus on organizational learning - the means that lead to the ends + continuous improvement of Hoshin Kanri itself
Legend: [+] positive aspect; [-] negative aspect			

The Hoshin Kanri implementation in *Gamma Corporation* is built in the context of the Japanese management way, since the corporate unity is conditioned to the Japanese corporate matrix. By taking that into account, the cases can be compared in the perspective of their cultural differences. The western culture is concerned more on the selection and monitoring of the right measures to drive strategic change, while the oriental culture is concerned more on the capabilities required to provide change. This perception can be found elsewhere (WITCHER; BUTTERWORTH, 2001).

As it was suggested in the final considerations of the case, the current way of managing strategy implementation in the *Beta Corporation* seems to resemble more to the MBO way (TENNANT; ROBERTS, 2001a) than to the Hoshin Kanri way. The focus of Beta Corporation on the achievement of high-performance results is remarkable. Almost every collaborator has personal performance targets to achieve, and the achievement of targets, in turn, is linked to an incentive system of variable financial remuneration. On the one hand, the corporation has a great orientation to performance achievements, which leads to high-impact results in the short-term. On the other hand, this kind of culture may be subject to difficulties in the long-term. On that account, this culture might lead to dysfunctional behavior, as it was exemplified in the case. This is specially reinforced by the poor score assigned for Guideline #5 in the assessment, which was the worst score among context-related guidelines.

The case of *Gamma Corporation* is an implementation aligned to the oriental culture. The corporation puts a great focus on the means to achieve ends. Thereby, it has a great focus on organizational learning and continuous improvement. On that account, the guideline #1 was assessed with the maximum score. Moreover, the corporation endeavors to carry out effective cross-functional management and to develop horizontal alignment throughout the organization. The focus on organizational learning entails a central concern to develop the capabilities required throughout the corporation, which explains the fact that the capability-related guidelines were assessed by the interviewee with the maximum score. It is also interesting noting that the concern with the development of capabilities is closely aligned to a resource-based view (RBV) of strategy (EISENHARDT; MARTIN, 2000; HENRI, 2006; TEECE; PISANO; SHUEN, 1997), which is an strategic approach that was also grounded on the oriental culture. For the case of Gamma Corporation, the context-related guidelines demonstrate a mutual reinforcement relationship: to a lesser or greater

degree, the enhancement on the implementation of a guideline leads to the enhancement on the implementation of other guidelines.

The case of *Alpha Corporation* demonstrates a combination of those two cultures aforementioned. On the one hand, the corporation puts great emphasis on the achievement of high-impact results. On that account, the guideline #2 was assessed with the maximum score. The concern with high-impact performance achievements is reinforced by means of the job carried out in the project office. The project office is a robust structure for carrying out cross-functional management leading to overall achievements. It applies a robust method for analyzing the pipeline of improvement ideas. The ideas are assessed based on a projection of financial outcomes. Furthermore, there is a concern to carry out improvement projects with maximum efficiency, which is demonstrated by the standardization of the use of acknowledged project management methodologies. There is also a great concern to the development of people's skills, which is evidenced in the case by means of a robust training program. The Alpha Corporation combines the use of the western approach with the use of the oriental approach on a balanced basis.

Table 5.7 presents a synthesis of the findings of the cross-case analysis which was discussed above. The overall score obtained for each company is shown along with the correspondent scores obtained for each company for both the process and the context dimensions.

A final observation is related to the scores achieved by Gamma Corporation and Alpha Corporation on the culture-related guidelines. While the *Gamma Corporation* was assessed with a maximum score on guidelines #1 and #6, it has not reached the maximum score on guideline #2. Guideline #1 are related to continuous improvement and learning culture, and Guideline #6 is related to people's capability on problem solving, which can be seen as a requirement for the continuous improvement and learning culture. Guideline #2, on the other hand, is related to the culture of high-impact performance orientation. It is interesting noting that scores of the *Alpha Corporation* for the same guidelines behaved in the opposite way. While the *Alpha Corporation* was assessed with a maximum score on guideline #2, it has not reached the maximum score on guidelines #1 and #6. Although this is a qualitative subjective assessment that represents a slight difference of one point in the assessment scale, such comparison demonstrates conceptual coherency and also provides noteworthy

insights for understanding the factors leading to an appropriate management of strategy implementation founded on Hoshin Kanri.

Table 5.7 – Synthesis of the cross-case analysis

	ALPHA	BETA	GAMMA
Description	Large-sized Automobile industry European matrix	Large-sized Logistics services industry South American matrix	Large-sized Telecommunications industry Japanese matrix
Score	Overall mean: 4.45 Mode for the process: 5.0 Mode for the context: 4.0	Overall mean: 2.95 Mode for the process: 3.0 Mode for the context: 3.0	Overall score: 4.25 Mode for the process: 4.0 Mode for the context: 5.0
Summary of findings	An implementation that combines the use of the western and the oriental management approach on a balanced basis + there is a big focus on strategic breakthrough projects and cross-functional management + there is big focus on high-impact performance orientation and on developing capabilities	An implementation that is more aligned to the western management approach + there is a remarkable focus on high-impact performance orientation - the implementation seems to resemble more to the MBO (Management by Objectives) way than to the Hoshin Kanri way (which is regarded as an evolution of the MBO) - the poor focus on organizational learning and on developing capabilities generates misalignment and dysfunctional behavior	An implementation that is more aligned to the oriental management approach + there is a remarkable focus on organizational learning + there is a great concern with cross-functional management and with the development of capabilities + the context-related guidelines reinforce one another
Legend: [+] positive aspect; [-] negative aspect			

Although this is a qualitative subjective assessment that represents a slight difference of one point in the assessment scale, such comparison demonstrates conceptual coherency and also provides noteworthy insights for understanding the factors leading to an appropriate management of strategy implementation founded on Hoshin Kanri.

5.5 CONCLUSION

A model of guidelines for Hoshin Kanri was developed and refined in previous works. The main objective of this work was to assess these guidelines in the real-context of organizations. This was accomplished through the design of an assessment tool for the guidelines and the conduction of a set of exploratory cases aimed at applying the assessment tool for evaluating the implementation of the guidelines in the organizations studied.

The assessments provided an analysis regarding to what degree the implementation of guidelines in the organization is aligned to model. In doing so, it allowed to illustrate important practices on the implementation of the guidelines and provided insights about the influence relationships between the context-related guidelines.

The exploratory assessment provided powerful insights on the development of corporate strategy implementation management capability. In addition to the practical examples provided in each case, the multi-case comparison provided an empirical basis to suggest that the cultural approach is not a problem to implement Hoshin Kanri. This analysis was only possible because a broad approach was used to analyze the implementation of Hoshin Kanri, considering not only its process, but its internal context. The cases demonstrated that it is possible to balance the Western approach to the Oriental approach in managing the strategy implementation.

Results of this work are limited to the knowledge that the interviewee have about strategic management implementation on their organization. Also, the limited set of exploratory cases does not allow generalizing the results.

As future work, the assessment tool could be improved by breaking down the guidelines into a set of practices that could be taken into account when analyzing them. A proper auditing procedure could be developed based on the Cambridge Process Approach, which have been applied in studies from the operations strategy field (PINHEIRO DE LIMA; GOUVÊA DA COSTA; REIS DE FARIA, 2009; PLATTS; GREGORY, 1990; PLATTS, 1994). The logic applied in other studies regarding organizational guidelines could be applied (DESCHAMPS, 2013; DESCHAMPS et al., 2013a, 2013b).

Through the extension of the assessment tool, the evaluation of guidelines and the identification of improvement opportunities could be done more systematically. The set of practices could be identified through further deeper screening of practices related to the guidelines, which could be done both by content analysis of practices in the literature and by a new series of assessment cases. Finally, the guidelines could also lead to the development of a maturity model for Hoshin Kanri. A maturity framework could also be created as a result of the analysis of such cases, and the assessment of the guidelines by means of a certain maturity scale (which could benefit from the categorization of the model of guidelines), could be used to characterize the level of maturity of a company regarding its capability on managing strategy.

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6 CONCLUSIONS

The present dissertation addresses the following research question: What are the recommendations that could work as universally applicable guiding principles for Hoshin Kanri initiatives? Therefore, the main objective was to propose a set of guidelines to be used as a basis to guide Hoshin Kanri design and diagnosis applications.

Three specific objectives were derived for accomplishing the main research objective. The first was to identify and organize from the literature a set of universally applicable guiding principles for Hoshin Kari initiatives. This was addressed in Chapter 3. The second was to refine and confirm the set of guidelines from an empirical approach. This was addressed in Chapter 4. The third was to verify the model application by assessing the implementation of the guidelines in a set of companies. This was addressed in Chapter 5. Thus, chapters 3 through 5 present papers proposing the results of the research. The article presented in Chapter 3 was to a synthesized version and submitted for the intended scientific journal for publication. The same will be done to the articles presented in chapters 4 and 5.

Several contributions resulted from this dissertation. These are both contributions directly related to the research specific objectives as contributions related to the methodological approaches applied.

The explorative nature of this work provides original contributions, as it provides a systematization effort that tries to organize aspects that are applicable to as many situations as possible. The research design is robust because it combined three different methodological approaches, systematic literature review, expert interviews and case studies. In doing so, it tries to eliminate as many research biases as possible.

The first specific research objective was accomplished through the systematic literature review, which resulted in a presentation and discussion of twenty-three (23) guidelines for Hoshin Kanri implementations. These guidelines address issues through a holistic manner, taking into account the architecture of a strategic performance management system. In doing so, the resulting guidelines are related not only to the process that involves the design, implementation and use of Hoshin Kanri, but the management context that involves its process. The process-related guidelines comprise aspects related to Hoshin Kanri's focus (providing the strategic

focus), alignment (aligning strategic priorities throughout the corporation), integration (integrating the strategic priorities into management routines) and review (providing a diagnosis by top management in the work areas), whereas the context-related guidelines comprise aspects related to organizational cultures and capabilities. The addressing of context-related aspects was particularly important, given that Hoshin Kanri is a Japanese strategic management model that was developed upon the oriental management approach, which might lead to difficulties for its adoption in a more western management approach. The use of content analysis with aid of a computational tool led to a methodological contribution: a framework for conducting the content analysis process. This framework may be useful for other researches to apply the method aiming at the identification of guidelines for other organizational processes or systems.

The second specific research objective was accomplished through an empirical study that applied expert interviews. The study was designed so that the guidelines were refined in successive iterations until they reached a satisfactory level of convergence. The completeness of the model was also assessed, so that new guidelines could be added to the model. In doing so, the original set of twenty-three (23) guidelines was refined and updated, resulting in a set of twenty (20) guidelines. The empirical approach provided a solid basis to develop guidelines that are more relevant to the practice community, and made it possible to deepen the discussion about important aspects of the model, such as the concepts of Nemawashi, Catchball, organizational learning and high-impact performance orientation, and their cultural assumptions and implications. It also generated methodological contributions, specially a set of recommendations for the structure and content of guideline models, which may be taken into account by other researchers developing an effort to systematizing guidelines.

The third specific objective was accomplished through the design of an assessment tool for the guidelines and the conduction of a set of exploratory cases aimed at applying the assessment tool for evaluating the implementation of the guidelines in the organizations studied. The assessments provided an analysis regarding to what degree the implementation of guidelines in the organization is aligned to model. In doing so, it allowed to illustrate important practices on the implementation of the guidelines and provided insights about the influence relationships between the context-related guidelines. The exploratory assessment provided powerful insights on

the development of corporate strategy implementation management capability. In addition to the practical examples provided in each case, the multi-case comparison provided an empirical basis to suggest that the cultural approach is not a problem to implement Hoshin Kanri. This analysis was possible precisely because the model of guidelines comprises not only the process of Hoshin Kanri, but also its context. The cases demonstrated that it is possible to balance the Western approach to the Oriental approach in managing the strategy implementation.

There are, however, some limitations to the results of this project, which are associated to each one of the methods applied.

First, the extraction of recommendations, their categorization and the statement of guidelines, although systematic, through the conduction of content analysis, are subjective processes. Also, the literature analyzed is comprehensive but not exhaustive, meaning that other guidelines not comprised here could be identified in further readings.

Second, the expert interviews study, although designed to minimize bias through a systematic and iterative process, is still limited to the subjectivity of the experts consulted, to a lesser or greater degree. Also, the set of experts consulted, although satisfactory to reach convergence on the successive refinements, is comprehensive but not exhaustive, meaning that other expert interviews could lead to new results.

Third, the results of the assessment undertook in the exploratory cases are limited to the knowledge that the interviewee have about strategic management implementation on their organization. Also, the limited set of exploratory cases does not allow generalizing the results.

An important consideration must be done: the study is founded on the premise that an effective implementation of Hoshin Kanri will exert positive influence on the strategic results of an organization, which can be verified as a consensus in the literature. However, the study does not allow examining causal relationships between the implementation of Hoshin Kanri and its real implications on the strategic results. As it was verified in the exploratory cases, it cannot be stated that an organization's poor Hoshin Kanri implementation will necessarily lead to poor strategic results. For instance, it may be the case that such organization has a strictly western-oriented management approach, with a major focus on performance goals and a minor focus on organizational learning. The investigation on the causal effects between the guidelines' implementation and the organization's results would require a quite

different research approach. This could be investigated in future works with the application of approaches such as quasi-experimental studies.

As future work, the model of guidelines has several possible enhancements and applications. First, it could be applied as a basis to conduct a quantitative study with a proper sample of companies, which could lead to make it possible to generalize findings on the Hoshin Kanri guidelines. This is specially reinforced through the fact that the guidelines are already described in the form of statements, composing a declarative model. As a second major approach for future works, the assessment tool could be improved on two fronts regarding the quality of the evaluation on the implementation of guidelines. Firstly, it could be enhanced by breaking down the information requirements (the set of evidences) needed for the assessment of each guideline. Basing on the Cambridge Process Approach, this would have to consider multiple sources of information, such as interviews, direct observations, examination of reports and documents, and conduction of internal surveys. Secondly, the assessment tool could be enriched with a set of good practices to be taken into account in the evaluation of the implementation of guidelines. Therefore, each guideline would have to be broken down into a set of practices. For this, the practices identified in the present research (both in the literature and in the cases) could be considered. Also, other practices may be identified through further deeper screening of practices related to the guidelines, which could be done both by content analysis of practices described in the literature and by a new series of expert interviews, with focus on practices related to each guideline. Then, a proper auditing procedure could be developed and applied based on the Cambridge Process Approach. Through the extension of the assessment tool as a full auditing procedure and its application as Action Research, founded on the Cambridge Approach, the evaluation of guidelines and identification of improvement opportunities could be done more systematically. Finally, the application of such auditing procedure could lead to the development of a maturity model for Hoshin Kanri. The assessment of the guidelines would have to be improved by means of applying a certain maturity scale. For instance, a “maturity rule” could be adapted and benefit from the categorization of the model of guidelines proposed in the present research, i.e. focus, alignment, integration, review, capabilities and organizational culture. Such a maturity model could then be used to characterize the level of maturity of a company regarding its capability on managing strategy.

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