A MODEL THAT INCORPORATES HOSHIN KANRI AND BALANCED SCORECARDS IN MANUFACTURING ORGANIZATIONS WITHIN THE SILICON VALLEY

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CERTIFICATION OF APPROVAL

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DEDICATION

This project is dedicated to my wife, Kate, and my daughters, Samantha, Adalee, and Lotti. Their support has provided me the strength to complete this program and all the other accomplishments in my life. Without them I would not be who I am today.
ACKNOWLEDGEMENTS

I would like to express my gratitude to all the students in the CSU Stanislaus EMBA Tracy Cohort 14, with whom I spent almost every Saturday for 15 months. I appreciate all the learning we gained from each other during every Saturday in Tracy City Hall. To my advisor, Dr. Andrew Hinrichs, who has guided me through this project and encouraged me to read and write. I don’t think I was ever in short supply of reading material. To my coworkers and management at my employment, the feedback and support has helped me to get through the program.
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ABSTRACT

Every organization has a vision which describes what the organization wants to accomplish in the world. The organization can work out a strategy on how to get there and the whole organization can be focused on this. However, this is the ideal. Most organizations have objectives in place but may have difficulty recognizing how these align to the vision. There are several approaches that organizations can use to streamline this process. In this paper, the literature on Hoshin Kanri and the Balanced Scorecard approach is reviewed in order to create a model that incorporates both approaches. The model may improve the success that manufacturing organizations in California’s Silicon Valley can have with bringing vision to objectives. Implications for organizations and managers are discussed and areas of future research are offered.
CHAPTER I
INTRODUCTION

While working for a bio-tech company in Silicon Valley for the past several years, I have performed in several roles in the process of manufacturing medical research devices. In my career, I have been a hands-on Manufacturing Technician, Team Lead, Business Analyst, and now fulfill the role of Production Supervisor. In all of these roles I have acquired a variety of tools for managerial problem solving. I have also increased my skills allowing me to improve efficiencies in the manufacturing process, such as Lean Six Sigma and scorecards with key performance indicators. However, when I became a leader and a decision maker in the manufacturing process, I found that I was lacking the skills to perform my role well. In the organization I work for, there are myriad strategic initiatives that are discussed at company meetings or town hall discussions. The results of these strategic outlays are broadcast and passed down the hierarchy which includes several divisions. However, when it came to the tactical goals of the lower level employees, such as technicians and front-line management, it was hard to find any direct path to the overarching strategic initiatives discussed and agreed upon previously.

Noticing this disconnect in the workplace motivated me to pursue an MBA and it quickly became apparent to me that I wanted to focus my culminating project on aspects of strategic deployment. I chose to focus on this problem with the desire to research how best to achieve a more direct and effective approach to helping
manufacturing firms in the Silicon Valley. Therefore, this project focuses on combining Hoshin Kanri, a strategic philosophy championed by Japanese manufacturers, with the Balanced Scorecard approach.

This project will review the literature surrounding the Hoshin Kanri approach to strategic issues as well as literature on the Balanced Scorecard approach. I contribute a combined model of both approaches and how this can be implemented in a manufacturing organization in the Silicon Valley. The model is displayed in a graphical diagram and describes who the responsible parties are and what the responsibilities are. The paper concludes with a discussion of implementation for organizations and managerial implications as well as ideas for future research.
CHAPTER II
LITERATURE REVIEW

Hoshin Kanri

Hoshin Kanri is a management philosophy with origins in the Total Quality Management (TQM) movement popularized by Japanese manufacturing organizations in the 1940s. The most literal translation of the words Hoshin Kanri from Japanese to English is policy management. However, the word for policy in the Japanese language appears to be used in a broader sense. The word hoshin means direction and kanri means deployment or administration. Due to this translation issue, Hoshin Kanri is introduced with other naming such as policy deployment, policy management or hoshin process (Kano, 1993). Hoshin Kanri is a key element of TQM. It is argued that Hoshin Kanri is the element that functions as an umbrella in the TQM methodology that connects all the TQM tools. It was found in a study of Japanese companies that Hoshin Kanri was used by every company where other management tools and techniques were applied as well. Prior to the use of Hoshin Kanri in Japan, companies preferred the use of Management by Objectives. This approach was popular until the 1970s. As the economic environment became more dynamic, Hoshin Kanri was viewed as an approach that was able to adapt faster to change than other approaches (Tennant & Roberts, 2001a). The literature provides several examples of organizations where Hoshin Kanri has been implemented, including large and
complex firms such as Hewlett-Packard, Texas Instruments, and Xerox (Witcher & Butterworth, 1999).

Hoshin Kanri originated in Japan in the 1950s and evolved from the TQM movement. Hoshin Kanri became a way of organizational management which unified statistical quality control and Management by Objectives. TQM supposedly facilitates self-management at all levels of an organization and not just management of the day-to-day activities of an organization. At the core of TQM stands the plan–do–check–act (PDCA) cycle. This is a cyclical process which guides management of any TQM process. The four primary tasks from Hoshin, described above, align with PDCA cycle. The acronym FAIR describes the four primary tasks and applies to Hoshin Kanri: Focus, Alignment, Integration, and Review (Witcher & Butterworth, 1999). Figure 1 below displays how the PDCA cycle and FAIR cycle align.

Hoshin Kanri focusses on four primary tasks for organizations to work on. The first task focuses on providing direction to an organization by setting strategic priorities. Second, the priorities are aligned with work units, departments, local plans, and programs. Third, the strategic priorities are integrated with daily management. Finally, this provides a structured method to review the progress of the strategic priorities (Witcher & Butterworth, 1999; Tennant & Roberts, 2001b). With Hoshin Kanri, often these well-defined strategic priorities are referred to as the “vital few.” It is frequently stated that companies tend to select too many strategic priorities, particularly in the first year, and many have had to reduce the number selected (Zairi & Erskine, 2011).

Another element of Hoshin Kanri is catchball which plays a critical role in the communication between the levels of an organization. Catchball is a concept in which objectives, goals, and targets are discussed to ensure alignment. Catchball also plays a key factor in effective deployment of objectives, goals, and targets. The term catchball is an analogy that is drawn from the children’s ballgame. Instead of a ball being thrown back and forth between children, an idea, objective, goal, or target is communicated back and forth between the levels of the organization. This element increases employee involvement in the goal setting process and the harmony between the levels of the organization. The element of catchball ensures that goals and targets that are agreed upon (Tennant & Roberts, 2001a).
More current academic research uses Hoshin Kanri as an organizing framework for strategic management and is considered a top-down deployment of annual strategic objectives where employees are expected to implement the objectives in an effort toward continuous improvement. Therefore, Hoshin Kanri can be seen as an approach that engages employees to consider the circumstances of a situation, develop an action plan for improvement, review performance, and adjust actions where needed (Zairi & Erskine, 2011).

Hoshin Kanri provides management a structured system to planning and draws attention to the significance of measuring goals, achievements, and objectives in a sustainable manner. Hoshin Kanri stimulates the review of results and provides managers with timely feedback that allows them to adapt and plan more quickly, as well as, implement and review outcomes. In short, Hoshin Kanri ensures that strategic priorities are implemented successfully (Zairi & Erskine, 2011). Xerox officials describe their Hoshin Kanri approach as “holistic,” covering all aspects of business operations with the inclusion of key stakeholder groups. Xerox found that Hoshin Kanri manages the delivery of predictable and sustained improvements which are based upon facts. With Hoshin Kanri the organization applies review and analysis of measurements as the drivers for target setting. Based on this, action plans are generated to drive improvement. The approach of Hoshin Kanri at Xerox involves all employees in the process agreeing to their contributions to the business direction. Hoshin Kanri also provides the link between these contributions and the reward and recognition system (Witcher & Butterworth, 1999).
As described earlier, the first task is to provide a corporate direction by annually focusing on strategic priorities. During this selection process it is important that the focus is on the vital few objectives. It is common for companies to outline and communicate too many strategic initiatives, goals, objectives, and policies to align and implement causing results to be inadequate (Kano, 1993). Xerox found in 1996 that many departments were not focused on the vital few clearly enough, and they designed their programs more to suit the functional area rather than the entire organization’s priorities. This lack of focus resulted in the policy failing to have a positive impact on business performance (Witcher & Butterworth, 1999).

Traditional strategic planning has been widely-practiced for decades as a strategic management system. The difference between traditional strategic planning and Hoshin Kanri is that Hoshin Kanri has the ability to focus on a few well-defined strategic priorities. It is more than merely an annual activity to revisit strategy and is, therefore, more tactical. Additionally, the focus is on implementation and results to serve the customer better (Melander, Löfving, Andersson, Elgh & Thulin, 2016; Wolf & Floyd, 2017).

**Balanced Scorecard**

The Balanced Scorecard approach is a strategic performance measurement model which was developed by Robert Kaplan and David Norton in the 1990s (Kaplan & Norton, 1996). The objective of the Balanced Scorecard approach is to translate the mission and vision of an organization into a strategic planning document with operational actions to guide the manager. Over time, organizations have shifted
their basis of competition. This has transformed from an ability to invest in and manage physical assets, to increasingly exploit the intangible assets such as information. The Balanced Scorecard approach is based on this transformation since the approach supplements traditional financial measures with criteria that measure performance from three additional perspectives.


First comes the company’s relationship with its customers - which can be measured with customer satisfaction ratings. Second, is the company’s key internal business processes - which can be measured with efficiencies. Thirdly, the company’s
learning and growth is incorporated - which can be measured with employee morale. The Balanced Scorecard approach allows organizations to monitor financial results while at the same time monitoring progress in building the capabilities and acquiring the intangible assets an organization would need for future growth in a dynamic environment. Therefore, the Balanced Scorecard approach does not replace the financial measures but complements them. The model of the Balanced Scorecard approach relies on the four perspectives to link the company’s long-term strategy with its short-term actions. Figure 2 displays how the four perspectives are linked to the vision and strategy in order to achieve them (Kaplan & Norton, 1996).

The Balanced Scorecard approach is a typology that comprises four management processes, as displayed in figure 3. The processes work in harmony and have been designed to link long-term strategic objectives with short-term actions in the workplace. This model was first developed by Kaplan and Norton (1996). The first process is translating the vision which is put in place to gain alignment amongst senior executives on the organization’s vision and strategy. The vision must be translated to an integrated set of objectives and measures and agreed upon by all senior executives that outline the long-term predictors of success. The exercise of developing operational measures for the four categories on the scorecard forces clarification of the meaning of the vision (Kaplan & Norton, 1996).

The second process is **communicating and linking** which facilitates the communication of strategies throughout the organization and links this to departmental and individual objectives. The Balanced Scorecard signals to everyone in the organization what the organization is trying to achieve for shareholders and customers. Communicating the Balanced Scorecard encourages commitment and accountability to the business’s long-term strategy, and implementation of a strategy starts with education to those who are responsible for the execution. Once
communicated by senior management, the high-level strategic objectives and measures need to be translated into goals and meaningful tasks for departments and individuals. This process is generally done by the management levels below. Simply being made aware of the strategic objectives is not enough to change behaviors in the organization. Linking rewards to performance is an important incentive to achieve the goals that drive the strategic objectives. This carries additional risk because when incorrect indicators evaluate performance, this behavior is rewarded. Some companies using the Balanced Scorecard approach will apply a formula around the scorecard to link the rewards, where others maintain a subjective evaluation to avoid game-playing and distortions that can arise from formula-based rules (Kaplan & Norton, 1996).

The third process is business planning, in which managers apply the Balanced Scorecard by integrating strategic planning and budgeting processes. This ensures that the budget supports the company’s strategies. Targets are set around measures that represent each of the perspectives and often specific actions are then defined and developed that will support reaching those targets. Short-term milestones are used to mark progress along the strategic path that has been selected (Kaplan & Norton, 1996).

The fourth process is feedback and learning, in which the Balanced Scorecard adjusts by providing real time information to enhance strategic learning. With the scorecard applied, managers can monitor feedback from the measures and connect this to the strategy. Together, the first three processes form a single-loop
learning process, meaning the objective remains constant and any deviation from the plan is seen as a defect that needs to be improved. Since most organizations operate in dynamic environments with complex strategies that will evolve, a different approach is needed. A double-loop learning process involves learning that produces a change in people’s assumptions and theories about cause-and-effect relationships. Strategic learning consists of gathering feedback, testing hypothesis on which strategy was based, and making the necessary adjustments. By establishing short-term goals, or milestones, within the business planning process, executives are forecasting the relationships between changes in performance drivers and the associated changes in one or more specified goals (Kaplan & Norton, 1996).

Schneiderman (1999) described how and why the Balanced Scorecard approach can fail. He concluded that the most important implementation imperative for an effective scorecard is the enrollment of the entire organization in its achievement. Determining the nonfinancial variables might be easy at first, since the customer’s voice is loud and clear, but over the years as these are resolved, it becomes harder to identify. The vital few become much less visible. Since multiple stakeholders are incorporated, sometimes with conflicting requirements, it can be difficult to identify scorecard metrics. Schneiderman argues that balancing these requirements successfully can be done by adapting tools used in Quality Function Deployment. This is a group activity which leads to consensus, but also provides an analytical narrative. Both are key in getting buy-in from the entire organization. The activity starts with establishing prioritized stakeholders’ requirements and
quantitatively ranking the processes in terms of their collective impact on the requirements. Lastly, appropriate metrics are created for the most important processes (Schneiderman, 1999)

Metrics can be classified as result metrics or process metrics. Results metrics are measures that are seen by the process customer. Process metrics are internal measures that cause the results. Result metrics are more valuable as a management tool, and are more often present on a scorecard, while process metrics are more valuable to improvement teams since the focus is on the places within the process where the improvements will have the greatest impact. Organizations require proper metrics that are dependable measures for stakeholder satisfaction, weaknesses, or that are defect oriented. The metrics need to be continuously measured in order to provide a real-time valuation and need to be linked to data systems that can enable the identification of root causes of scorecard results that are not meeting the targets. The metrics and the data require a formal process for their continuous review and optimization. The metrics also need to be simple and easy to understand and accessible to those who can best use them. The metrics need to have clearly and well-document definitions for everyone to understand them. Metrics are owned across the organization in order to make them actionable and connect them to business objectives, top-down and bottom-up process. Scorecards, and with that the metrics, are accompanied by goals and timeframes. Schneiderman argues that the basic flaw of current goal setting is that goals are not set based upon the knowledge of the means that will be used to achieve them (Schneiderman, 1999).
There is a premise that the financial and nonfinancial sides of the scorecard are connected by a metaphorical equation. In this equation, the nonfinancial measures represent the independent variables which are the prospective or leading indicators of change. The financial measures are the dependent variables and are the retrospective, lagging indicators. Schneiderman argues that this relationship is hard to quantify or to prove and that the equation is confounded by organizational and technological complexity. The organization is an organic creature whose nature lies in the interaction of its parts and the external environment. Management needs to take a leap of faith that the results from the nonfinancial measures will result in the financial measures. It should be part of the collective wisdom of the organization that we do the nonfinancial things because they will improve the prospect. However, the external environment often overpowers the internal improvements and the achievements of the nonfinancial goals cannot assure absolute business success (Schneiderman, 1999). The literature of Mooraj et al. (1999), has been questioned on the limited number and scope of the objectives; however, Kaplan and Norton (1996) argue in their work that the design is robust enough to serve the balanced requirements for most organizations (Witcher & Chau, 2007).
CHAPTER III

MODEL

This chapter will describe a model that incorporates two approaches, Hoshin Kanri, which is focused on strategy deployment and the Balanced Scorecard approach, which is focused on performance management. The approaches have been described in the previous chapter for literature review; however, in order to describe the model, it is important to understand how the approaches will interact and where the strengths and weaknesses of the approaches are. The model is to be set in the environment of manufacturing organizations within the Silicon Valley since these organizations are set in a rapidly changing environment where adaptability and focus on mission and vision is paramount. A lack of focus on mission and vision in a rapidly changing environment can lead to detrimental outcomes. To better understand this environment, this chapter will describe a brief history and culture of the Silicon Valley. This is to better understand who the stakeholders are and what their roles are in applying and maintaining such a model. Lastly, the model that incorporates both approaches will be described.

Contrast and Comparison of Approaches

Although Witcher and Chau (2007) describe the use of Hoshin Kanri and the Balanced Scorecard approach as an original idea, the paper also states that Schneiderman worked on similar models at Analog Devices. Wither and Chau (2007)
explain the roles executed by the Balanced Scorecard approach and Hoshin Kanri as integrative dynamic capabilities for strategic management. In the literature, both approaches are often compared with other approaches. Tennant and Roberts have compared Hoshin Kanri with Management by Objective and Business Process Reengineering. The focus for Hoshin Kanri is on processes with a long-term vision, while Management by Objectives focuses on targets with a short-term vision and Business Process Reengineering focusses on performance with a radical vision. The main contrast from their analysis then, is that Hoshin Kanri is a top-down as well as a bottom-up approach. This holistic ideology suggests that there is a win-win situation by including all corners of the hierarchy. Every employee can contribute to the success of the organization by engaging in the process of the setting and achieving of targets that align with the vision (Tennant & Roberts, 2001a). The strength of Hoshin Kanri lies in its focus on communication and, along with that, the element of catchball in which the employees are involved in goal setting process. The weakness of Hoshin Kanri that has been brought forth is that it is difficult to determine the vital few. One strength of the Balanced Scorecard approach is that it provides alignment for improvement activities. One weakness of the Balanced Scorecard approach is that it has a top-down approach which can lead to resistance from employees in the organization.

Deploying scorecards from the top to the bottom of the organization is most valuable in providing alignment of improvement activities. Organizations will struggle to generate financial results when alignment is lacking. Schneiderman argues
that the element of deployment ought to be a major activity in the management of the Balanced Scorecard approach. An important piece in this is the disaggregation of the goals as they are deployed downward so that employees can understand their roles and contribution to the organization overall success. When subordinate scorecards are achieved, the higher-level goals will almost certainly be achieved, too. This approach is the core of Hoshin Kanri (Schneiderman, 1999). Table 1 below summarizes both approaches and provides an overview on how both can complement each other. For example, the top-down approach from the balance scorecard can overcome the weakness of Hoshin Kanri by identifying the vital few which is most often most clearly recognized at the highest level of the organization.

Table 1

*Comparison of Hoshin Kanri and Balanced Scorecard*

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<th>Characteristic</th>
<th>Hoshin Kanri</th>
<th>Balanced Scorecard</th>
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<td><strong>Tool Focus</strong></td>
<td>Strategy deployment at every level of organizational hierarchy</td>
<td>Strategy performance management with focus on financial and non-financial measures</td>
</tr>
<tr>
<td><strong>Approach</strong></td>
<td>Top-Down and Bottom-Up</td>
<td>Top-Down</td>
</tr>
<tr>
<td><strong>Strength</strong></td>
<td>Catchball communication to align strategy and objectives</td>
<td>Provides alignment for improvement activities</td>
</tr>
<tr>
<td><strong>Weakness</strong></td>
<td>No guidance for identifying vital few objectives to focus on</td>
<td>Top-down approach leads to resistance and without vision remains a list of measures</td>
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Manufacturing Organizations in the Silicon Valley

In 1971, Don Hoefler wrote a three-part report for Electronic News titled, “Silicon Valley USA,” in which he first coined the name for the area of Santa Clara County to describe the community of electronic firms (Gromov, 2011). It has later been described as the capital of the semiconductor industry with the densest concentration of high-technology enterprises in the world (Saxenian, 1983).

After World War II, the population of Santa Clara County grew with the influx of returning military personnel who were on their way to posts in the Pacific. Around the same time, Frederick Terman, an electrical engineer and professor at Stanford, returned to the region determined to improve the university’s electrical engineering program. In order to do so, he sought government and business funding to bring new industry to the area. Over the years, war-related aerospace and electronics companies clustered around the university in order to employ graduating students. The most dynamic growth came from the semiconductor industry, starting in 1955. All this was the start of an industry where technology changes rapidly with highly-competitive pressure; however, there was a culture of interfirm communication, information transfer, and an open labor market. Ultimately, being a part of the Silicon Valley became a social status among scientists, executives, and managers (Saxenian, 1983).

The history of the Silicon Valley also describes how companies parted from the traditional, vertically integrated strategies of production companies, where companies manufacture most of their components internally, to a more horizontal
integrated approach where companies procure components and work with contract manufacturers through outsourcing. These changes in strategic approach allowed companies to respond to the rising cost of product development, shorter product cycles, and rapid changes in technology. The companies rely on a network of suppliers and stay focused on what they do best (Saxenian, 1991).

**Stakeholders**

All stakeholder groups of a manufacturing company in the Silicon Valley could benefit when a company applies a model that incorporates Hoshin Kanri and the Balanced Scorecard approach. All companies must have some way of providing structure and guidance to their teams in order to create value; however, for some, this model will require more change than others. Additionally, as an important stakeholder group, employees benefit from this model by the purpose it provides to their work with fewer barriers to seeing the bigger picture. Once results are showing, the model will engage employees to stay the course. For management, the model will mean an adjustment to adhere to and to stay consistent at first, but, as with the employees, the model will drive engagement and fulfillment. The model will give structure to their day-to-day operations. All stakeholders will benefit since the model focuses on the vision and drives improvements, which can result in increased business performance. Further, the local community and society can benefit since a company that applies this model will drive growth of the employees and fulfillment of its employees that are a part of the community.
Design and Structure

The goal of this paper is to define a model that incorporates Hoshin Kanri and the Balanced Scorecard approach in manufacturing organizations in the Silicon Valley. Figure 4 below is a graphical display of the model, which includes several phases, with the respective parties responsible for each phase indicated at the top of the figure. Each phase should be evaluated periodically and communicated through catchball in order to get alignment. In addition, the results should be reported and reviewed.

![Figure 4](image)

*Figure 4. Model incorporating Hoshin Kanri and Balanced Scorecard.*

The CEO and board of the organization will define a vision, mission, and objectives for the next 3 to 5 years. The objectives are in place to set out how the organization is going to pursue the vision. Once alignment with executives and vice presidents in the organization is found through catchball communication, the
executives and vice presidents should translate the objectives into operational measures. The operational measures are segmented in the four perspectives of the Balanced Scorecard: Customer, Financial, Internal Business, and Learning and Growth. These four perspectives allow the organization to focus not just on the bottom line but also on customer satisfaction, internal business process efficiencies, and employee morale. It is crucial that measures remain focused and limited. As found in the literature review, the vital few should be targeted in order to drive efficient strategic priorities. Once alignment with both CEO and director level is achieved through catchball communication, the directors of departments can start defining key performance indicators around the measures, define the targets and set limits. The limits are thresholds on which action is going to be required for improvement. This will increase the clarity of expectations from managers and team members who execute the work to reach the targets. Again, once alignment is achieved through catchball with the executive, vice president, and managers, the managers can set goals for the team members and target concise work tasks that align with the goals of the team and the individual member.

The results from each phase are to be communicated on a more frequent regular interval than process of alignment between the phases as described above. The results will drive conversation on what needs to be done to adjust in the organization in order to accomplish the goals, and objectives and to fulfill the vision.
CHAPTER IV
DISCUSSION

Based on a review of the literature on Hoshin Kanri and the Balanced Scorecard approach, this paper provides thoughts on how to combine these two approaches in order to improve strategy deployment for manufacturing organizations in Silicon Valley. While it is important to have the whole organization working toward a vision, the challenges of effective strategic deployment plague many organizations. Organizations in the Silicon Valley can use the ideas presented in this paper by implementing the model throughout the entire hierarchy of an organization. This model helps to align the vision to the objectives and goals across all levels of the organization. It must be understood that it remains important to get to the vital few objectives in order to stay the focused. Including all employees in the process will drive engagement and ensure communication on the alignment on the vision, and with this, the understanding of strategic imperatives will increase. Implementation of the model can filter down through the organization with the use of catchball. As the vision is revisited, next the mission and the 3- to 5-year goals can be realigned. Sequentially through the several levels of the organization realignment on objectives can be achieved with catchball. Once results are reported and reviewed in between the layers of the organization, the model can start taking effect.
Implications for Organizations and Practicing Managers

The research explored in this paper has implications for managers in Silicon Valley manufacturing organization at all levels. The literature review suggests with Hoshin Kanri that organizations struggle to get to the vital few objectives. The Balanced Scorecard approach will assist to focus and have a positive impact on business performance. Linking financial and the nonfinancial measures together will also require a leap of faith as described in the literature review; however, it is argued that the results from the nonfinancial measures will result in the financial measures. The model will have to be implemented across the whole organization to be effective and relies on interaction between the various levels of the hierarchy. If certain tasks do not exist in a manager’s expected role, part of the manager’s tasks will possibly need to be adjusted in order to provide support to this model. For instance, the catchball process requires communication, negotiation, and alignment across the levels of the organizational hierarchy. Meanwhile results will have to be communicated and drive responses.

The comparison of both approaches brings to light the strengths and weaknesses of each, to which the model in turn incorporates both and enhances. In a more general sense, manufacturing organizations in the Silicon Valley can implement changes to their strategic planning process according to the model to include catchball between the hierarchy layers, apply both financial and nonfinancial objectives, report back the results, and review results against the targets. This will increase the focus and engagement of the organization as a whole.
Future Research

Further research for this model can be expanded since this research is limited in its scope to manufacturing organizations in the Silicon Valley. Additional research should investigate the application of this model in other industries. Further research can also be performed on the question of why strategic deployment issues take place within organizations. This research can be focused on organization communication. It is very likely that the size of an organization contributes to communication issues as regard strategic deployment. Another related factor could be the growth in an organization which can result in loss of sight of strategic initiatives. Applying this model to an organization that is large or is experiencing rapid growth could benefit from the structure, communication model, and frequent follow up.

Applying this model with ineffective ways for the catchball process and reporting of results can be a cause of communication issues and could lead organizations to stray away from pursuing the vision. Additional research could also be performed on effective ways to use catchball communication or effective ways to exchange and report results that align with the goals and objectives.

Conclusions

The principal goal of this project was to create a model that incorporates Hoshin Kanri and the Balanced Scorecard approach for manufacturing organizations in the Silicon Valley. The model should improve the success manufacturing organizations in the Silicon Valley can have with achieving their vision. It should
guide leaders and decision makers in the manufacturing process and link the day-to-day tasks for individual team members to the vision.

Throughout the project I have gained much knowledge on both Hoshin Kanri and the Balanced Scorecard approach. In the future I hope to further my explorations on the topic of strategic deployment and performance management, or other approaches to pursue an organization’s vision. In addition, I hope to share the model described in this paper and see it implemented in an organization with positive outcomes, implications, issues, and results.
REFERENCES


