# X-Matrix Combining with Lean/Six Sigma for Company Great Results

# Die Kombination zwischen X-Matrix und Lean/Six Sigma für ein hohes Unternehmensergebnis

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**Abstract** — The big competition between companies leads to usage of various methods for assuring qualitative products in a short run. Therefore, some of the large companies on the market decide to use combination between well-known process improvement methods and create their own on the basis of existing ones to achieve great company results.

**Zusammenfassung** — Die große Konkurrenz zwischen den Unternehmen führt zu der Verwendung der verschiedenen Methoden für die kurzfristige Qualitätssicherung der Produkte. Deswegen verwenden die großen Unternehmen auf dem Markt eine Kombination zwischen bekannten Methoden der Prozessverbesserung und Methoden für ein hohes Unternehmensergebnis.

#### I. INTRODUCTION

The purpose of this article to show X-Matrix interaction with the other process improvement methods: Lean and Six Sigma. It also aims to describe how the combination of these three process improvement methods usage lead to significant improvement of the business environment and management control. When focused on the highest value projects and by the right performance improvement infrastructure, definitely the company achieves great results in: working capital optimization, procurement optimization, focusing in strategic marketing for rapid products development based on the voice of the customers, improvement of company's position in high growth regions. All this progress is achieved by well-developed breakthrough initiatives based on Hoshin Kanri X-Matrix supported by Six Sigma, an effectiveness based process that brings the company process under statistical control, and Lean, an efficiency based process that improves dramatically the process speed or reduced the invested capital.

#### II. HOSHIN KANRI X-MATRIX

The likelihood of success in strategic planning can be increased significantly when the priorities are agreed executive level.

Hoshin Kanri Planning process takes into account execution of every step of the way, providing the company with a systematic method of strategic planning and managing progress toward achieving the company's strategic goals. Hoshin Kanri Planning process is used in combination with business development and innovation tools. This process aligns the company strategic objectives with the specific resources and action plans needed to make them happen. Through a back-and-forth refinement system known as "catchball," the entire organization becomes involved in delivering a combination of breakthrough performance and daily management [2].



Fig. 1. Hoshin Kanri Planning 7 Steps [2]

Hoshin Kanri Planning is a flexible method that focused on the company's needs to make it successful. It helps the business to be connected in a right track that generates great results

The X-Matrix is used by the companies to develop toplevel improvement priorities and then to apply metrics to them. Then, it is created business-specific second- and third-level targets to improve that tie directly to the top-level priorities. Each level goes down into more and more detail to the endproduct manufacturing and sale. This alignment keeps people focused and integrates different departments, making sure everything across the entire company aligns back up to the strategic objectives. The strategy centered thinking drives innovation to create breakthrough opportunities and creates balance in short term and long term objectives. All functions and stakeholders operate as a unified organization to drive accountability. The capabilities required to achieve breakthrough initiatives are defined and resourced. A strategy deployment process is in place from the top level of the business to the point of execution.

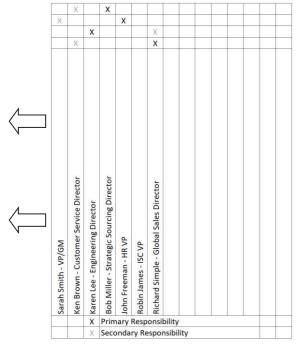


Fig. 2. Hoshin Kanri X-Matrix

The Hoshin Planning Matrix, or X matrix, captures the objectives and cascading priorities. Other process improvement methods Lean/Six Sigma maximizes shareholder value by achieving the fastest rate of improvement in customer satisfaction, cost, quality, process speed, and invested capital.

## III. COMBINING SIX SIGMA QUALITY WITH LEAN SPEED

Six Sigma, including the Design for Six Sigma is an effectiveness focused method based on the voice of the customers, decision making process based on data and facts; variation reduction to near perfection levels and provides analytical and statistical rigor.

Lean, on the other hand, is an efficiency focused method that provides guiding principles in the company's business based on operating system. It eliminates all the waste. It create process flow and demand pull. It optimizes the resources throughout the organization.

Combining Six Sigma Quality with Lean Speed is extremely powerful in improving the quality and speed of all types of transactional processes, including sales and marketing, quotations/pricing/order processing, product development, financial, administrative, and human resources. These methods are already being used and widely endorsed by companies such as Caterpillar, GE, Honeywell, International Truck, ITT Industries, NCR, Northrop Grumman, Lockheed Martin, Rockwell, Raytheon, and many others [1].

TABLE I. LEAN/SIX SIGMA METHOD (OWN FIGURE)

Strategic Targets	Methods for Achieving the Strategic Targets			
Growth				
Innovation				Lean
Quality	Lean Manage ment	Six Sigma	Design for Six Sigma	Six Sigma
Speed				
Cost				

#### IV. HONEYWELL EXAMPLE OF IMPLEMENTATION OF X-MATRIX AND LEAN/SIX SIGMA METHODS

Honeywell present themselves on their webpage as "A Fortune 100 company with approximately \$40B in sales in 2015, Honeywell creates solutions that improve quality of life for people around the globe — generating clean, healthy energy, and using it more efficiently; increasing our safety and security; enabling people to connect, communicate, and collaborate; and equipping their customers to be even more productive. Honeywell Great Positions in Good Industries have been a huge driver of its portfolio development and organic growth across industries, including homes and building, aviation, defense and space, oil and gas, industrial, chemicals and vehicles" [3].

Honeywell implements among others Six Sigma, Lean and X-Matrix in the form of Honeywell Operating System (HOS) Gold.



Fig. 3. HOS Gold [4]

"HOS Gold focuses on growing sales and becoming more productive, integrating all of Honeywell major internal process initiatives into a total business operating system. It is an end-to-end business management process focused on customers and markets, strategy development and execution, robust management, standardized work and cross-functional engagement" [5].

"Honeywell Operating System (HOS) drives sustainable safety, quality, delivery, cost, and inventory improvements that ultimately will give us a 20-year competitive advantage" [5].

"Functional Transformation (FT) is doing more with less, standardizing the way Honeywell works, reducing costs and improving service quality across Honeywell administrative and back-office functions" [5].

"Sales, Inventory & Operations Planning (SIOP) enables

"Sales, Inventory & Operations Planning (SIOP) enables integration and collaboration among Honeywell Integrated Supply Chain, Sourcing and Engineering teams, allowing Honeywell to respond quickly to changes in demand and supply, and driving accountability to reach one set of numbers" [5].

"Velocity Product Development (VPD) brings together all of the functions necessary to successfully launch new technologies - R&D, Manufacturing, Marketing and Sales - to ensure Honeywell delivers the right products at the right price, and faster than Honeywell competitors" [5].

"Honeywell User Experience (HUE) is a systematic process focused on developing solutions for Honeywell users, maintainers, installers, consumers and employees that are easier to use, more intuitive, more efficient and more productive" [5].

"Capability Maturity Model Integration (CMMI) Level 5 certification confirms that a robust and reliable software development process has been achieved" [5].

"Cycle Time initiatives, improved through the application of HOS, are helping to reduce inventories and improve customer delivery" [5].

"Six Sigma/Lean provides the best process analysis tools available, enabling millions of dollars in productivity savings for Honeywell each year" [5].

X-Matrix captures the breakthrough objectives and cascading priorities within Honeywell.

Implementation of combined methods X-Matrix, Lean and Six Sigma leads to great improvement within company management and control, rapid product development based on the voice of the customers, growth, available operating capital, income and cash for a company success.

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