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Operational Excellence: Improve Productivity

people  ready



# Enabling a People-Ready Business to Increase Productivity, Improve Quality, and Reduce Cost

## Maximizing Operational Excellence Strategies

### IMPROVE OPERATIONS

Operational excellence methodologies such as Lean Manufacturing and Six Sigma (often combined as Lean Six Sigma) are used in many industries—health care, manufacturing, and others—to help eliminate waste, increase quality, boost productivity, and bring new products to market more quickly.

However, many companies struggle to implement Lean Six Sigma enterprise-wide because they face a variety of obstacles including:

- » Arcane, manual, paper-based tools, including value stream mapping and Kanban
- » Too much time spent collecting rather than analyzing data
- » Inability to scale operational excellence programs because they are limited by the size of the practitioner community
- » Poor decision making because available data is inaccurate
- » Decision making impeded by disconnected data silos that lack cross-functional visibility

People throughout the enterprise seek easier and faster ways to solve problems. Yet today's disparate computing systems, combined with tools that are either too arcane or too complex, inhibit people's ability to work more productively.

Microsoft and its partners deliver technologies that help make people more productive in implementing operational excellence methods across enterprises in four key solution areas:

- » Value stream mapping
- » Collaborative electronic Kanban
- » Lean enterprise scorecard
- » Lean Six Sigma project tracking

These easy-to-use solutions provide a comprehensive set of technologies for implementing operational excellence methods. Many of the paper-based functions in tools such as Kanban and value stream mapping can be automated and connected to wider enterprise information systems.

Many leading companies today—such as A.O. Smith, Lockheed Martin, Haldex, and Commercial Vehicle Group—use operational excellence solutions from Microsoft and its partners to energize, accelerate, and transform operational excellence initiatives. As a result, the companies are enjoying increased productivity, reduced operational costs, and higher customer satisfaction levels.

"In many cases, technology solutions are enabling best-in-class companies to outperform their competitors by continuously measuring, monitoring, and responding to key production metrics in real time."

ABERDEEN GROUP, THE LEAN BENCHMARK REPORT:  
CLOSING THE REALITY GAP (2006)

## VALUE STREAM MAPPING

The first step in implementing operational excellence is to map the value stream to help people understand how work is accomplished. Value stream mapping involves identifying all the flows and resources that are required to deliver a product: people, technologies, physical facilities, communication channels, policies, and procedures.

Traditionally developed using sticky notes and butcher paper, paper-based value stream maps (VSMs) can actually restrict the benefits of tools for operational excellence. Without the creation of a digitized VSM system of record, teams not only lose data associated with a VSM, but they also find it difficult to:

- » Assess the financial impact of operational excellence projects.
- » Track, compare, and analyze data captured over time in VSM events.
- » Identify process improvement opportunities easily.
- » Prioritize, plan, and execute on opportunities.

Now, people working on a VSM can capture a complete, electronic copy in the Microsoft® Office Visio® Professional drawing and diagramming software, using partner solutions such as LeanView from Orlando Software Group, a Microsoft Certified Partner. LeanView, an add-in to Office Visio Professional, converts the data captured in VSMs into comprehensive reports using Microsoft® Office Excel® spreadsheet software. This allows business managers to easily track performance metrics such as cycle time, yield, and takt time.

Also, people can easily expand on and track reports by adding process and financial data. VSM information stored in Excel spreadsheets can be shared with other applications, such as Microsoft® Office Project Professional, so managers can develop plans, assign resources to tasks, manage budgets, and analyze workloads.

When companies implement a digitized VSM, people are empowered to:

- » Accelerate productivity and enhance collaboration.
- » Standardize value stream mapping and analysis processes.
- » Systematically evaluate and report on value stream performance.
- » Increase visibility into value stream improvement opportunities.
- » Easily capture and report on value stream change.

## SOLUTIONS

Microsoft® Office Professional  
Microsoft® Office Project Professional  
Microsoft® Office SharePoint® Server  
Microsoft® Office Visio® Professional  
Windows Server®



## CASE STUDY

In 1999, defense contractor Lockheed Martin began implementing Lean and Six Sigma at its plant in Orlando, Florida, including redesign of the existing plant floor and reorganization of teams of veteran workers. Recently, the management team completed a value stream mapping exercise using LeanView from Orlando Software Group—built on Microsoft® Office Visio® Professional—and compared it with the traditional sticky-note exercise conducted about three months earlier. The results were clear: The new solution requires less time, produces results faster, and enables better identification of waste compared with the old paper-based approach. It also allows inclusion of data captured by managers walking the floor with tablet PCs and digital cameras.

*“LeanView has enabled Lockheed Martin to expedite strategic Lean Six Sigma implementation. It enabled our belts to conduct current-state analysis in advance of the Kaizen, thereby reducing the time to implement change. LeanView was used to create our executive level VSM and will be used to enable horizontal integration across functions as more integrated processes are developed.”*

**STEPHEN BALL, MANAGING DIRECTOR,  
AND DOUGLAS NORKUS, MISSION ASSURANCE DIRECTOR,  
LOCKHEED MARTIN**

## SOLUTIONS

Microsoft® Office Visio® Professional  
Orlando Software Group LeanView  
Microsoft® Office Excel®

## PARTNER

Orlando Software Group

## BENEFITS

- » Reliable documentation and data consistency
- » Less time required for value stream mapping events
- » More comprehensive what-if analysis
- » Opportunity for Pareto analysis and reporting

## LEAN ENTERPRISE SCORECARD

To implement Lean manufacturing processes across an enterprise, people need powerful tools to help them work collaboratively and share data. Creating a digitized VSM is a critical step in the right direction.

When members of a group or department are able to share information about value streams and Lean initiatives only among themselves, however, their focus remains on individual rather than enterprise-wide processes. This shortcoming yields a myopic view that ultimately has a negative impact on productivity and operational costs. People are hindered from tracking enterprise value stream performance metrics and creating consistent templates, reports, and processes. Enterprise-wide collaboration is impeded.

A Lean enterprise scorecard helps people effectively implement Lean strategies in a holistic way. It provides a secure, centralized repository for data, facilitating collaboration across the enterprise, with software that supports efficient data analysis and business scorecarding.

Microsoft and its partners provide easy-to-use technologies—such as the Microsoft® Office PerformancePoint® Server, Microsoft® Dynamics™ AX, and Microsoft® Office SharePoint® Server—that help people build flexible, scalable scorecards. These scorecards provide a single point of access for all the information that supports Lean initiatives.

For example, people can use Office PerformancePoint Server to track a company's Lean projects by key performance indicators. With this unique combination of scorecards linked to actual performance data, people can make decisions about improvements at the point of execution. For companies that need an easy way to integrate and share business processes, Microsoft® BizTalk® Server helps people to exchange business documents between applications, within or across organizational boundaries. Also, BizTalk Server supports RFID natively, providing real-time decision intelligence to any business operation where managing information related to the movement of objects is critical—including inventory, devices, and people.

### SOLUTIONS

Microsoft® Dynamics™ AX

Microsoft® BizTalk® Server

Microsoft® .NET Framework

Microsoft® Office PerformancePoint™ Server

Microsoft® Office InfoPath®

Microsoft® Office Professional Edition

Microsoft® Office Project Portfolio Server

Microsoft® Office Project Server

Microsoft® Office SharePoint® Server

Microsoft® Office Visio® Professional

Microsoft® SQL Server®

Windows Server®



## CASE STUDY

Haldex develops and manufactures specialized automotive parts for commercial and consumer vehicles. As the effects of globalization intensified in the late 1990s, Haldex needed to cut costs to compete with companies abroad and to improve responsiveness compared to domestic competitors. To meet these challenges and to keep up with rapidly growing global demand, Haldex decided to implement Lean manufacturing practices. Working with Lean manufacturing specialists at Microsoft® Gold Certified Partner Avanade, Haldex replaced a heterogeneous mix of business systems with Microsoft Dynamics™ AX. Extended with a Lean enterprise management solution from Avanade, Microsoft Dynamics AX helps Haldex respond quickly to customer demand without waste. In addition, the system is flexible enough to support continuous improvement across Haldex's diverse lines of business.

*"Microsoft Dynamics AX helps us implement Lean principles. We've been able to reduce our inventory by one-third while improving our manufacturing productivity by 30 percent."*

**DONOVAN DEAN, IT DIRECTOR, HALDEX**

### SOLUTIONS

Microsoft Dynamics™ AX

Windows Server®

Microsoft® SQL Server®

### PARTNER

Avanade

### BENEFITS

- » Increased supply chain efficiency and performance
- » Improved employee productivity and collaboration
- » Access to near real-time data
- » Enhanced reporting through easy-to-use technologies

## COLLABORATIVE ELECTRONIC KANBAN

Many organizations rely on a push-based business model, managing forecasts with enterprise resource planning (ERP) or material resource planning (MRP) systems. Inventory issues are common with this model because MRP and ERP systems do not allow for real-time adjustments to actual customer demands. Inefficiencies also abound in such push-based models, because significant manual effort is required to review output reports, release planned orders, and update forecasts.

Some companies employ pull-based material replenishment, making materials or products based on customer demand. This methodology is made possible by paper-based Kanban (a Japanese term that means "card signal"). Although it enables numerous benefits over the push-based model, paper-based Kanban creates other challenges, including a lack of flexibility in responding to changing customer demands, insufficient integration with the enterprise business systems, difficulties in scaling processes and measuring improvements, and issues (such as costly stock-outs) resulting from lost or duplicate cards.

Microsoft and its partners provide technologies that help people in business overcome these challenges through collaborative electronic Kanban. Eliminating the reliance on paper, collaborative electronic Kanban generates real-time demand signals from across the enterprise to partners and suppliers, shifting the focus from forecasts and bills of material to the value stream. Inventory replenishment is based on actual demand in real time rather than just on forecasts.

This shift in focus helps people gain immediate insight into inventories, realize visibility across the supply chain, boost supplier communication, and align inventory and production with actual demand. As a result, inventory costs are reduced, supplier performance is accelerated, and customer loyalty is increased.

By seamlessly integrating with existing systems, Microsoft technologies create direct links throughout the supply chain, while expediting data analysis with on-demand reports. Third-party technologies, such as the collaborative electronic Kanban software from Ultriva, automate Kanban by sending closed-loop demand signals triggered from customer orders or replenishment systems. The collaborative electronic Kanban software also helps people achieve new levels of insight into the value stream by using an inventory dashboard, cycle time reports, and performance analysis tools.

### SOLUTIONS

Microsoft® .NET Framework

Microsoft® SQL Server®

Windows Server®



### CASE STUDIES

Commercial Vehicle Group (CVG) is a recognized world leader in vehicle solutions for the construction, agricultural, industrial, commercial, municipal, and marine industries. To help improve on-time delivery, reduce inventory levels, and lower costs within the company's Interior Systems division, CVG engaged Ultriva, a Microsoft Certified Partner. Ultriva deployed an electronic Kanban solution built using the Microsoft® Visual Studio® .NET development system, Microsoft® SQL Server®, and the Ultriva collaborative Electronic Kanban application. As a result, CVG reduced its inventory by 43 percent, boosted inventory turns by 28 percent, increased customer on-time delivery, accelerated productivity, and improved synergy with partners.

*"Since we've implemented the electronic Kanban solution, we've seen a 43 percent reduction in our inventory overall. That's a very powerful advantage."*

**BUTCH ELLIOTT, LEAN MANUFACTURING MANAGER,  
COMMERCIAL VEHICLE GROUP**

A.O. Smith Water Products Company manufactures water heaters, boilers, and hot-water storage solutions that are sold worldwide. At the company's plant in Ashland City, Tennessee, managers wanted to improve material replenishment and parts forecasting processes, eliminate excess inventory, and extend the Kanban inventory replenishment system to suppliers. They chose the Ultriva electronic Kanban system, running on the Windows Server® operating system and using Microsoft® SQL Server®. The company deployed this new approach along with 20 of its suppliers. Now, plant-floor personnel and suppliers are effective agents in the replenishment cycle, using data from the scanable Kanban labels for instant and accurate inventory checks and more efficient management.

*"With all the savings we've achieved, the return on our electronic Kanban investment has been just a few months."*

**CARY CLAY, MATERIALS SUPERVISOR,  
A.O. SMITH WATER PRODUCTS COMPANY**

### SOLUTIONS

Microsoft® Visual  
Studio® .NET

Microsoft® SQL Server®

Windows Server®

Ultriva Collaborative  
Electronic Kanban

### PARTNER

Ultriva

### BENEFITS

- » Continuous improvements driven by empowered employees
- » Improved on-time supplier performance
- » Substantial improvement in on-time delivery rates
- » Doubled inventory turns
- » 20 percent year-over-year reduction in inventory.

## LEAN SIX SIGMA PROJECT TRACKING

Like most methodologies, Lean and Six Sigma require teams to manage and track immense amounts of information, which has prevented many organizations from adopting and realizing the benefits of Lean or Six Sigma or the two together. Tracking and portfolio management of Lean Six Sigma projects are especially daunting when projects expand across an enterprise, particularly when different company divisions and time zones are involved. Businesses must also choose the right Lean Six Sigma projects, based on the projects' potential for impact and their fit with company objectives.

Today, many organizations use spreadsheet or stand-alone project management tools to manage projects. This approach does not scale enterprise-wide, however, and different projects cannot be easily compared for their potential business impact. People cannot easily or effectively collaborate on projects, track their progress, or report to decision makers. People's availability, attributes, and skill sets cannot readily be matched to projects. Without an easy-to-use, enterprise-wide project and portfolio management system, it's difficult to maximize Lean Six Sigma program productivity.

Microsoft and its partners provide solutions that help people in business overcome these challenges through technologies based on Microsoft® Office Project Portfolio Server. When people are no longer reliant on e-mail attachments and stand-alone spreadsheets or project plans, they can implement Lean Six Sigma programs throughout the process: selecting the projects with the most potential impact, assigning the right people, and monitoring Lean Six Sigma key metrics.

With third-party solutions such as VirtualePM for Six Sigma from Project Solutions Group (PSG), which uses core Microsoft technologies, people can track the business's entire portfolio of Lean Six Sigma projects, resources, and documents, in one location and in real time. They can make decisions on which projects to undertake as well as measure ROI and analyze costs and benefits. VirtualePM for Six Sigma was developed under the guidance of Master Black Belts with more than 20 years of experience.

This approach provides:

- » Executive dashboards
- » Interactive drill-down reports
- » Event-triggered workflow, with stakeholder notifications based on Lean Six Sigma tollgates
- » Custom portfolio portal site
- » Customized e-mail alerts
- » Business case templates

### SOLUTIONS

Microsoft® Office Project Portfolio Server  
Microsoft® SQL Server®  
Microsoft® Internet Explorer®  
Windows Server®



### CASE STUDY

A medical devices company determined there would be considerable user benefit in implementing a solution with Microsoft® Office SharePoint® Server customized for the front end and Microsoft® Office Project Portfolio Server for data input. Senior management was also interested in single-click access to a set of custom reports and dashboards that would easily provide them with project status, milestone, and budget information. Based on these requirements, Project Solutions Group (PSG) developed an application that met all of the medical device company's needs for an easy-to-use interface and custom reporting while leveraging the power of Office Project Portfolio Server for data management. The medical devices company's Six Sigma team rolled out the application, and response has been overwhelmingly positive. Based on the company's feedback, PSG anticipates a follow-on project to further enhance and broaden the system's usage across the company.

### SOLUTIONS

Microsoft® Office SharePoint® Server  
Microsoft® Office Project Portfolio Server  
VirtualePM for Six Sigma

### PARTNER

Project Solutions Group

### BENEFITS

- » Powerful data management
- » Easy-to-use interface
- » One-click access to key information

# Operational Excellence Partner Ecosystem

## WHY MICROSOFT

Microsoft is dedicated to delivering best-in-class solutions for the manufacturing industry that amplify the impact of people to drive business success. Our promise is to provide manageable, cost-effective software with these attributes:

### FAMILIAR AND EASY TO USE

With more than 500 million users, Microsoft is the most used and respected software in the world. Microsoft software is familiar and accessible to people at all levels of your organization as well as to your trading partners and customers. Microsoft software helps you reduce training time and make your people more productive quickly.

### WIDELY USED AND SUPPORTED

Microsoft software is widely used and supported by millions of partners and developers worldwide. Our vast ecosystem of solution providers, software vendors, and support organizations ensures that you will be able to match the right solution with your business needs.

### INTEGRATION THAT WORKS

Manufacturers often work in a heterogeneous IT environment that requires integration, interoperability, and information sharing across applications to meet business requirements. Based on industry standards, Microsoft products work with what you have and across boundaries to provide seamless, integrated solutions.

### SOFTWARE THAT'S INNOVATIVE

At Microsoft, we develop software products that help your people reach their full potential and take advantage of new developments and innovations in the industry.

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