



## Lean, Six Sigma, and ERP – Working Together

The manufacturing industry is focused on improving business processes, eliminating waste, and reducing costs. Management teams have focused on three different tools to support their efforts: Lean, Six Sigma, and ERP. While most companies adopt only one method, we have found that companies that understand how Lean, Six Sigma, and ERP work together make improvement progress more quickly and more efficiently.

Before we discuss how they can work together let's review each set of tools. These three approaches are used today to improve business processes.

- Lean – aimed at eliminating waste – producing more at less cost
- Six Sigma – aimed at improving quality by reducing variability and improving processes
- ERP – employing new technology and best practices to enable process improvement

Lean is a philosophy and a set of tools that have evolved in the industry over the last 20 years. Lean considers that the expenditure of resources for any goal other than the creation of value for the end customer is wasteful, and a target for elimination. For many, Lean is the set of "tools" that assist in the identification and steady elimination of waste. Examples of such "tools" are:

- Value-stream mapping
- Five S
- Kanban
- Flow

These tools are used in Kaizen events to organize a team's efforts to improve processes.

Six Sigma is a business-management strategy originally developed by Motorola. Today it enjoys widespread application in many sectors of industry. The term "Six Sigma" comes from a field of statistics known as process-capability studies and refers to the ability of manufacturing processes to produce a very high proportion of output within specification. Six Sigma's implicit goal is to improve all processes to that level of quality or better. Six Sigma seeks to improve the quality of process outputs by identifying and removing the causes of defects (errors) and variability in manufacturing and business processes. It uses a set of quality-management methods, including statistical methods, and creates a special infrastructure of people within the organization ("Black Belts," "Green Belts," etc.) who become experts in these methods.

The term Enterprise Resource Planning (ERP) was originally derived from the term Manufacturing Resource Planning (MRP), which was used to describe a collection of software applications. These early MRP systems were first developed with available technology in the 1970s. ERP systems have evolved as technology has changed. ERP systems typically handle the manufacturing, supply chain, logistics, sales, customer service, distribution, inventory, quality, shipping, invoicing, and accounting for a company. When implementing an ERP system, organizations will modify their business processes to use the "best practice" function delivered in the "out-of-the-box" version of the software.



These tools conflict in the market. Lean and Six Sigma advocates often argue that short-term process improvements are a better investment than new technology (ERP). On the other hand, ERP software vendors market their products as “Lean” compliant. They promote their systems as providing best practices that when implemented will deliver significant productivity improvements.

Today, management typically treats these initiatives separately, not recognizing the potential of combining the three to successfully deliver even more significant business improvement.

There are differences in the three approaches that should be noted. An ERP project has a long lead time to benefit compared to Lean and Six Sigma, which can produce quick, short-term improvements. ERP systems require a significant investment, but promises significant returns. Many Lean and/or Six Sigma companies discover that sooner or later Lean and Six Sigma progress will slow as they encounter weakness in the company’s ERP capability to move dynamically with the improvements that they strive to deliver. In other words, the legacy ERP technology tools eventually become a roadblock to improvement.

The similarities in these three approaches are significant! All three have the same objective – to improve the business! All analyze current processes, and design new processes. All three demand the company’s “best and brightest” with a commitment of executive support and sponsorship.

How can a company get all three to work together?

We encourage our clients to start on a journey of continuous improvement that includes Lean, Six Sigma, and ERP. In that context, Lean, Six Sigma, and ERP become tools to be employed on this journey of continuous improvement.

Here are some important concepts:

- Design your journey of continuous improvement to include all three methods
- Employ one set of resources – a company core team for continuous improvement
- Use Lean for value-stream mapping and identifying value
- Use Six Sigma for measuring processes and designing new processes
- Get educated on ERP capabilities to map your future improvements
- Map ERP into your journey of continuous improvement when the current technology becomes a roadblock to improvement

The journey of continuous improvement will be a journey that never ends. It will include business-improvement projects using Lean and Six Sigma tools, and it will include the transformation to improved ERP systems when needed.