

Lean's Integration in an Enhanced Business Management System

Organizations need an effective business management system for addressing the challenges of the day.

BY FORREST W. BREYFOGLE III

Someone once told me about the great work that he had done using lean at a previous employer. I then asked him whether that company had been bought out by a competitor because of its financial problems. He said yes, but he then started to describe all the great lean work that had been done. I responded that it seemed like all of his good work did not positively impact the business as a whole for the organization to be competitive enough to stay in business.

To illustrate another situation, I spoke at a company's internal lean Six Sigma conference where the general manager made many references to all the great work that they were doing using lean. I then toured the facility and commented

to the tour guide how I thought that they were doing many great things with their lean initiative, but I noticed that there was a lot of idle equipment.

I then asked what projects were being executed in their marketing and sales operations, their obvious business constraint. He indicated that nothing was being done in this area of the business. To help the business as a whole, focus should have been given to what process improvement efforts could be undertaken in marketing and sales, since the enterprise has excess capacity.

This type of thinking is not that uncommon with lean and other past process improvement efforts. Practitioners may work with process

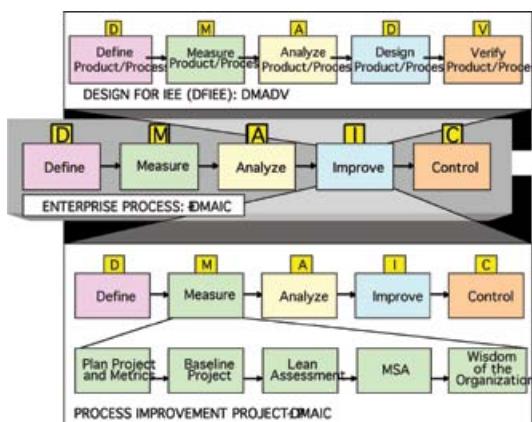
improvement tools in organizational silos that often have little, if any, positive impact on the big picture.

EFFECTIVE BUSINESS MANAGEMENT SYSTEM

Lean has a very good tool set; however, it is not a business management system. What organizations need for addressing the challenges of the day are an effective business management system that integrates the tools of lean with predictive scorecards and with analytical/innovative strategies so that process improvement efforts are undertaken, which benefit the enterprise, as a whole.

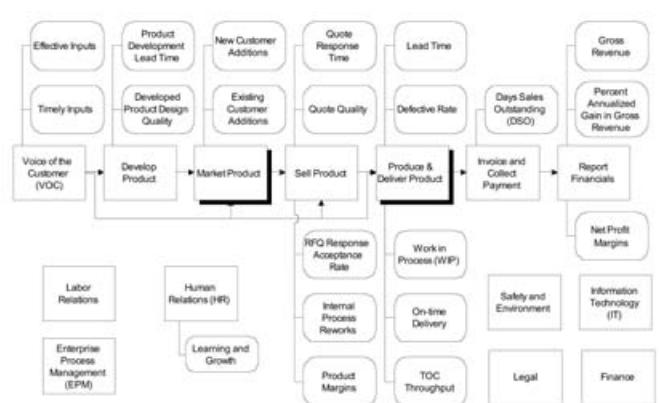
This objective is accomplished with the Integrated Enterprise Excellence (IEE) business management system. The IEE system addresses this need for overall orchestration of business operations with process improvement efforts.

In lean Six Sigma, improvement projects are to follow a define-measure-analyze-improve-control (DMAIC)



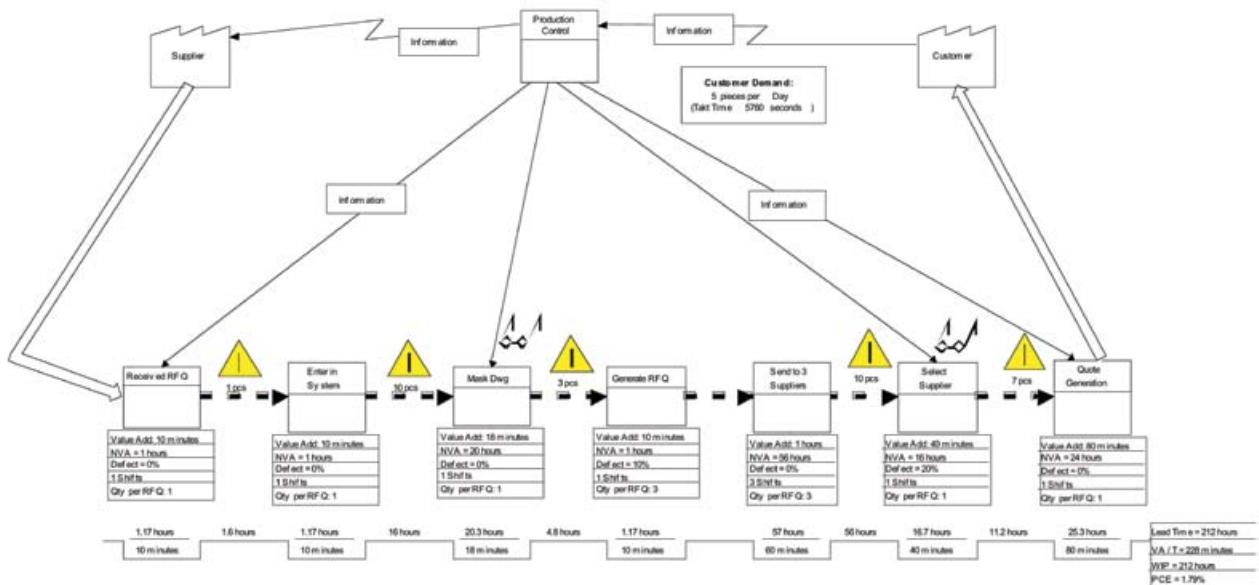
IEE BUSINESS MANAGEMENT SYSTEM

The P-DMAIC roadmap connects with the E-DMAIC roadmap in the business system's improve phase. This was done because process improvement projects are one of the primary two ways to improve the overall enterprise. The other improvement methodology is through a design project, which has its DMADV execution roadmap shown in the top of the figure. *Source: Smarter Solutions*



EXAMPLE OF IEE VALUE CHAIN

In this value chain, organization and control procedures are presented by clicking the drill downs of the rectangular boxes, while predictive 30,000-foot-level predictive performance metrics are displayed as a business scorecard by simply clicking on the oblong boxes. *Source: Smarter Solutions*



EXAMPLE OF A SUBPROCESS VALUE STREAM MAP DRILL-DOWN

In addition to process-flow-charting-procedural steps, value chain rectangular boxes can be drilled down to a commonplace lean tool, such as a value stream map. *Source: Smarter Solutions*

roadmap. Within the IEE system, there are two DMAIC roadmaps, the Project-DMAIC (P-DMAIC) and enterprise process DMAIC (E-DMAIC). In this system, the P-DMAIC roadmap connects with the E-DMAIC roadmap in the business system's improve phase. This was done because process improvement projects are one of the primary two ways to improve the overall enterprise. The other improvement methodology is through a design project, which has its define-measure-analyze-design-verify (DMADV) execution roadmap.

The E-DMAIC roadmap portion of this IEE system provides the framework for an enhanced business management system that structurally integrates the desired components of an overall business management system.

One aspect of the overall E-DMAIC system that addresses organizational control is the value chain, which integrates operational procedures with predictive performance metrics; for example, a component of the define and measure phases of the E-DMAIC system. In the IEE value chain, orga-

nization and control procedures are presented by clicking the drill downs of the rectangular boxes, while predictive 30,000-foot-level predictive performance metrics are displayed as a business

scorecard by simply clicking on the oblong boxes.

In addition to process-flow-charting-procedural steps, value chain rectangular boxes can be drilled down to a commonplace lean tool, such as the value stream map.

In IEE's value chain, lean metrics such as lead time or on-time delivery can be assessed for process stability, noting that if a process has a recent region of stability it can be considered predictable. For a continuous response that has a specification, an IEE stability assessment would be made through a 30,000-foot-level control chart, while the predictability statement would be made using a probability plot of the data from the recent region of stability.

Figure 1 illustrates this form of IEE metric report out where the probability plot provides an expected percent non-conformance rate if the process were to continue its current-state performance. For this process, about 13.7% of the

transactions are expected to be beyond the specification limits of -5.0 and 1.0; i.e., $(100-92.4)+6.2=13.8$. An effective process improvement effort would result in the shift of the 30,000-foot-level control chart to a new, improved level of performance that is quantified through another probability plot of the after-improvement data.

TECH TIPS

- » The E-DMAIC roadmap provides the framework for an enhanced business management system that structurally integrates the desired components of an overall business management system.
- » Within the IEE system, there are two DMAIC roadmaps, the Project-DMAIC (P-DMAIC) and enterprise process DMAIC (E-DMAIC).
- » A value chain breaks down common-place organizational silos where this business fundamental performance map provides scorecards and procedures that have ownership.

A ROADMAP

Aspects of the E-DMAIC roadmap include:

- Deploy enterprise standardization so that important process elements are performed consistently in the best possible way.
- Ensure effective business process audits and business process management with their documented procedures in the value chain.
- Institutionalize process error-proofing wherever possible.
- Ensure that 30,000-foot-level scorecard/dashboard metrics with improvement objectives are tracked/reported correctly/effectively and incorporated into performance plans.
- Work with the conducting of regular monthly management meetings, giving inputs, when appropriate, to how data are presented and analyzed.

LEAN'S INTEGRATION

In IEE, lean can be used to describe at an enterprise level an organization's as-is state:

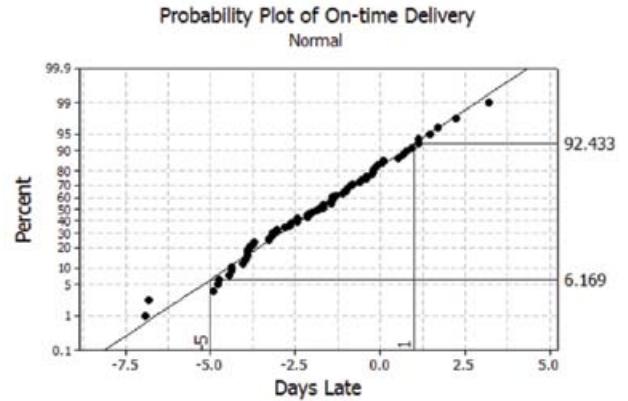
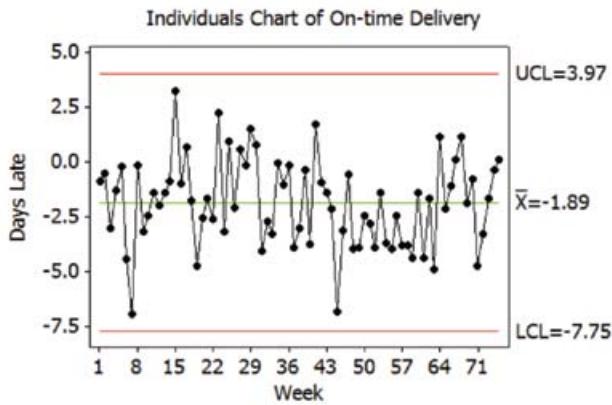


FIGURE 1

In IEE's value chain, lean metrics such as lead time or on-time delivery can be assessed for process stability, noting that if a process has a recent region of stability it can be considered predictable. For a continuous response that has a specification, an IEE stability assessment would be made through a 30,000-foot-level control chart, while the predictability statement would be made using a probability plot of the data from the recent region of stability. *Source: Smarter Solutions*

- An organizational value chain can include standardized procedures, documentation and value stream maps in one location that is readily accessible by those who need this information.
- Lean metrics such as takt time, lead time and defective rates can be assessed for stability and be reported as predictive statements, when appropriate.

Relative to process improvement, lean tools are integrated within the IEE system in several places:

- In the analyze phase of E-DMAIC, value stream mapping of key processes can provide insight to where improvement efforts should focus.
- In the measure phase of P-DMAIC, the following lean tools provide insight to where improvement efforts should

- focus: waste identification, takt time, Little's law, observation worksheet, standardized work chart, combination work table, logic flow diagram, spaghetti diagram, 5 whys and time-value diagram.
- In the improve phase of P-DMAIC, the following lean tools provide direction or facilitation of improvement activities: learning by doing, plan-do-check-act (PDCA), standard work and standard operating procedures, one-piece flow, poka-yoke, visual management, 5S method, kaizen event, kanban, demand management, heijunka, continuous flow and cell design, changeover reduction and total productive maintenance.

A value chain breaks down commonplace organizational silos where this

business fundamental performance map provides scorecards and procedures that have ownership. Linkage of performance measurements with controls in the value chain provides a framework for preventing unhealthy behaviors, which can lead to very detrimental consequences as already exemplified. The described system provides the structure for organizational movement toward achievement of the 3Rs of business—everyone doing the right things and doing them right, at the right time. **Q**

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