

Win in the flat world

Going Lean the ERP Way

- Somnath Majumdar

Abstract

Lean concepts and techniques are widely used all over the world today to eliminate waste in all processes. These are applicable for all organizations, irrespective of the type and nature of the organization. There are broadly three kinds of possible approaches to deploying lean initiatives in any organization – the process focused lean initiatives, the package focused lean initiatives and the hybrid lean initiatives. The hybrid approach is the most common approach in vogue today with organizations that want to adopt the “lean philosophy”. Elimination of waste is the core principle on which lean is based. The eight categories of waste include over production, waiting, stocks and inventory, transportation, motion, processing, defects and information. Process focused techniques can be employed by organizations to achieve lean in the true sense. ERP packages also aid organizations in lean deployment by enabling certain functionality in the package that goes a long way in waste reduction. The result of application of appropriate lean tools and techniques is the right way to derive maximum Return on Investment (ROI) from the ERP system deployment.

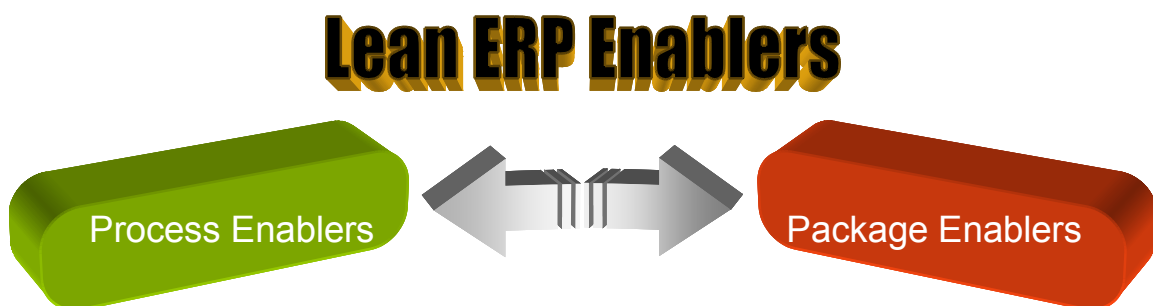


Introduction

Today, enterprises are struggling hard to maintain a lean environment in order to reduce overall waste in business processes. Being lean translates to increased bottom line in today's environment, where there is a huge focus on elimination of waste. Large corporations have deployed ERP packages to improve the efficiencies in the execution of business processes, without paying heed to their basic fundamentals. As a result, the "real benefits" in business functions where ERP is deployed, has been obscured. This can be attributed to the failure of adopting a "lean philosophy" that carries out a "Value Stream Mapping" analysis to make sure that all business processes are optimized to the maximum. This paper discusses the steps that corporations could take to ensure adherence to the "lean philosophy" while deploying an ERP system. The paper focuses on Oracle E-Business Suite ERP implementation as a specific case, although some of the generic principles are applicable across ERP packages.

Typical Concerns after deploying an ERP Solution:

- 1) Contrary to the common belief that an ERP deployment will result in the overall reduction of manpower, more people get added to the organization,
- 2) Most business processes take longer to execute than before.
- 3) The deployment causes data to be captured in the system, without it being used anywhere downstream in the system.
- 4) Business processes being mapped as-is in the new system, without giving thought to deploying an optimized solution.
- 5) Added paperwork is generated through the order to cash cycle, without really adding significant value to the overall process.



Process vs. Package focused approach in deploying Lean ERP solutions

Typical ERP deployments can follow two broad level approaches to deploy “lean” practices. They are the Process Focused approach and the Package Focused approach. The Hybrid approach is recommended for all corporations, considering the fact that all le vers of going lean a re actively considered by the organization.

Process Focused Approach

In this approach, processes are looked into from bottom-up and lean opportunities are identified. The lean opportunities are identified purely from a process perspective, without due consideration to what the ERP package can offer. Usually, they are traditional in nature and fail to recognize the capabilities of the ERP package. Ov er the years, some of the big names in the ERP space, like Oracle and SAP, have developed functionality to incorporate the lean ph ilosophy in busi ness processes, which i s ignored by the process focused approach. E.g. Flat tening the B ills of Materials in a manufacturing organization. The deeper the bills, th e greater the effort in tracking the manufacturing/ assembly across all the levels and ensuring that there i s coordinated effort among all the departments. The procedure of tracking ensures that the en d product is delivered to the customer within the promised lead times.

Package Focused Approach

In this approach, the capabilities offered by th e ERP package are taken i nto account to ensure that the lean approach is built into the o verall process. It looks at package functionality and tries to force fit thi s to th e business. The package focused approach fails in its imp lementation when Change Management issues are overlooked in deploying the new processes. This usually occurs due to the assumption that the new features being offered by the package will be appealing to the user co mmunity. E.g. Deploying O racle Flo w Manufa cturing solution in a manufacturing organization.

Hybrid Approach

This approach is a combination of the process and the package focused approach. Value Stream mapping is carried out for all current business processes to eliminate non-value adding activities. This is followed by mapping it to the package. The Value Stream mapping exercise is undertaken at the very onset to ensure t hat sub-optimal processes are n ot desig ned. E.g. Deploy ing a Kanban solution to replenish a line.

Lean Principles and its applicability to ERP deployments

Lean principles are applicable to all ERP deployments. It's a myth that lean is applicable only for typical manufacturing or shop floor deployment of manufacturing systems. Any processes that strive to attain zero waste can qualify as Lean initiatives. The 8 broad lean principles that are applicable to ERP deployments include:



Let's discuss each of these wastes and how each of them is applicable to an ERP system deployment.

Overproduction: This is applicable to production-based environments, where manufacturing is based on a Master Production Schedule and net requirements are generated by the MRP run. The idea is to ensure that there is no over production. Produce only what is recommended by MRP.

Waiting: This is one of the biggest contributors to waste in any shop floor environment. Identifying the bottleneck resources using Rough Cut Capacity Planning techniques will go a long way in resolving queue time related problems. It has been estimated to be as high as 80% of the total cycle time for certain industries.

Stocks and Inventory: This is much easier said than done. The goal should be to reduce safety stocks in the long run. It may not be possible to eliminate safety stocks right away, but the overall goal should be to reduce safety stock levels as far as possible. Another strategy that companies may adopt is to move from a pure Made to Stock (MTS) environment to a Made to Order (MTO) environment. Organizations could start with certain MTS production lines and convert them to

MTO. In a MTS -> MTO conversion, it is important to recognize the fact that the internal changes should not adversely impact customer delivery lead times.

Transportation: Ensuring that optimal transportation methods are used to transport at the lowest cost. Transportation planning software aids in ensuring optimal transportation cost and in the decision making process.

Motion: The objective should be to minimize the effort involved in scheduling. Shop Floor reporting should be reduced to a bare minimum. If reporting cannot be completely done away with, the whole idea should be to do away with operational reporting for shop floor job processing.

Processing: The idea should be to convert to Kanban lines, wherever feasible. It may not always be feasible to convert all production lines to Kanban because of certain practical difficulties on the floor. Subassembly production can be converted to Kanban production, in most cases, even if final assembly production is not Kanban driven. This eliminates un-necessary build up of inventory on the floor.

Defects: Defects can occur anywhere in the overall production cycle. This may be defects in the manufacturing cycle due to inappropriate production practices. Defects can also occur because of inaccurate data being captured during the order to cash cycle. The overall focus should be to reduce/ eliminate defects in the process. Defects give rise to overall inefficiencies in the process.

Information: Accurate information flow across the supply chain is critical for corporations to grow lean. Inaccurate information from multiple databases, data redundancy in the supply chain, and the unavailability of information to decision makers are some of the areas that demonstrate how critical information is to the overall lean philosophy.

Process Focused Lean initiatives

Lean Principles are applicable across the supply chain, irrespective of the kind of ERP application that is deployed. Some of the typical process improvements that go a long way in embracing the lean philosophy for corporations include:

- 1) Backflushing:** Backflushing is a technique that is employed by organizations to eliminate the overhead of multiple transactions to issue material to the job. Inventory is decremented, either when the job is moved across the operation, or when the assembly is completed. An explicit issue transaction is recommended only when the value of the item is very high compared to the total value of the finished final assembly. This technique is also recommended for when inventory/ shop floor personnel want control over the issue of such high value items to work in process.
- 2) Flatter Bills:** Designers define Bills the way they visualize the product structure. They often end up defining product structures (Bills) that are much deeper to “simplify” product structures. They often fail to realize the inefficiencies they end up creating when they define multi level bills. The deeper the bill, the greater the number of sub-assemblies that need to be manufactured to create the final assembly. The final assembly production needs to be coordinated and tracked with respect to the sub-assembly production. As the

number of levels increase, visibility across the levels decreases. It also becomes increasingly complicated to plan for manufacturing levels as any delays will have a cascading impact on all the higher levels in the Bill. This may have an overall impact on customer promise dates – order entry personnel may find it difficult to answer customer queries regarding late orders as manufacturing is not able to supply accurate information.

- 3) **Physical Inventory and Cycle Counting:** A common practice, in certain countries, is to exempt certain areas from carrying out physical inventory if cycle count accuracy has been able to achieve a high level of count accuracy. Physical inventory involves counting the entire available inventory in the shop (including WIP Inventory) once a year and correcting any discrepancies. During the annual physical inventory process, the system is frozen and transactions are not allowed to be carried out until the Physical Inventory and all adjustments are completed in the system. Regular cycle counting ensures that inventory records are current and updated, and there is minimal discrepancy between actual on-hand quantities and system on-hand quantities. Putting a well defined cycle count program in place is critical for an organization.
- 4) **Shop Floor Operational Reporting:** Operational reporting of work in process is a contentious topic among Operations personnel. Some agree that operational reporting helps in accurately reporting WIP and cost accounting information. Critics to the above benefits are of the view that operational reporting severely hampers productivity of shop floor operators. They are of the view that their time is best utilized in manufacturing the product rather than concentrating on capturing accurate operational information.
- 5) **Shop Layout:** The layout dictates how the machines are arranged on the floor. Multi skilled operators on the floor can operate multiple machines simultaneously. Shop layout arrangement is a critical input when carrying out line balancing. Although most manufacturing organizations don't change shop layout when deploying ERP software, the layout on the floor typically determines how one wants to operate.

Package Focused Lean Initiatives

- 1) **Use of iSupplier Portal:** Online Supplier communication and collaboration are critical to achieving a Lean supply chain. Faxing Purchase orders or blanket releases increase the requisition to receipt timelines. Communicating changes to Purchase Orders, through the use of these offline mechanisms, are cumbersome and error prone. Oracle iSupplier Portal is an efficient tool that can be used for collaborating with your suppliers as if they are part of your extended supply chain. Supplier Schedules are communicated using iSupplier Portal to the vendors, enabling the vendors to supply as per the schedules. Vendors also have the option to reject the purchase request sent by the customer.
- 2) **Use of Collaborative Planning:** Collaborative Planning is a tool in Oracle E-Business Suite that enables active collaboration with suppliers and customers. Customers and suppliers get visibility to the planning information of the firm. It provides advanced capabilities for communicating, planning and optimizing supply and demand information.

for trading partners across the supply chain. It reduces inventory levels, improves visibility across the supply chain, increases the speed of information and materials, and promises accurate delivery. The use of Collaborative Planning goes a long way in eliminating inefficiencies in the whole process.



- 3) **Kanban Planning:** The use of Kanban Planning in inventory replenishment is an effective tool to emulate pull production methodology. Kanban system is a self-regulating pull system that reduces lead time and inventory. Kanbans can be of type Intra Org, Inter Org, Supplier, or Production-based on the nature of replenishment. Kanban-driven replenishment is applicable for a relatively constant demand and medium to high production volume.
- 4) **Work Order less Completions:** As organizations move away from operational reporting, the need for and the value of detailed production information becomes less critical. This creates the opportunity to eliminate or streamline shop floor execution transactions. Discrete jobs are not used in Work order less transactions and systems backflushes all components and performs resource and overhead transactions upon recording completion of the finished product.
- 5) **iProcurement Implementation:** Oracle iProcurement helps an enterprise streamline the procurement process with end-to-end business automation. It is a starting point for the ordering process and provides powerful self-service requisitioning capability with an intuitive, web shopping interface. iProcurement is especially helpful in streamlining the indirect procurement process within an organization, which may constitute up to 30% of all procurement requests.
- 6) **iStore Implementation:** iStore allows customers to order products via the web. It allows businesses from all industries to establish business-to-business and business-to-consumer electronic commerce. Oracle iStore provides merchants with an easy-to-use interface for setting up internet-based sites that capture and process customer orders. Using iStore can eliminate a huge order entry team for an organization and customers

can order products and product configurations based on their needs. Oracle iStore is also integrated to Oracle Configurator so the customer can select configurations when placing the order.

- 7) **First Article and Random Incoming Goods Inspection:** 100% inspection for incoming goods is an overhead in most organizations. It slows down the overall manufacturing process and is also an added cost for the Quality department. Organizations are now moving to First Article inspection and sampling plan-based inspections, which reduce the overall cost of quality. First Article inspection is applicable when the supplier is supplying the product for the first time, when there are changes to drawings, or when the supplier has been told to improve quality of the product and the first modified piece is sent.
- 8) **Use of Mobile Supply Chain Applications:** The need for accurate, real-time information throughout the supply chain has given rise to mobile computing. Oracle Mobile Supply Chain applications supports the interface of a mobile client device with a networked computer system. This application provides the ability to either manually punch in the data, or enter the same using bar code scanners. Mobile applications go a long way in eliminating the unnecessary screen transactions that users may have to do on the shop floor. It hampers the productivity of the operators whose primary focus is to manufacture the product.
- 9) **Use of Bar Codes:** The use of Bar Codes in labels and reports helps in reducing data entry time and also ensures that the data entry is mistake proof. Mistake Proofing is a core concept in lean methodology that helps in doing things right the first time. Bar Codes are definitely a productivity improvement on the floor for operators who are trying to process jobs.

Conclusion

It is a myth that lean principles are applicable only when true lean manufacturing concepts are applied to the business. Lean, as a concept, is applicable for all corporations irrespective of the type of environment they operate in. Apart from the process level lean initiatives that corporations can embrace, it is important to utilize the right tools and techniques offered by the ERP packages to eliminate waste wherever applicable. Today, corporations struggle to get Return on Investment (ROI) from ERP Implementations. It's important to deploy ERP the right way, using the correct tools and techniques to derive maximum ROI. The bottom line is quite simple and extremely powerful.

Lean Manufacturing philosophy and techniques have a huge positive impact on both, product quality and customer perceived total quality.

About the Author

Somnath Majumdar is a Senior Consultant with the Discrete Manufacturing vertical in Oracle Practice in Infosys which is a part of Enterprise Solutions offering consulting solutions in packaged applications.

He has vast experience in at least three end-to-end implementations in the Discrete Manufacturing space and also managed multiple Oracle E-Business Suite Implementation projects during his tenure with Infosys. Prior to joining Infosys he was part of the Product Development team at Oracle India in Product Life Cycle Management team. He is also an active contributor in external forums like Oracle Applications User Group in the area of Discrete Manufacturing. He holds a CPIM Certification conducted by APICS.

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http://www.infosysblogs.com/oracle/2008/10/going_lean_the_erp_way_1.html

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