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IT Lean Management Index for Project Tracking

By Senthil Kumaran

Lean Management which is often known simply as "**Lean**", is the optimal way of managing through the removal of waste and implementing flow. It is renowned for its focus on reduction of the original process wastes in order to improve overall customer value.

Information technology focuses on satisfying the customers through services or products for which lot of value addition goes into the system to make the deal more profitable. But, on the other hand, we fail to see some trivial wastages or non value additions to the product / services which will give lot of leverage for increasing the profit margin.

While the elimination of waste seems like a simple and clear subject it is noticeable that waste is often very conservatively identified. This then hugely reduces the potential of such an aim. The elimination of waste is the goal of **Lean**.

Any process will have the following:

- Value addition activity
- Non Value addition activity
- Waste

Non value addition activity is some times inevitable.

For example, the developer must put proper comments on the code which he develops or modifies. This is not of value addition directly to the product, but it is equally important for future support as any other person seeing the code must understand on why the change has been done.

The focus of Lean Management is to minimize the non value addition activities and eliminate the Waste completely out of the system. In Lean Management there are primarily three types of wastes: Muri , Muda and Mura

Muri Definition

muri focuses on the preparation and planning of the process, or what work can be avoided proactively by design.

To given an example,
Assume that a Business Analyst with his intuition adds a control to a GUI thinking it can be used in future which is actually not needed. This single control starts the non value adding chain, the designer has to design for the control, and developer as to build the logic for the control, the testing must ensure that this control works fine. The irony is the customer will also be trained for this control during the User Training which finally caters into a non value adding control which is never used after GO live. The cost of this control can be eliminated if the Business Analyst validates the need of this control with the customer or with a similar

product. Every stage in development has this problem of imparting a non value adding from the Project Manager to the end user.

Mura Definition

mura then focuses on implementation and the elimination of fluctuation at the scheduling or operations level, such as quality and volume.

To given an example,
When the Project Charter is made the quality levels and deliverables will be specified. This will be discussed with the stake holders and finalized. But there are many chances that these undergo a change as the *progressive elaboration* of the project happens. At this point of time, there will be an impact on the work in progress, resource assignment matrix, resource scheduling and cost budgeting. There are possibilities of more non-value addition coming into the project activities as it will lead to chaos. The objective of the Project Manager at this point of time will be completely focused on the incremental change that has been asked by the Customer.

Muda Definition

Muda is discovered after the process is in place and is dealt with reactively. It is seen through variation in output.

To give an example,
Waiting is always a big wastage in the system irrespective of what system it is. The Software development life cycle is fully a chain of activities which are dependant on each other. For example, the project team waiting for the schedule for work from PM. The Design Engineer waits for inputs from Business Analyst. This chain is a never ending and all the waiting times which appear non critical in short run will have an impact on the project schedule as well as the project cost. The risk of waiting is more in overlapping activities. After a fixed duration the succeeding activity will have to wait for preceding activity and hence the preceding activity becomes a bottle neck. Not only the activities in Critical path but other activities which are bound to influence the project schedule must also be monitored. The resources performing these activities must be given special attention and reviewed on periodic basis.

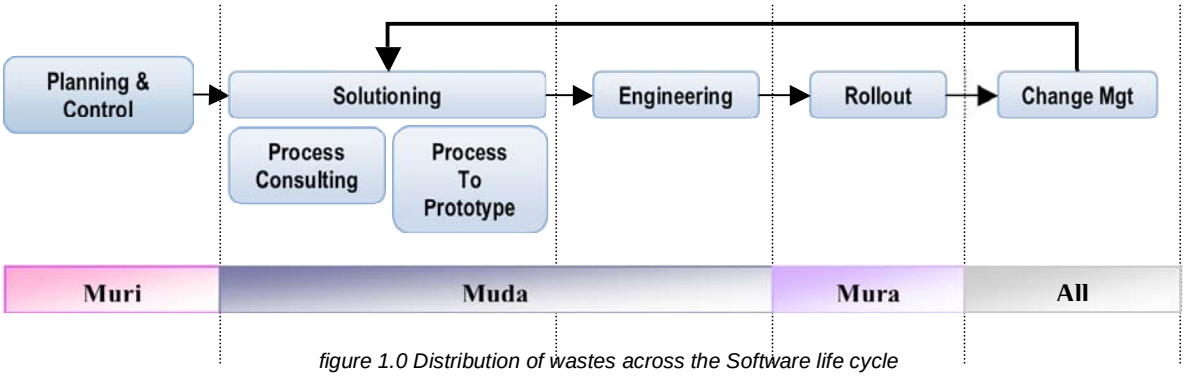

figure 1.0 Distribution of wastes across the Software life cycle

The above diagram depicts the wastage elimination at various stages of SDLC. However, muri, muda and mura are dependant on each other and not exclusive for each phase. For example, Engineering phase can also have Muri and Mura.

How can the lean be monitored?

Today IT firms already give lot of focus on elimination of non value adding activities and wastes. However tracking this is a tedious job and often ends up in an open loop.
In IT projects /support services it is mandate to maintain timesheets or work reports by the project team. The work report generally maintains the activities done during the projects and the time spent on it. The work report can also record the lean activities (waste and non value addition activities) that are incurred during the project phase. A Sample of work report tracking lean activities is shown below.

Date	Project ID	Resource	Activity Description	Classificn	Lean Category	Time (Hrs)	Cost (Dollars)	Cumulative cost (Dollars)
9/1/2008	EHS116	E3983	Available in meeting but topic not relevant to my role	Waste	Muda	1	100	100
9/3/2008	EHS116	E3983	Conference call with onsite Business analyst for corrections in the specifications	Waste	Muda	0.5	50	150
9/4/2008	EHS116	E4023	Rework of test cases which are not valid for the customer or geography	Non Value	Muda	3	300	450
9/5/2008	EHS116	E5694	Server setup due to hard disk crash	Waste	Muda	8	800	1250
9/8/2008	EHS116	E4215	Waiting for Business Analyst for clarification in the specification	Waste	Muda	1	100	1350
9/10/2008	EHS116	E4215	Performance tuning of already reviewed code and developed code	Non Value	Muda	6	600	1950
9/12/2008	EHS116	E5023	Waiting for configuration management of the configuration items for a specific feature	Non Value	Muda	4	400	2350
9/15/2008	EHS116	E3983	Rework on logic due to the gap found during system testing	Non Value	Muda	16	1600	3950
9/16/2008	EHS116	E2004	Project plan rework due to unclear project strategy	Non Value	Muri	4	400	4350
9/19/2008	EHS116	E2004	Rework on resource assignment matrix due to non-availability of resources on time	Non Value	Muri	8	800	5150
9/23/2008	EHS116	E2004	Waiting for new resources - recruitment delay by Human resources	Waste	Muri	24	2400	7550
9/24/2008	EHS116	E4215	Development of "out of scope" functionality	Non Value	Muda	10	1000	8550
9/26/2008	EHS116	E4023	Testing of "out of scope" functionality	Non Value	Muda	4	400	8950
9/30/2008	EHS116	E4023	Waiting for feedback from customer on customer specific customization	Waste	Mura	4	400	9350

figure 2.0 lean work report to track the waste or non value adding actvities.

$$\text{Lean Management Index} = \frac{\text{Total cost of non value adding or waste activities}}{\text{Total cost of project}} \times 100$$

Assume that the project actual costs was 113200 $ for the month of Sep.2008. (Ref. fig.2.0)

The Lean index will be calculated as = 9350 $ / 113200 $ *100 = 8.25

Lean Management Index = 8.25

The Lean index must be kept at the minimum possible value.

Lean Benchmarking

Ideally the wastes in a project must be zero in terms of efforts or costs. But this is not possible in practical project scenario. The objective must be to minimize the waste or non value adding activities.

At the end of project closure, the learning's of the project is documented and maintained in the repository. Lean learning must also be part of this knowledge management. The lean activities that were registered in the work report can be placed in the repository.

Future projects must refer this repository and manipulate the Lean Management and draft the mitigation plan to avoid these reworks or wastes or non value addition activities in the project. However, there may be some new non value adding activities that will come up in the new projects. The lean activities must continue to be recorded and must act in a closed loop by providing feedback for the forthcoming projects.

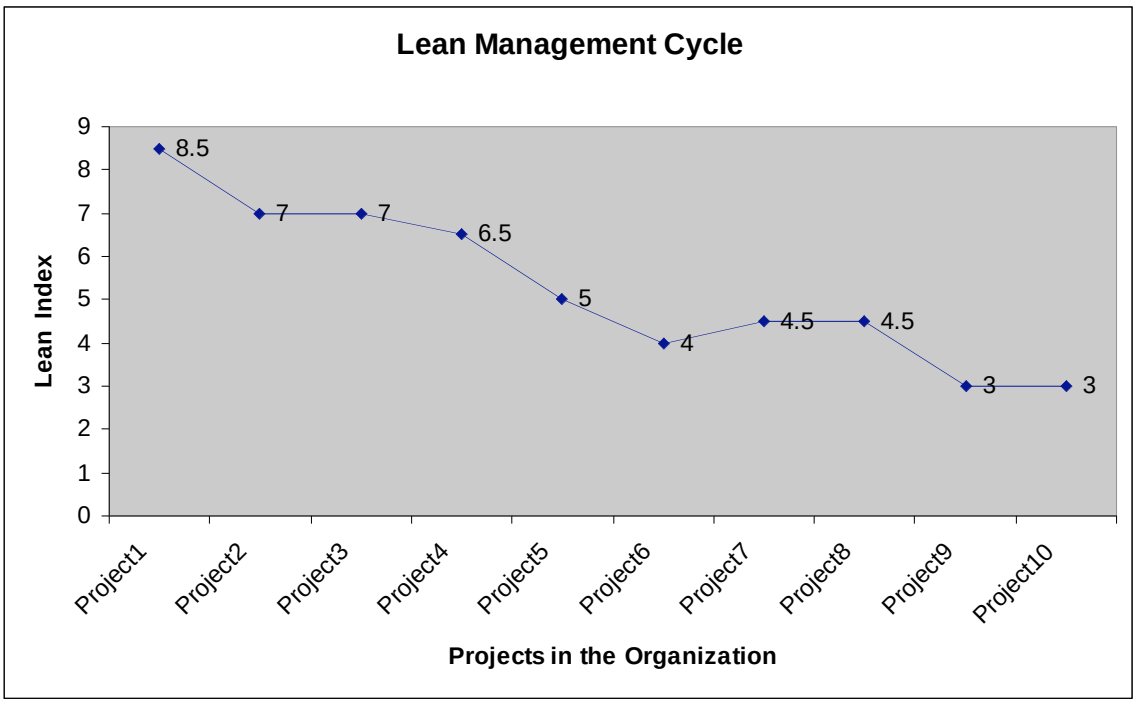

figure 2.0 Lean index trend due to knowledgement management

The chart above shows the Lean Index trend with projects. When learnings' of the lean activities in a project are imparted or documented, the upcoming project will see the improvements. As more and more learning goes into other projects the lean index will drop to minimal.

Bottlenecks

- The resources must record the non value and wastages honestly without fear towards management
- The management must not question the resource who is adding non value but instead must analyze the root cause of the non value addition
- The lean indexes at the end of the project must be calculated and properly documented for future references
- The non value adding activities and wastages must be included in the risk management plan along with the mitigation plan for the future projects
- The training of the resources on the tracking the lean and know how must be shared uniformly
- Proper system for tracking the lean indexes and activities must be available as doing this manually is laborious

Conclusion

"Often what is ignored contributes more", the rework activities and non value adding activities are indulged in a project which are not monitored with care. Monitoring of these activities and eliminating / minimizing them will contribute more to the project revenue. The method to monitor these kinds of activities can be the work report of the resources (manpower, infrastructure, hardware etc.) in the project. The project manager must consolidate the lean activities at the end of every month and plan for the mitigation of the same in the coming months. The objective of any software development project must be to keep the Lean Index to the minimum permissible value.

About the Author:

Senthil Kumaran

Author

Senthil Kumaran is a Senior Project Manager with Ramco Systems Limited, Basel, Switzerland. Ramco Systems is an India based software powerhouse delivering business solutions to its customers in different verticals. He is currently assigned to a number of large ERP implementations in Switzerland. He has a rich experience of 11+ years in Project Management, ERP implementation, Business Consultancy and Manufacturing. Prior to his current job, he was an Executive Engineer with Larsen and Toubro (LTM), a manufacturer of plastics injection-molding machinery. Senthil Kumaran has a Bachelor of Technology (Production) and a Post Graduate degree of MS in Operations Management. Senthil can be contacted at email: senthil_kumaran_a@yahoo.com