

Lean Thinking: Past & Future

A Presentation by

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Lean Thinking in Summary

- Specify value from the standpoint of the customer. (Question: Do customers want to obtain goods and services? Or do they want to solve their problems?)
- Identify the value stream for each product and remove wasted activities.
- Make the value flow toward the customer as quickly as possible.
- Only at the pull of the customer.
- While striving continually for perfection (= perfect value with zero waste).



Are These Concepts New?

No! Let's just look at two: Flow and Pull.

- **Venetian Arsenale understood flow with standardized designs and interchangeable parts by 1450!**
- **French Ordinance understood by 1780s that flow could only occur with sophisticated products if metal parts could be standardized.**
- **American military arsenals pioneered “American System” to do this before Civil War.**
- **Henry Ford introduced “flow production” in 1914.**
- **American “Training Within Industry” program added standardized work and quality measures in WWII.**



Are These Concepts New?

Pull:

- **Henry Ford was regulating production with max/min buffers at Highland Park in 1914. (Upstream activities produced until the downstream buffer was full and then stopped.)**
- **Kiichiro Toyota formalized this idea in the late 1930s.**
- **German aircraft manufacturers pioneered takt time by the end of the 1930s.**
- **Taiichi Ohno and his colleagues at Toyota perfected pull systems with takt time and heijunka by 1950s.**



Is “Lean” Japanese?

No!

- **Many thinkers from many places – Venice, France, Germany, the US, Japan, and elsewhere – have been involved in a long search for the perfect process.**
- **The perfect process consists of a series of steps conducted properly in the proper sequence to create the right value for the customer.**
- **Perfection requires that every step be valuable, capable, available, adequate, flexible, flowing, pulled, and leveled.**



Where Do We Stand Today?

- **Only one firm – Toyota – and its core supplier group have truly tried to implement lean thinking in every aspect of their key processes.**
- **Many firms in many countries have succeeded in applying lean thinking to some parts of some processes.**
- **There is no evidence that lean thinking is unsuited for any country or region.**
- **There is no indication of which countries and regions will be most successful in applying lean thinking in the long term.**



The Future of Lean Thinking

- **Steady diffusion of the core ideas in every manufacturing industry across the world.**
- **Steady application of the core ideas in related activities like logistics and warehousing.**
- **Beginning of diffusion of the core ideas in activities “beyond the factory” after a false start with business process reengineering in the early 1990s.**
- **The prospect of dramatic progress in the years ahead is real if we can address several challenges.**



The Future of Lean Thinking

Four Critical Challenges:

- **Devise process technologies suited to lean value creation.**
- **Comprehensively apply lean thinking to all business processes, going far beyond the factory and manufacturing industries.**
- **Apply lean thinking to information management.**
- **Rethink organizations to make some individual responsible for each key process while maintaining the strengths of functional organization.**



Re-Think Process Technologies

- Lean thinking tries to eliminate wasted steps in every value stream while getting products to customers very quickly. (“Value stream compression”.)
- Ideally, this means lining up all of the process steps in a tight, adjacent sequence near the customer. (Ford in 1914, “Take the process to the product.”)
- This in turn means “right sizing” process technologies to work cost-effectively at much lower scale with higher capability, availability, and flexibility, adding capacity in small increments.
- It also means “light sizing” process technologies so they can be reconfigured and moved quickly at low cost to new locations with limited skills.



Apply Process Thinking Widely

- All value is the result of a process.
- Any process can be improved dramatically by applying lean methods to make every step valuable, capable, available, adequate, flexible, flowing, pulled and leveled!
- Doing this outside of traditional factory environments requires rethinking the nature of professional work and management.
- Managers and employees need to attack every process with A3 and PDCA/kaizen tools.



Lean Information Management

- **There is a long history of cognitive information management in which a central brain collects all relevant information and makes decisions about the best course of action for each step in a process. (The standard label in manufacturing environments is MRP.)**
- **There is a long counter tradition of reflexive information management in which each step in a process simply signals its immediate need to the previous step in the process. (The standard label in manufacturing environments is pull with heijunka.)**



Lean Information Management

- **The inner logic of most current-day ERP systems, in so far as they involve scheduling and process control, is cognitive. (E.g., SAP.)**
- **These systems tend to be expensive, inflexible as processes change, and impossible to understand at the point of actual value creation (leading to manual over rides and expediting.)**
- **Soon these systems will have vastly more information and complexity as a result of RFID.**
- **It is unlikely that they work better or at lower cost than the systems they replace.**



Lean Information Management

- **The challenge for the lean community is to create reflexive systems that perform better and which managers at all levels can understand.**
- **This challenge is even greater because of the need to manage extended value streams stretching all the way from raw materials to end customers (replacing the current situation of “battling MRPs”.)**



Past & Future in Summary

- **Lean thinking is old not new.**
- **Advanced by many people in many places.**
- **The rate of diffusion has been increasing. (The inauguration of the Lean Management Institut is one indicator!)**
- **Dramatic progress is possible in the near future.**
- **All of us need to attack the four challenges to make even greater progress possible.**
- **A worthy agenda for the Lean Management Institut!**



Pioneer Lean Management

- All value is the result of a process.
- Who is responsible for creating, sustaining, and improving a brilliant process for each product?
- In most organizations the answer is “No one.”
- Most organizations are highly functional and will continue to be highly functional. (This describes Toyota.)
- Only a few organizations (and this also includes Toyota) have someone responsible for continually evaluating the performance of every process as value flows across the organization.



Pioneer Lean Management

- We now need experiments with assigning a “responsible person” for every process.
- This challenge is even greater as we realize that in today’s world all significant processes providing value to customers flow through many independent firms.
- Who can see the whole process and move it steadily toward perfection?

