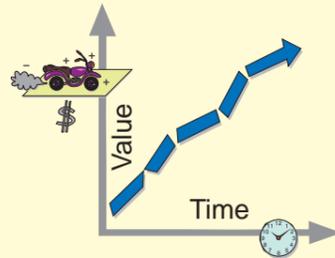# The Value Model

Value

The contest for customers and technological development forces in motion a continual increase in value for all products and services. The ability of your organization to maintain the pace in the race and create an unrivalled level of value for its customers will determine profitability and growth.

Customer value is defined as the relationship between the satisfaction of needs the customer gains from a product and the total expenditure in time, money and other efforts generated by obtaining and using this product.

$$\text{Customer value} = \frac{\text{Satisfaction of needs}}{\text{Use of resources (time, money, efforts)}}$$

To provide a working tool, the concept of customer value within an organization must be turned into a concrete, measurable element that can be put to practical use guiding an organization towards success for customers, employees and shareholders alike.

Flow

The project portfolio is like a container to be filled with a good balance of different types of activities. Deficiencies in the product development process resulting in fire fighting activities will always have the highest priority. The project portfolio is therefore filled from the bottom and up with long-term initiatives at the top. The quality of the work performed at the top levels will in the long run decide the size of the lower levels. If the fire fighting activities become too many too little room will be left over for long-term initiatives.

The total number of projects that can be carried out is limited by the resources and the knowledge at your disposal. The flow lead-time for a project is the sum of the time when value is supplied, and the idle time when no value is supplied. The idle time is a function of the planned capacity utilization in product development, the variability in work volume as well as the variability in process capacity. The following equation defines the connection:

$$\frac{\text{Queue time}}{\text{Process time}} = \frac{Sv + Sc}{2} \cdot \frac{\text{Pl Cap Util}}{1 - \text{Pl Cap Util}}$$

Lean Product Development

Lean — Aligning people to an optimal sequence of actions that provide maximum value for customers.

Product Development — Product development is the set of activities beginning with the perception of a market opportunity and ending in the production, sale, and delivery of a product or service.

Lean Product Development can be divided into four main activities:
- discover the value opportunity
- develop a product that satisfies the customer needs of the value opportunity
- communicate the value of your product to the customer and close the deal
- produce and deliver the product to the customer.

Responsibility for these activities rests with different functional departments in your company. Deficiencies in the way these activities are executed leads to losses of customer value. Some of these deficiencies will result in fire fighting activities. The objective is to create a company culture in which the striving to attain unrivalled customer value and reducing waste is deeply embedded. A common mind set needs to be developed if lean is to be realized and not just remain a cliché.
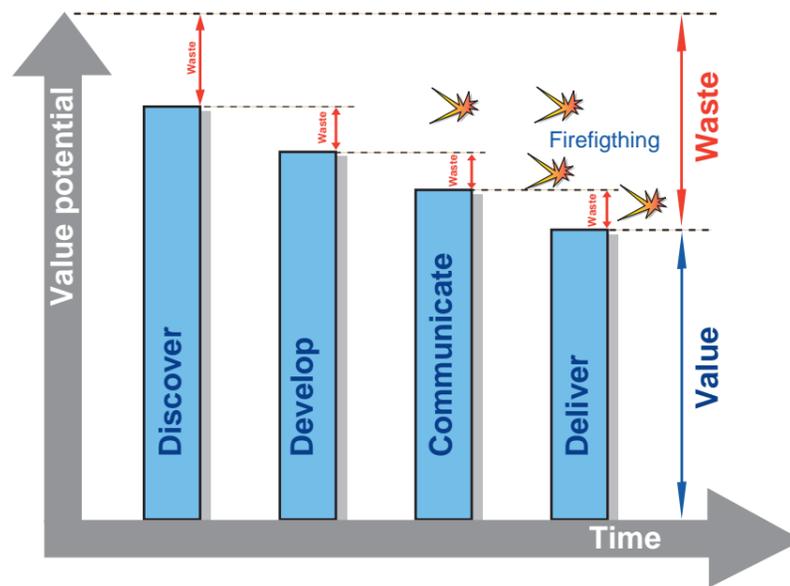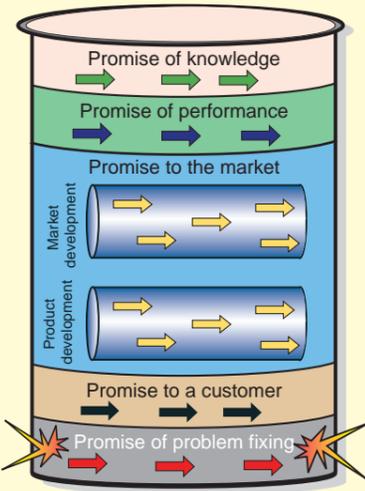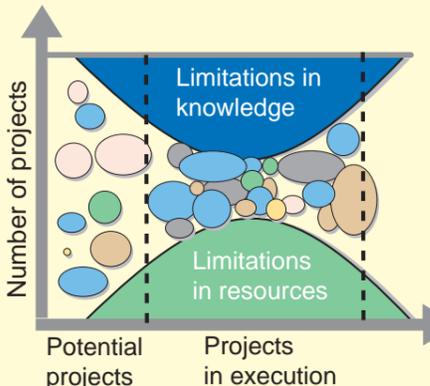

The work involved is simplified and made more effective if your organization can release itself from traditional ways of thinking, in the form of technical solutions. Instead of getting bogged down in concrete and technical details, focus must be placed on defining what the product has to do, from a customer perspective. A higher, abstract level is required in order to see the whole picture. The information to be managed extends through the four different levels of information concretization called needs, functions, solutions and processes. This demands a new way of thinking and a new mind set that everybody involved in product development must embrace.

Waste

Waste is anything that does not add value to the customer. The goal of lean product development is therefore to eliminate waste. Lean defines the seven most common types of waste as overproduction, transportation, waiting, processing, inventory, unnecessary movement and defects. In product development most of the waste is related to the creation, communication, documentation and management of information. Following table gives an overview of waste that is influenced by product development:

Type of waste	Potential	Tools or methods
Waste in the product	**High**	**First wave lean**
• unneeded functionality • too many parts • unnecessary tolerances		• TQM • Robust Design • Six Sigma
Waste in the process	**Medium**	**Second wave lean**
• rework • waiting times • information losses		• Visual Planning • DMAIC • Pulse rooms
Waste in the business	**Very high**	**Third wave lean**
• loss of market shares • loss of company image • low profit margin		• Value engineering • Innovation • Money bags

Pull

If you push to many activities into the product development system you will:
- create bottlenecks
- increase the fragmentation.

Firstly, tasks will pile up at the bottlenecks leading to increased lead time. At worst the bottlenecks become so tight that efficiency within the system reaches unacceptably low levels.

Secondly, every transition from one task to another is an adjustment that demands resources. Many individuals currently working within product development complain about being constantly torn between one task and another. Reaching the end of the day without having had any time over for value-creating activities.

Lean is to some extent about learning to "see". Many of the tools and methods are therefore about visualization as a mean to replace a push condition with pull. Create an informative workspace where you can see how the projects are going at a glance and where downstream activities pull the result from upstream activities. At company level you need to see all the projects, bottlenecks and the degree of fragmentation. At project level it should be organized around the three viewpoints of time, task and team. Much of lean is plain common sense. However common sense is not necessarily common practice.

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