

# Is the Value Concept a Valuable Concept for Information Systems?

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Keywords: Value, Value Chain, Supply Chain, Lean.

Abstract: The creation of value and value chains are popular terms in business management literature. The question is what is exactly meant by value, and what the usefulness of the concept is for operational information systems. In the paper different uses of the term value will be analysed. Subsequently the creation of value for customers will be analysed from a business point of view. The conclusion is that operational processes deal with specifications and norms, which are themselves translations of a background notion of value for the customer in combination with value for the company itself.

## 1 INTRODUCTION

VAT. Value Added Tax. This fiscal construct shows in its simplicity the core of two aspects of the concept of value in enterprises: value is a financial concept and value is known after the fact. The principle of taxing added value is very simple: an enterprise pays tax over the difference between the total amount billed by its suppliers and the total amount billed to its customers per period of time. The difference between these two values is assumed to be the added value over this period. The present inventory does not factor into determining the added value.

However, when the same tax authorities tax the profits of an enterprise, the situation is very different. In this context it is of great importance to correctly value the present inventory and all other assets of an enterprise. In speculative trade an enterprise can exclusively buy and stockpile goods during a given period, without selling anything, but still make a profit if the inventory is valued at a higher price than the purchase price + purchasing costs + storage costs (e.g. when the current price of the goods is higher than the purchase price paid, this principle forms the foundation for futures trading).

These two fiscal points of view indicate the two different principles of judging value. In the case of VAT only the value of actual sales matters, and this can be objectively determined (although tax consultants can make a nice profit by creatively using fiscal entities and transnational intercompany constructions to 'optimise' VAT taxations). For the

determination of profits both tangible and intangible assets have to be valued within the boundaries of a framework of fiscal rules (again, subject to 'optimisation' by tax consultants).

In the literature about the creation of value and analysing the value chain in a supply chain the same basis seems to be used as that underlying the fiscal principle of VAT. The value of a good is the sum of the costs and the added value is the difference between costs and revenues. At the same time one would expect this approach to add something new to the time-honoured questions of costs and the optimisation of business processes (increasing the efficiency, producing at the lowest cost per produced unit). A reductive view of value as the margin between sales and costs do not address the value-related issues of the attractiveness of the products for the customers before the sales, and the satisfaction of the customers with the products afterwards. Indeed, customer attractiveness and customer satisfaction is an important issue in e.g. the balanced scorecard approach.

In the last few decennia there has been a lot of attention for the efficient set up and execution of business processes in its entirety in management science. This used to be different (or less explicit), the focus used to be much more on performing individual tasks as efficiently as possible. Think of concepts as economy of scale and specialisation or the model of an assembly line as an ideal image of the production process. The transition from "task thinking" to "process thinking" coincides with the analysis of Japanese success stories (that were in

turn based on an analysis of Western success stories!) and with the attention for the added value of a process step and the so-called value chain.

Nowadays, the term “value” is used many times and in many ways in the literature about organisations and business processes. It is after all a “valuable” term, it has a very positive connotation. Few people will campaign against the addition of value in business processes, or against eliminating activities that do not add value. At the same time, this is the weakness of the term: what does someone mean when he speaks about the value of a product or service or about the value chain? And if someone discusses the addition of value, what is it that the value is added to? For whom is the value added? Packaging and labelling of crates do not add value to the product itself, but contribute to the efficiency of logistics. Who are the stakeholders in the value chain?

The main part of this paper will discuss the possible role of the value concept in the design of an enterprise information system. How can the value chain approach help in the modelling of business processes, and what kind of information should the information system provide to monitor the value chain? More specifically, how can the value chain approach help in the daily operational control loops in the primary processes?

A prerequisite for the analysis of the possible contribution of the value chain approach is the analysis of the value concept itself. This will be done in a short discussion of the literature about the value chain. Here, three different scopes will be identified: the strategic scope, the business process management scope, and the operational scope.

## 2 VALUE CONCEPTS AND VALUE MEANINGS IN LITERATURE

Among its meanings of ‘value’ the OED lists: (1) “That amount of a commodity, medium of exchange, etc., considered to be an equivalent for something else; a fair or satisfactory equivalent or return” (2) “The material or monetary worth of a thing; the amount of money, goods, etc., for which a thing can be exchanged or traded” (3) “The extent or amount of a specified standard or measure of length, quantity, etc” (4) “valour” (5) “The worth, usefulness, or importance of a thing; relative merit or status according to the estimated desirability or utility of a thing” (OED, 2007). The first two entries

relate to the exchange value or more specifically the monetary value of a good, the third entry is the objective meaning of the value according to a specific measurement scale while the final entry relates to the utility of a good.

An example of a very reductive application of the value chain concept is the work of Markus Baum about the value chain in the service industry. He cites the definition of Kaplinsky and Morris of the value chain “The *value chain* describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use.” (Baum 2013, Kaplinsky and Morris 2002), and subsequently analysis the value chain in consulting firms exclusively in terms of a costing model. The value chain approach is used for the classification of the activities in the consulting company as either value adding (billable) or value enabling (non-billable), without any reference to the value of the service to the customer.

In Western literature the emphasis is on the first two meanings and the analysis of the value chain is primarily concerned with cutting costs to improve the competitive position and the financial results. In Japanese literature the emphasis is much more on the final meanings and the focus is on avoiding waste of any kind to improve the quality of the processes. The latter can in part lead to a direct improvement of the financial results, but will always be beneficial to the continuity of the enterprise.

For further analysis of the concept of value it is useful to distinguish a number of scopes where the value concept is employed. Firstly the strategic scope, where entrepreneurs together with internal and external strategic consultants analyse and design corporate strategies. This is the field of Michael Porter, who devised the concept of the value chain as an instrument for strategic analysis. The unit of analysis is the business unit, and Porter states “differences among competitor value chains are a key source of competitive advantage” and “the value chains of such subsets [variations within a business unit for different items] of a firm are closely related, however, and can only be understood in the context of the business unit chain” (Porter, 1985).

Secondly we have the process scope, where business processes are analysed, modelled, and perhaps reengineered. Remarkably, in the seminal work of Business Process Reengineering no mention is made of the value chain. Here reengineering is

defined as “starting over” and rejecting conventional wisdom and to keep processes simple “in order to meet the contemporary demands of quality, service, flexibility, and low cost” (Hammer and Champy, 1993). Later on, in *Beyond Reengineering*, Hammer discusses an exhaustive classification of all work activities in three types: (1) value adding, (2) value enabling, and (3) waste (Hammer, 1996), but the book contains no further use of the value chain concept. In *Value Stream Mapping*, Martin and Osterling propagate the value stream approach. The relationship with the value chain concept is not discussed, despite the semantic kinship of the two concepts. Like the value chain, the value stream is about the added value of the business processes. Unlike the strategic focus of the value chain, the value stream focuses on business processes and workflows. A value stream is defined as “the sequence of activities an organisation undertakes to deliver on a customer request” (Martin and Osterling, 2014). Moreover, an extended value stream includes those activities that precede or follow on the actual customer request, and the value-enabling value streams support the delivery of value. In other words: the same classification of work activities as we find with Hammer, and a strong connection to the lean movement as initiated by Womack and Jones.

The third scope is concerned with the application of the value chain concept in business modelling for IT systems, for example in the *Business Process Management* by Mathias Weske. First, he discusses value chains as “a well known approach in business administration to organize the work that a company conducts to achieve its business goals” (Weske, 2013). In the next chapter, Weske presents a hierarchy of the value system, which is composed of value chains, which in turn are composed of business functions. Instead of the decomposition of high level business functions, this approach decomposes the high level business processes, as represented by the value chain. The business functions themselves are further decomposed in business processes and in the next step the business processes are decomposed in activities.

All scopes have two characteristics in common: (1) process orientation and (2) ambiguity or non-specificity of the value concept. It is clear that activities in business processes should contribute to the adding of value to products either directly (value adding activities) or indirectly (value enabling activities). The meaning of the term value itself, however, is mostly lacking. From the literature it can be derived that the meaning of value as in “exchange

value” is always present. In value adding activities the assumption is that the value of labour and other resources flows directly into the products. In value enabling activities the value of labour and other resources is transferred later on to the products. The value of the products is expressed in the price the customer pays for the product, but the intrinsic value of the product is its usability and attractiveness with regard to the consumer.

### 3 USABILITY OF THE VALUE CONCEPT

#### 3.1 Analysis of Value Enabling Activities

The strategy of a company determines on which markets the company will be present, in which role, and with which products. For the development of a new strategy, or for the evaluation of an existing strategy, Porter’s value chain approach might be used, amongst other approaches. The resulting strategy will be expressed in a number of quantitative targets and a number of high level organisational norms. The latter will reflect the non-quantitative values that the company wants to create for the customer and for all other internal and external stakeholders.

The targets and norms will have to be translated into operational facilities, specifications and procedures. These are value enabling activities in the company. Activities can be differentiated according to their nature and horizon. Bigger investments in production and storage facilities have a horizon of several years; minor changes of the physical layout and changes in the organisation of the business processes have a typical horizon of a month up to a year; small changes in the organisation of resources might have a horizon of several days or weeks. The common factor in all these activities is their orientation on expected volumes of production, and on expected variability and volatility of demand. These activities are bigger or smaller investments in intangible assets, in order to improve the effectiveness and efficiency of the primary processes (just as a reminder: a fixed asset represent a value on the balance sheet of the company). Sound management requires that the presuppositions on which these value enabling activities are based are carefully checked before and after, in that sense creating a control loop to be supported by the enterprise information system.

Apart from availability of the physical facilities and the organisation of the business processes, a further prerequisite for the actual execution of value creating activities is the determination of the range of products, the definition of each product, and the specification of the production processes, the raw materials and the resources. These definitions and specifications will bring forth further operational norms for inbound logistics, operations, and outbound logistics; and a calculation of the cost price. Product development, process development, and the marketing of the products are all value enabling activities. The marketing function (often both in a marketing department and in actual sales) translates the strategy in actual products for actual markets, and specifies the product qualities and possible ('tolerable') cost prices. This is the translation of value for the customer into specifications and norms for production.

Note: obviously, the marketing function often clashes with the production function, and in a healthy company product and process development is an iterative process in which marketing, sales, production, and quality assurance functions are involved. Nevertheless, the main point is that the marketing function translates perceived customer value into product specifications.

### 3.2 Analysis of Value Creating Activities

In the daily operation, actual products are produced, shipped, and billed to actual customers. The organisation of production might be make to order, make to stock, finish to order, and many other possibilities, but the bottom line is the fulfilment of customer orders. In most situations, the balancing of demand and supply is a major challenge. The simplest model is pure make to order: the primary processes are only processing actual orders, and all resources are made available on demand. However, the normal situation is that primary processes are executed based on expected demand. When the expectation is correct, customer orders can be delivered quickly and the company has minimal stocks. A mismatch of expectation and actual demand results in bigger stocks and later delivery of customer orders. Clearly, elements of customer value are involved here. Shorter lead times are better for the customer, and stocks cost money and erode profits. The ideal situation for the customer is a storage facility nearby, and his demand can be fulfilled immediately (indeed, this involves both the Just-In-Time concept and the Vendor-Managed-

Inventory concept). These customer values are formally or informally translated into a kind of service level agreement, where lead times and delivery frequencies are specified. Production planning will seek the balance between (1) fulfilment of customer orders within the specified lead times, (2) minimal stocks; and (3) maximum efficiency. Production itself must be efficient and it must deliver quality (as specified).

Given all the talk about value creating processes, it is a strange phenomenon that conventional information systems use concepts such as Demand Management and Sales and Operations Planning (Vollman e.a. 2005). Demand and sales are externally triggered by the market. What is managed and planned by the company is the availability of products for the markets, given the variability and volatility of the markets (Packowski, 2014). Rigid "sales planning" will yield suboptimal responses to market forces and cause less availability of products and higher costs in the supply chain.

### 3.3 Management and Control of Value Creating Activities

The value creating activities are controlled by two objectives: creating value for the customer, and creating value for the company itself (margin). The direct indicators for the creation of customer value are the checks on the quality of the product, on the quality of the production processes, and on the quality of the delivery processes. The direct indicators for the creation of value for the company itself are production data about inputs and outputs for the various process steps. In the daily execution of the primary processes, the creation of the customer values within agreed and reasonable boundaries have priority, and operational costs come in second place. However, all deviations of production costs from the standards outside a reasonable bandwidth should be explained, and all explanations should be categorised and kept for periodical analysis. Any deviation is an indicator for either a faulty specification or norm, or some unforeseen irregularity in the outside world that forced an adaptation in the primary processes. Small but regular deviations with internal causes might be more important than big and irregular deviations from outside causes. Incidentally, all deviations should be explained, not only the negative ones. When consumption of resources is below the specification, it might indicate that the process was not correctly executed, or data was not correctly captured, or that under certain circumstances fewer resources are needed than specified. In all cases, the

deviation should be explained.

Over a longer period of time, however, the value for the company itself has priority in the evaluation of the deviations from the specifications. Analysis of the differences will suggest causes in one or more of the following categories: substandard execution of the primary processes themselves, too many disturbances of the primary processes from the ordering processes within the agreed and reasonable boundaries (caused either externally or internally!), or too many unforeseen or unallowed disturbances from the ordering processes. The company will act to improve the internal processes, to adapt the specifications and norms, to agree different terms with the customer, or to adapt the ordering processes.

Besides consumption and net output all kinds of waste will have to be measured as well as an integral part of the capturing of production data. The OEE approach forms a good example of this for individual production lines (Hansen, 2001). For non-line processes all kinds of stoppage, rejection, degradation and waste will have to be measured as well. By also recording the cause (no resources available, no removal of output possible, machine defects in the line, insufficient quality of raw materials) and verifying these causes a continuous PDCA cycle will come into effect. For example consider production losses due to rush orders. The first step is specifically writing the additional set up times against this specific rush order. The second step is checking where the rush order originated from: internal laxity (by whom?), or a late order by a customer. When it concerns an incidental rush order by this customer and this falls within the commercial agreements, then there is no problem. When the same customer keeps on placing rush orders, sales will have to take action with this customer. When continuously incidental rush orders by different customers lead to process losses that are not taken into account in the cost price, then action will have to be taken on the production side, on the commercial side, or both. In each of these considerations and actions "value for the customer" plays an essential part by its influence on the price of the product and, especially, by its influence on service levels, but these are background norms. Human considerations and interpretation leads to the establishment of standards for the production, and deviations from these standards will have to be noted and explained. Individual employees might do valuable things for creating value for the customer by dealing with disruptions, at the expense of extra consumption of resources. These disruptions can

originate from the customers themselves (last minute changes in orders), from internal departments upstream or downstream, or from suppliers. The more the enterprise is able to deal with disruptions and to dampen their effects, the more the enterprise will contribute to the stability of the processes of its customers, and in this way create value for them.

### **3.4 Management and Control of Value Enabling Activities**

The value enabling activities are instigated by a set of expectations or plans of future events. Management of the value enabling activities requires a continuous check on the actual course of events and on the actual contribution to the creation of value. Signs of possible drift, slow and continuous changes in the business environment, should be observed carefully, because an accumulation of tiny changes under the radar might have a big impact. More important, the value enabling activities should be checked continuously for their contribution to the value creating processes. It means searching for patterns in the deviations in the daily operations, and searching for operational improvement. The deviations might be found either in defective products, processing problems, or meeting customer demands.

Each and every check, however, deals with specifications and norms. Value in itself is not measurable, only its translations in specifications and norms (and an expectation is an implicit, unexpressed, norm). As the creation of value for both the customer and the company itself is the ultimate objective, a major management issue is the validity of the translation itself. A further issue is the way the organisation measures deviations from the specification or norm. A body mass index does not measure the health of an individual, it is just an indicator for health risks. A best before date does not represent the freshness of the food, it represents just an amount of days after production date as an indicator for freshness (under the assumption the product is kept in the right environment).

### **3.5 Margin Management**

Margin management is an instrument for managing both value creating and value enabling activities by monitoring the service levels in combination with the differences between normative and actual consumption of resources. The final outcome of margin management is ultimately expressed in the financial results (normative and actual). The real

value however lies in analyses of causes and explanations of deviations. Daily checks and daily questions about anomalies and differences keep the employees alert and provides valuable information to the “value enablers” about the primary processes as executed under pressure of reality (this is an example of elicitation of possible relevant differences between model and reality). Searching for patterns over time can bring trends to the fore that require adaptations in the way the primary processes are set up.

In analysis of deviations both causes and explanations are important. Cause and effect belongs to causal chains, “Y happened because of X”. Explanations have a different nature, explanations are about intentions and norms. The organisation of the primary processes and the specifications of products and processes are the cause of chains of events with input and output. A malfunctioning machine is the cause of an amount of rejected finished product. An unreliable forecast causes loss of net production time. A late customer order, however, might be the explanation of a late departure of a truck. Or the first order of a new customer can be the explanation of extra consumption of resources (the salesperson had emphasised that “first time right” was an absolute requirement for this order). To put it differently, explanations, not causes, give information about intended value for a stakeholder in the value chain.

Important is that margin management does not necessary operate on the level of the individual order or job. It operates on the level where production data can be captured meaningfully and reliable, which is often on a higher aggregation level than capturing the consumption of each and every resource per each and every job. For different resources different levels of aggregation might be used. E.g., quantities of raw materials, semi-finished products and finished products are captured per job, or output per job and input per line; labor is captured per department, energy is captured per area, and waste per line. In margin management this does not really matter for the management mechanism itself: just calculate the normative consumption on the aggregation level on which the consumption data are captured, make the comparisons, analyse the deviations, and record causes and explanations. Here again, value created is not the prime focus, but consumption service levels. The creation of value can be an important issue, but only in an explanation of a difference. A refinement of this mechanism is the capturing of losses (compared with the general norm) with cause and/or explanation as an integral

part of the primary processes, with checking of the actual differences afterwards.

### 3.6 Recapitulation

The concept of value has no place in an operational information system. It might be a very useful concept in the determination of the strategy of a company, but it has to be translated into concrete specifications and norms to be of operational use. Management should continuously check the translation of values in specifications and norms, and analyse the patterns in deviations. Operational people do not create value; operational people create products according to specifications and behave according to norms. Customer value and corporate value are the indirect results of the work of operational people.

However, norms and specifications may conflict. In these cases the behaviour of the employees in the business processes is no longer a routine of following rules, but values and priorities have to be weighed. It is here that the values for the customer and the values for the company that lie behind all the specifications and rules come into play. Both in making the judgement and in accounting for the choice afterwards, it is important that the values as perceived by the employee are made explicit and are evaluated. Just because the people in the primary processes have different information and are dealing directly with the products or the customer, they may shed a valuable light on the perception of value.

## 4 EXAMPLE: RETAILER

As an example case we consider a big retailer that operates nationwide and has a market share over 20%. The main product segments are fresh products with a short shelf life (meat, vegetables, fruit, bread), food products with a longer shelf life, dry grocery products, and non-food products. The operation of such a retailer is composed of the stores, distribution facilities consisting of distribution centres and transport from the distribution centres to the stores, and the supply to the distribution centres.

The category management department determines which products of which brands are carried at what prices, as well as the way in which the products are offered to the customer. The replenishment function can be located at the individual stores (ordering procedure) or it can be centralised (pushing of products to the stores). The

grocery and non-food products are always supplied by third parties. Fresh products such as bread or meat can either be supplied by third parties or produced by the retailer itself. Food products with a longer shelf life are usually supplied by third parties.

For the retailer as a company two primary values can be distinguished: the contribution of the different product segment to the financial results, and the importance and reputation of the product segment by the customer. The latter is a contribution to the pull of the retailer to get the customers into the store and as such is also a factor in the revenue of other segments. The former contribution has a direct financial nature and can be determined by the usual means (which have to a certain extent a discretionary component). The second contribution is primarily of a qualitative nature and has financial effects besides. The attractiveness and image of a retailer determine in part whether a customer is going to do his shopping there, thus contributing to the results. The attractiveness to the customer is determined by the presentation and availability of products in the stores and by the quality and price of the products. The responsibility for these aspects is located partly with category management and partly with the replenishment processes.

The replenishment function is supported by a number of logistic processes. Distribution logistics is a trade-off of on the one hand lead times, frequency and size of the deliveries and costs on the other hand. The shorter the lead times, the more frequent delivery can be and the lower the ordering volume, the better the replenishment process can be performed. However, the logistic costs will be lowest when the number of deliveries is as low as possible, when the utilisation of the capacity of the vehicles is as high as possible, and when handling costs in the preparation of the branch order, in order picking, and in transport are as low as possible. In planning the deliveries a longer lead time means more efficient processes in the preparation of the order fulfilment and transport.

The options for the consumer are determined by the number of products on offer and is expressed by the number of different articles, the different article variants (low cost, premium, organic, ...) and/or brands (national brands, store brands, no-brands) and the various packaging sizes. The other side of the coin is that sometimes the consumer cannot see the forest for the trees anymore and gets lost among the options. At this point the freedom of choice flips to a necessity of choosing and the diversity on offer can become a negative feature for the consumer. This is why the presentation of products is of such

importance in category management: a logical division of products with the right presentation both on the product itself and on the shelves helps the consumer to make a choice; a multitude of overlapping product categories with poor consumer information (such as unclear logo's) will deter customers.

Value for the customer of the retailer means an attractive shop, and full shelves with the right products. Who creates this value? Primarily the shop designer, category management and replenishment. What are the employees doing in the primary processes of the internal and external suppliers of the retailer? They produce the right products, not directly according to the wishes of the consumer, but by producing in accordance with the specifications. Part of the specifications are determined by the end product itself, and are meant to be appreciated by the consumer. Part of the specifications are determined by the logistic processes (both packaging and information issues), and contribute to lower logistic costs and a faster throughput. The first element contributes to value for money for the consumer and/or the profit of the retailer, the second element contributes to availability and freshness of the products, another value for the consumer. Evidently, as any healthy company the retailer strives for profits and market share. Consumer value is a means to an end. Perceived value is boosted by marketing campaigns, attractiveness is enhanced by sport sponsoring. A retailer is no charity institution, and talk about consumer value sometimes is quite hollow. What matters is that the retailer must provide value for money, and translates this abstract concept via category managements and replenishment functions in operational specifications and norms.

## 5 RELATED WORK

The "value chain" concept is strongly process-oriented, while at the same time the determination of value is strongly product-oriented. In the literature, the value of a product in a business sense is mainly seen as the difference between costs and revenue (and the costing model is considered unproblematic). On the other hand, the literature often discusses the creation of value for the customer. This means that the product has characteristics that make it valuable to the customer. The process approach of the value chain claims to analyse the business processes according to their contribution to the value of the product for the customer. This approach has strong

connections to the lean philosophy originating in Japan. However, there is a difference in emphasis: while the value chain analysis is primarily concerned with the contribution to value, the lean approach emphasises the avoidance of waste of any kind. This is an important distinction: the contribution of value looks at the difference between costs and revenues; the lean approach looks at all kinds of waste, regardless of value, in order to arrive at a product with the right characteristics. Both tend to take the usability and attractiveness for the customer for granted.

For the application of the value concept for operational processes two approaches must be considered, namely the supply chain approach and the lean approach. The supply chain approach is in part dealing with the same issues as the value chain concept, and the value chain could be described as encompassing the value chain. The problem with the supply chain, however, is the ostensible denial of the market mechanism. Take the following definition: "Supply Chain Management can be redefined as a strategic channel management of networks of business integrated together through information technologies and empowered to execute superlative, customer-winning value at the lowest cost through the digital, real-time synchronisation of products and services, vital marketplace information, and logistics delivery capabilities with demand priorities" (Ross 2011). A very ambitious and verbose definition, but what does it mean in our real world? Who are the actors, and what is the relationship between the actors? The supposition is that the actors are interdependent companies, acting for the greater good of the optimal supply chain as a whole. But, low level market-oriented questions remain: who orchestrates the supply chain? Which companies take the profit from the surplus value of the supply chain? Power relations between companies matter, and when a weaker company cooperates with a stronger market power, chances are that the weaker company is squeezed to the point of barely surviving (or pushed beyond that point). Co-creation of value is a very nice idea when you are the stronger partner, for the weaker partner it implies the denial of independent value creation for its own good.

The connection of the value chain with the lean approach is much more fruitful. But where the value chain talks about the creation of value, one of the main focal points of the lean approach is the elimination of waste. Another main focal point is the quality of both process and product. These two forces result in the effective and efficient production of the specified products. Provided that the specified

products are of value for the customer, the creation of value is unavoidable outcome of the lean process.

## 6 CONCLUSIONS

The concepts of "value" and "value chain" have been introduced by Porter as an approach to support strategic decision making by the enterprise. Afterwards, these concepts have been applied increasingly to the analysis of business processes, with a strong connection to the ideas of the lean approach. The concepts seem to focus primarily on financial issues, translated to results as the difference between costs and revenues. This inclination to cost aspects has two implications for the usability in an operational context. Firstly, people in operational processes are not primarily engaged with cost as such, they are doing their job in an effective and efficient way. Both the organisation of the processes and the execution of the processes contribute to low costs, but people are accountable for working according to specification and for avoiding waste of resources. The second implication is that the usability of the products is not determined by the processes themselves, but by the product specification. This is the area of product development and marketing, where the issues of offering the right products for the right price for the target markets are addressed.

An important aspect of the value chain is the interaction of the company with the customers. In this context, the primary processes should be able to adapt to some degree of variability and volatility of demand. To which degree is determined by the market strategy of the company, and translated into operational norms for the primary processes. Again, value for the customer is decoupled from the operational processes via operational norms. Operational people are dealing with these norms and not with their own individual perception of value for the customer (unless the company attributes this specifically to some employees).

The value concept is a fuzzy concept, in the sense that the concept has different meanings that are used in a fuzzy way. One core meaning is practically useless as it will not add value to any discussion: value as the margin between cost and revenues. Another core meaning is usability for the customer, and this is an important notion (and has always been so). The value chain seems to be using this notion, but does not clearly say so. In determining the strategy of a company this meaning of value (and value chain) might well be used.

In the analysis of the processes and activities within the company the classification of value creating, value enabling, and other (wasted) activities can provide a useful vocabulary. For the actual activities, however, the value notion is no more than a background notion. The 'usability for the customer' must be translated in specifications and norms, that are the guidelines for the execution of the primary processes. In resolving conflicting norms in the execution of the primary processes the value for the customer (and the value for the company) might be factored in, both in making choices in the process and in defending them afterwards.

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