

VALUE PROCESS AND BUSINESS PROCESS IN E-BUSINESS MODELLING¹

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Abstract: When almost anyone in business can answer what their value proposition is, not all of them will be able to answer what their value process is. The number will even vary of who can answer what their business process is. But it is necessary to know the 'value processes' of the proposed value based on which 'business processes' are derived. The ability to incorporate between the value processes and the business processes is one of the crucial factors that play for the companies very significant roles to be competitive in today's challenging market. A number of research works can be found on value creation and value supply but none of them clearly explains the complex relationships between the value process and the business process or the importance of incorporation between these two in e-business modelling. In this paper we clearly define the value process and the business process and show the depth of relationships and the importance of relationships between them in e-business modelling with an illustration.

Key words: E-business model, Value, Value proposition, Value process, Business process.

1. INTRODUCTION

Business modelling is already a widespread term though it is considered that only some views of business have been investigated. The ability to utilise advanced technology for modelling, analysis and simulation of various aspects of ever-changing businesses has made a significant

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contribution to the way businesses are planned and operated these days. It is believed that at this stage unambiguous and well-defined models exist only for several narrow business areas, but wide and comprehensive models are still very informal and generic. Moreover, most of the modelling ideas of e-business are hardly understood by the stakeholders when articulated just by words. It is important for effective business decision making to have clear and concise modelling that allows the extraction of critical values from business processes and specifies the rules to be enforced accurately. Therefore, it is necessary to have clear ideas about value and value proposition for each and every business. Traditionally a business has been viewed as “the processes composed of value-adding activities”, and the output of organisations’ activities are considered the “value to the customer” [29]. But we argue that the value to a customer should be everything including products and services that relates to the satisfaction of customer’s needs. It can be a ‘content value’ or ‘context value’ [32] or can be a combination of both. Before, values were mainly offered to the customers as the forms of product or service [27]. But now values to the customers do not simply mean providing product or service rather something that satisfies what customers want with product or service though product or service is the main tool for providing value to the customers. Similarly, different researchers have defined value proposition in different ways, such as, Keeney [19], Kambil et.al. [18], Petrovic & Kittl [25]. Value propositions define the relationship between what a supplier offers and what a customer purchases, by identifying how the supplier fulfils the customer’s needs across different customer roles [18]. It describes the benefits and therefore the value a customer or a value partner gains from the business. We define value proposition as the description of the value that a product, service or process will provide a customer with.

Along with the value, the value process and the business process perform very important and significant roles to the successfulness in the competitive market. A value process means exactly how the value was processed by one actor that was required by the other to fulfil the demand. A value process includes the process of anything that contributes as part of the satisfaction of the customer whereas a business process means the processing of each value unit which is the detailed total number of activities and resources required to deliver a specific value. Devenport [9] defined business process as “a structured, measured set of activities designed to produce a specified output for a particular customer or market”. In other words, a business process is a collection of related structural activities that produce a specific outcome for a particular customer; or a business process is a set of logically related business activities that combine to deliver something of a value (e.g. products, goods, services or information) to a customer. Both the value

process and the business process are important in the sense that the value process guides the business process and the business process supports the value process. The efforts of a company that focus on the value to the customer can be the appropriate strategic alternative in that it can capitalise on opportunities and mitigate threats of an e-business environment, as well as preserve strengths and offset weaknesses of organisation's value creating capabilities [15]. But it is still not clear from the previous research how the value process is related to the business process and what the importance of relationship between these two processes is in e-business modelling.

In the following section we discuss previous research works in this area. Section 3 analyses the requirements. In Section 4, we clearly define and explain the value process, the business process, their complex relationships and the importance of relationships in e-business modelling. Section 5 illustrates the realisation of our arguments via an example. Finally, we conclude and point out future work in Section 6.

2. RELATED WORKS

There is still no common understanding of various aspects of business models, such as, how a business model is defined, or how to develop a business model, or what the principles of modelling are. But based on the work of the key researchers in this area it has been found that there are some common elements that they consider in their modelling approach. Although none of the approaches demonstrates clearly the importance of the value process and its relationships with the business process in e-business modelling, most of them provide with one or many of the following common elements in their modelling: (i) definition, (ii) main components, (iii) taxonomy, (iv) designing tool, (v) changing methodology, and (vi) evaluation framework.

Timmers [35] was the first who defined the business model with respect to its architecture for the product, service and information flows, the benefits of the various business actors, and the sources of revenues. Weill & Vitale [36], being influenced by Timmers, suggest a subdivision into so called atomic e-business models, which are analysed according to its strategic objectives and value proposition, sources of revenue, critical success factors and core competencies. According to Rappa [31], the business model spells-out how a company makes money by specifying where it is positioned in the value chain. The modelling approaches by Petrovic et al. [26] and Auer & Follack [6] are very similar, who view a business model as a model that "describes the logic of a 'business system' for creating value that lies behind the actual processes". Tapscott, Ticoll and Lowy [34] provide a typology of

business models that they call b-webs. They identify five generic b-webs, which are classified according to their degree of value integration and their degree of control of the value creation process. In the methodology proposed by Afuah and Tucci [1], one can find a list of business model components, from the scope over pricing and the revenue source to connected activities and capabilities in this approach; but it is less clear how the value is delivered to the customer. The proposed business model by Gordijn and Akkermans [13] is based on *e³-value* methodology, which consists of building blocks that can be used to represent an e-business idea and a modelling process to model, analyse, and evaluate such an idea. Osterwalder & Pigneur [23] conceive the business model as “description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners.” They propose e-business ontology based on four pillars: product innovation, infrastructure management, customer relationship, and financial aspects. There are some more researchers who have worked in this area. Among them the research works of Amit and Zott’s [4], Hawkins’ [16], Stabell and Fjeldstad [33], Linder and Cantrell [20], Applegate [5], Hamel [14], Papakiriakopoulos et al. [24] are worth mentioning.

From the previous researches, what we notice is that different approaches on e-business modelling by different researchers are based on different constituents. Some approaches have considered product, service, and information flow as the major element whereas some of them have considered value or value proposition as the minor element of the modelling. But interestingly, some of the approaches even do not consider ‘value’ as one of the elements of the e-business modelling. Although some of the approaches considered ‘value’ as a minor aspect of their modelling but none of them clearly describe the significance of the value process and its relationship with the business process in modelling. We, in this paper, show the importance of the value process and the business process with their comprehensive explanation and the importance of their interrelationship in e-business modelling. As this paper mainly discusses the ‘value process’ and the ‘business process’ in e-business modelling, we believe it is necessary to refer to our published work [10] as background without addressing the details here due to the space limit.

3. REQUIREMENTS ANALYSIS

We argue that a competitive value should be considered as one of the most effective elements to be successful in the challenging market. It is considered that each act or activity (transaction) between the actors within a

business is driven by value. The activity might be between two actors within one organisation, or might be between two organisations, or might be between an organisation and a customer. In addition, the value can help companies to attract new customers, increase customers' switching costs and lock-in them in much more efficient and effective ways in e-business, making possible for sustainable strategic competitiveness. That is why we argue that the value plays one of the most significant roles to be successful and it should be considered as a major aspect for modelling. We believe that the supply of value by one actor is based on the value requirements of another actor. Although IS/IT and e-business have a very strong relationship as IS/IT capabilities support e-business processes a great deal and IS/IT is viewed as more than an automating or mechanising force to fundamentally reshape the way a business is conducted nowadays but the thoughts of both the value process and the business process do not differ much between traditional businesses and modern e-businesses except the differences in the business process activities.

The nature and types differ from business to business. Therefore, information for each business varies too. To obtain the value process, value propositions need to be clearly defined by the company. Moreover, each company must be able to provide some attribute information regarding its business strategy, such as, type of revenue, source of revenue, number of actors involved, product or service types the company sells, etc. All operational information of the business also must be made available by the company to derive the business processes of each value unit.

4. ROLES OF TWO PROCESSES IN MODELLING

To analyse the particular activities through which companies can generate competitive advantages it is useful to identify the chain of value creation activities of the business. But before processing the value, the organisation needs to decide what value is to be processed which means the value proposition needs to be decided before value processing. Figure 1 shows the logical positions of value proposition, value process, and business process. We believe that the value proposition sits on top of the value process, that is, the value proposition is required to derive the value process, and similarly, the value process sits on top of the business process, which means, the value process is required to derive the business process.

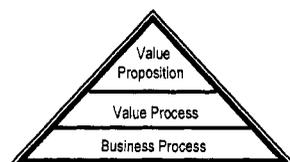


Figure 1. Logical positions for a value.

Albrecht [2] provides a useful classification to map customers' needs that we think should be considered when deciding value proposition. It is not always easy to decide about the value propositions as sometimes potential customers even do not know what exactly they want. Therefore, strategic managers may have to go through the process of questionnaires and interviews, and if necessary, any other innovative ideas to find out about the customers' needs. Even if the customers' needs are known the organisation needs to investigate how successfully that product or service is going to contribute to the customers' total satisfaction and how preferably the customers are accepting their value compared to the competitors'. Once the value proposition is identified the next step is to get the value processes followed by the business processes.

4.1 Value process

4.1.1 Background

Behind the value proposition, there is a process of how to fulfil and support the proposition in the sense that the value is created. The process is not the business process that describes how the business operates physically; it rather depicts a value process required for the value completion. Porter [28] introduces the value chain as a tool for developing competitive advantages. Stabel and Fjeldstad [33] extend the idea of 'value chain framework' of Porter and Millar [29]. They extend the idea with the 'value shop' and 'value network'. The 'value shop' depicts the process of value creation of service providers and the 'value network' specifies the brokerage and other intermediary activities. But it is always crucial on how to process the value that is to be delivered to the customer.

According to our approach, there are two elements in the value process - value addition activities and value creation activities. Value addition activities are activities that are required to add some value to the final value indirectly whereas value creation activities are the activities that are required to create some value to be added to the final value directly. A set of such value activities are performed to form the value process. The process of materialisation of each value proposition is divided into units based on the number of activities of value creation and value addition required to create the value completely. The number of units will vary from value proposition to value proposition, product to product, organisation to organisation. The relationships of these units vary too. Some of the units might be related in a very simple way whereas some others might be related in a very complex manner. The above two types of activities are classified into two groups:

external activities and internal activities. External activities include value addition activities and value creation activities that are carried out outside the organisation's environment; and internal activities include value addition activities and value creation activities that are carried out inside the organisation's environment. Figure 2 symbolises the value process and the business process by showing the relationships between value creation and value addition units.

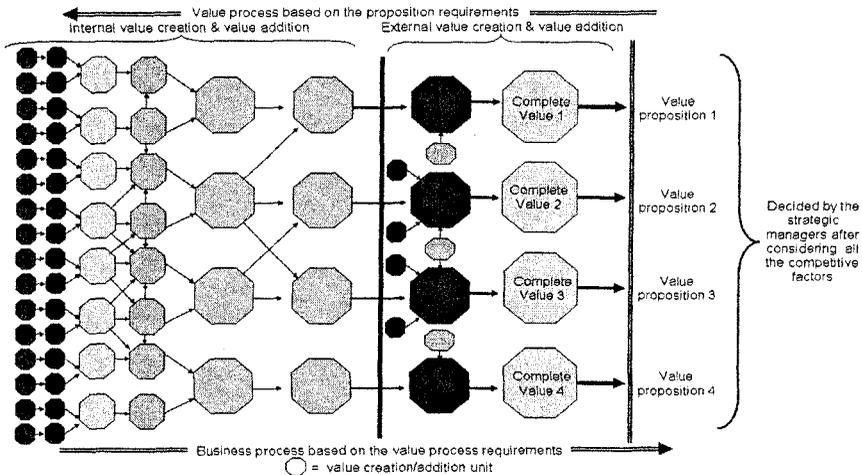


Figure 2. Value creation and value addition processes.

4.1.2 Why value process in modelling?

There are number of reasons why we need to consider the processing of the organisation's value in business modelling although reasons will differ from value type to value type, business activity to business activity, organisation to organisation, and depending on organisational focus and requirements. But we believe that commonly the main reasons or the drivers behind the value process inclusion in modelling are a combination of the following:

- The need to evaluate the customer satisfaction;
- The need to evaluate the business process efficiency;
- The need to evaluate the efficiency of the human resources; and
- The need to evaluate business practice as part of the overall development of the business.

The evaluation of the customer satisfaction, the business process efficiency, and the human resources efficiency is extremely important to measure the overall development of the business. The results from these evaluations in combination indicate the success rate of the overall business.

The success rate of the business helps managers to take measures for the development of the overall business.

4.2 Business process

4.2.1 Background

According to Davenport and Short [8] business processes have two important characteristics: (i) they have customers, internal or external, (ii) they cross organisational boundaries, i.e., they occur across or between organisational subunits. One technique for identifying business processes in an organisation is the value chain method proposed by Porter and Millar [29]. Processes are generally identified in terms of beginning and end points, interfaces, and organisation units involved, particularly the customer unit. Processes may be defined based on three dimensions [8]:

- *Entities*: Processes take place between organisational entities. They could be Inter-organisational, Inter-functional or Inter-personal.
- *Objects*: Processes result in manipulation of objects. These objects could be Physical or Informational.
- *Activities*: Processes could involve two types of activities: Managerial and Operational.

In relation to our approach a business process means the processing of each value unit which is the detailed total number of activities and resources required to deliver a specific value. These activities are normally performed by business actors who are involved in the business. To be competitive in the market, the following types of questions should be answered once the value is delivered to find out the efficiency of the business process:

- Did the supplied value fulfil the demand completely?
- Did the supplier use full capability to supply the value?
- Was the value supplied equal to the value proposed?

4.2.2 Why business process in modelling?

The need for the inclusion of the business process in business modelling is quite obvious as it delivers the required value generally proposed by the companies in their value proposition. Moreover, a business process not only processes the value for the customer but also represents real-time integration of the processes of a company with those of its suppliers, business partners, and customers. There are vital reasons why business process should be considered as one of the most important factors in business modelling.

Cousins & Stewart [7] identify five common drivers or needs behind the business process designing. They are, the need:

- To Increase efficiency;
- To evaluate business practice as part of an organisational development;
- To evaluate potential new business ventures or business offerings;
- To manage the organisation's knowledge resources; and
- To manage human resources.

Although the above needs are crucial in business process designing, we believe that they are also the main reasons why the business process should be included in modelling. We also believe that in addition to the four drivers of the value process (Section 4.1.2), the above five drivers are the main reasons why an organisation should analyse its business process carefully based on the requirements of the value process.

4.3 Relationships between two processes

For the completion of each value unit a value process is identified and then based on the value process, the business process is identified. After the value propositions are decided by the managers strategically, the company needs to look into the process of how the proposed value can be created. Similar to the value process, the process of creation of each value unit is divided into business process units based on the number of activities and resources required to create the value completely. The number of business process units varies from value unit to value unit, product to product, business to business.

As the companies exchange nothing but the value with the customers we believe that a business process is guided by the value process of an organisation as the processing of value provides the guidelines for the business process. A value process is how the total 'value' is completed whereas a business process is what resources and activities are required to create and deliver the value. A unit of value is created and supplied by one or more business process units. The business process is required for the value process. A value process cannot deliver a value without a business process and a business process does not know what to process without a value process. We also believe that wherever there is a value process, there is a business process. That is why it can be said that the value process and the business process are sometimes the two sides of the same coin. A value process is called in terms of the requirements of the value, whereas a business process is called in terms of the supply of the value. The total business process including resources and activities required is considered as the input, whereas the total value process that completes the 'value' is

considered as the output. Figure 3 shows the relationships between value process and business process.

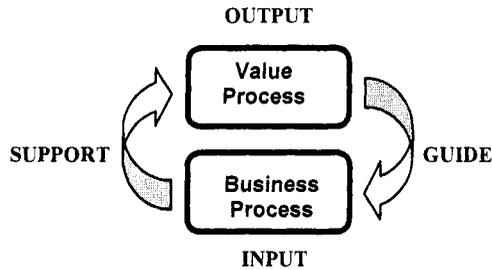


Figure 3. Relationships between processes.

A company produces the value based on the value offered to its customer. To produce and supply the value, the company needs value processes. Processing of values is only possible if there are business processes. Business processes can be completed without the proper guidance of value processes, but they will be inefficient and sometimes useless for the company. If there is no integrated relationship between the value process and the business process, and the business process is not guided and directed by the value process, the company will not be able to evaluate the customer satisfaction as well as the efficiency rate of the business process and the human resources. As a result, it will be difficult for the company to evaluate business practice as part of the overall development of the business.

So, what we see is that the value process and the business process are interdependent one on another. At the same time, one is inseparable from another. To get the desired output, we need to know the input. To provide with the proper input, we need to evaluate the output. Therefore, it is very important to understand the coordination and the relationships between these two processes to run a successful business.

5. EXAMPLE

We, in this section, provide an example of value processes and business processes of a company that sells more than one value to its consumers through the Web. Though the company sells multiple values to the customers, we, here, only show the process of a part of the specific value that contributes to the completion of a full value. Because the demonstration of the complex value processes and business processes of the whole value would be very space consuming. Moreover, we are not permitted to show the complex value processes and business processes of the company because of commercial in confidence. We only use the information made available by

the company intentionally. Please note that some of the information of the company has been modified here to simplify our example.

The company is one of the leading multi-brand online car purchasing service, providing new and pre-owned automobiles and related products and services. Customers can research, price, order, purchase, and insure a vehicle online through their service via Website that offers product information for nearly every make, model and style of automobile available in that country. The company gives customers all the tools needed to make an informed purchasing decision, including vehicle reviews, ratings, safety features and specifications. The company offers customers the choice of three distinctive options for car purchasing as value propositions: (a) purchasing a new car online through the company's award-winning Direct Channel; (b) being matched with a top-quality new car dealer of their choice via the company's Connect Channel; or (c) locating and purchasing a used vehicle through the company's Used Channel.

5.1 Value process

In this section we look at the company's offered values step-by-step and see how each of those values is processed. In other words, we look at the parts of the values that contribute to the completion of the values which we call 'sub-values' to see how each of the value is completed to be delivered to the customers. This company offers four main values to the customers of which one or many can be consumed. They are facilities to buy a car, sell a car, finance a car, and insure a car. In this example, we only focus on the processes of one value offered by the company which is the 'facility to buy a car'. If we look from the value process point of view we find that each of these four values is composed of one or many sub-values. Each of the sub-values is then considered as a value which is again composed of sub-values.

For example, in Figure 4, value *Buy a new car* is composed of four sub-values which are *Choose the car*, *Place the order*, *Complete the purchase with the dealer or with the Internet representative*, and *Pick up the car*. In the next stage, the sub-value *Choose the car* is considered as a value which is again composed of sub-values such as, *Research and compare the car* and *Select options and see prices*. Similarly, other sub-values are also considered as values which are constructed of some sub-values at a certain level till the bottom level of the value process. Please note that for the simplicity of the demonstration in this example we narrowed down our selection to just one sub-value to be considered as value in each level of the value process although in the same level sub-values for other values exist that are to be considered as values, too.

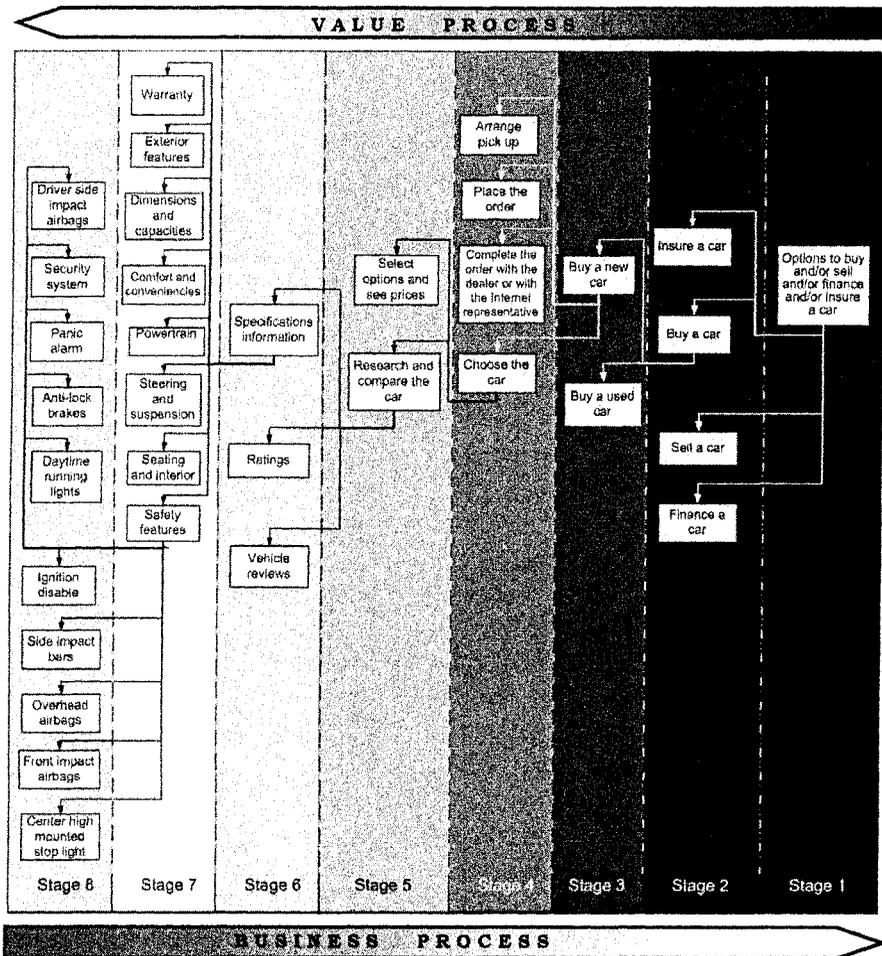


Figure 4. Process flow.

5.2 Business process

In the business process we look at the total resources and activities required to complete a specific value. Because a value cannot be created without business process and a business process does not know what to do without a planned value that needs to be created, there must be a business process for every value process and there is value process behind every value completion. Now in Figure 4, if we look at the value *Facility to research and compare the car*, we find that including some other business processes, the following main business processes are required to complete and deliver the value:

- Collect and store all the information about the features of the cars that consumers are concerned about such as, Price, Engine Specifications, Transmission, Fuel Economy, Warranty, Resale value, Safety, etc.
- Collect and store the information about vehicle reviews.
- Collect and store the information about vehicle ratings.
- Sort the information about the features according to the make and the model of the cars.
- Provide the online mechanism for the consumers to compare the cars based on features, reviews, ratings, etc.

Similarly, other values or sub-values also need business processes which are the value addition and value creation activities and resources required to complete and deliver the value. So the business process to complete and deliver the value *Facility to research and compare the car* would be the total resources and activities required to complete the processes mentioned in the above paragraph with bulleted points. Furthermore, the collection and storage of information about vehicle specifications involve internal and external value addition and value creation activities. To collect and store the information about vehicle reviews and ratings more external activities are required than internal activities whereas sorting of information involves more internal activities than external activities. In Figure 4, we only demonstrate seven levels of business process activities in brief by narrowed down our selection to just one sub-value to be considered as value in each level of the value process although in the same level sub-values for other values exist that are to be considered as values which involve internal and external business process activities, too.

5.3 Relationships between two processes

What we see in the above example is that none of the values or sub-values in Figure 4 can be delivered without value processes as well as business processes. Section 5.1 shows the value process of the *Buy a new car* value and Section 5.2 explains briefly the business processes for the *Facility to research and compare the car* value. We cannot show the detailed relationships of the business process units and the value process here because of commercial in confidence and the space limit but in brief we can see that the *Facility to research and compare the car* value cannot be delivered without the business processes mentioned in Section 5.2 while those business processes would not be there if there was no value and value process already decided. Therefore, we can say that the value process and the business process are interdependent and interrelated. They are also integrated parts of the business modelling and wherever there is a value process there is at least a business process and vice-versa.

6. CONCLUSION AND FUTURE WORK

We believe that the value process and the business process are the major elements of e-business modelling. We have mentioned a number of reasons in the paper to support this argument. As mentioned in this paper, a number of research works can be found on value creation and value supply but the complex relationships between the value process and the business process or the importance of integration between these two in e-business modelling are not clear from any of the existing approaches. We have, in this paper, with comprehensive literature review clearly defined the value process and the business process and demonstrated the importance of the value process and the business process in e-business modelling. We also discussed the complex relationships and the importance of relationships between these two processes and provided an example to illustrate how our arguments can be realised. Our further research will include the evaluation of value processes and business processes based on simulation.

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