How Logistics & Supply Chain can Create and Appropriate Customer Value[1]

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Abstract. Cost reduction in itself cannot be the goal for an organization; the real source for the organization's existence is to create customer value. It is therefore crucial that logistics and supply chain professionals not focus on efficiency but also contribute to value creation and, thereby, to the firm's competitiveness.

To gain a better understanding of customer value, a customer value matrix is introduced based on two leading concepts. Firstly, the value as perceived by the customer, which is the difference between the perceived (tangible and intangible) benefits and the perceived sacrifice. Secondly, the customer perceived value has three distinct temporal positions, namely pre-purchase, transaction and post-purchase.

For demonstrating how (net) total value can be created, a model with three supply entities (customer, firm, and suppliers) is discussed. This model is used to demonstrate that in essence there are five ways to create (net) total value. Furthermore, it is argued that value creation (VC) and value appropriation (VA) should always go hand in hand. Three forms for VA are reviewed, namely value pricing, relationship building and learning.

From the analysis, three conclusions for logistics and supply chain professionals are derived. Firstly, the view of customer value must be extended far beyond the traditional transactional dimensions. Secondly, an in-depth knowledge of the entire customer journey is imperative. This requires close cooperation with Marketing & Sales colleagues and frequent contacts with customers. Thirdly, the concepts of customer value, the firm's shareholder value, employee value and supplier value are all related and collectively they constitute the net total value created. Engagement of the four stakeholders is the key enabler of VC as well as VA. For this reason collaboration with all the stakeholders like employees, suppliers, customers and shareholders is paramount.

1. Introduction

When reviewing their activities, the usual objective of any firm is to "create value and remove waste". Within this objective, *waste* is typically seen as "anything that does not add value". In the area of Logistics & Supply Chain, waste is frequently identified with cost, so that the typical objective in these fields is to be as cost-efficient as possible. In fact, it sometimes appears that logistics and supply chain professionals are preoccupied with their drive towards efficiency. The toolbox of the average logistics & supply chain professional is packed with instruments to optimize warehouse inventories, transportation routes and resource utilization; all with the objective to achieve the lowest possible cost. Surely, many successes have been achieved and the involved professionals are to be applauded for such results. However, no matter how important cost reduction is, and always will be, in itself it cannot be the real goal for the organization. To exaggerate, one could say that the ultimate step in cost reduction is to stop doing business; when there is no business, the cost will be zero. Clearly, this is not the way to go and it is important to realize that at the very heart of what any organization tries to achieve is to create customer value. Therefore, logistics and

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supply chain professionals should be equally, or probably even more, concerned with value creation as they are with efficiency.

To assist logistics and supply chain professionals on their journey towards increased attention for value creation, in this paper the essential concepts of value creation are reviewed. The remainder of this paper is structured as follows. First, in Section 1, it will be further discussed why customer value is all important especially in this time and age. Then the various dimensions of customer value will be highlighted in Section 2 after which attention is paid to value creation and appropriation mechanisms in Sections 3 and 4. Finally, in Section 5, it will be reviewed how the fields of Logistics & Supply Chain can contribute to adding and capturing value.

2. Why customer value is all important for contemporary organizations

For a long period, organizations have not been much concerned with customer value. Up to, say, half a century ago, the key notion was that "every supply creates its own demand". It was the time in which there was more demand than supply and whenever an organization was able to bring a product of service to the market, it would be desirable to customers. It was also the period where products were fairly standardized so that price setting was mainly dominated by the economic market principles. For logistics firms this meant that offering capacity (e.g. trucking capacity, warehouse capacity) was the main driver for doing business. After all, shipper organizations needed such logistics activities to be able to deliver their products to their customers. In other words, the value created was a very basic and without much of consideration or dispute.

Needless to say that since the old days, the (business) world has gone through drastic changes. Nowadays, there is a severe international (hyper) competition and a high level of individualization (products and services increasingly require some level of customization, i.e. are far less standardized). In the contemporary business environment, firms can no longer rely on customers seeking their product simply because it is there; they need to differentiate (i.e. find a competitive advantage) and offer superior value to become the supplier of choice. Moreover, the hyper competition together with the rapid changes in the environment (in terms demographic, economical, social, technological, ecological and political developments) have led to a situation where "change is the only constant".

In this time and age, the primary driver in supply chains has shifted from supply push to demand pull. With the customer in charge, this implies that, to remain profitable, companies need to be constantly aware of the customer value they create. It is for this reason that the increasing importance of customer value is widely acknowledged in virtually all modern business strategy models. As Logistics & Supply Chain are important activities within any organization, obviously, these are also expected to contribute their part to the customer value.

3. What is customer value?

Actually, the concept of value is one of the most misused concepts in the management literature (Leszinski & Marn, 1997). Frequently, hammering on "adding more value" or introducing "extras", are not driven by the real needs of customers so that at best these can offer only a short-term solutions (Ravald & Grönroos, 1996). Hence, gaining an accurate, in-depth understanding of customer value is imperative.

Synthesizing the most influential literature on customer value, below a so-called customer value matrix is presented which can be used by firms to identify the various dimensions of customer value. In essence the *customer value matrix* (depicted in Figure 1) is based on two leading concepts:

(i) *Net value perspective*: the value, as perceived by the customer, is the difference between on the one hand the perceived *benefits* (tangible and intangible) and on the other hand the perceived *sacrifice* (monetary and non-monetary), cf. (e.g.,Bowman & Ambrosini, 2000; Eggert & Ulaga, 2002; Ravald & Grönroos, 1996; Zeithaml, 1988);

(ii) *Longitudinal perspective:* the customer perceived value has three distinct temporal positions, namely pre-purchase, transaction and post-purchase (cf. Huber et al., 1997; Parasuraman, 1997; Woodall, 2003; Woodruff, 1997).

It is important to note that by using the above concepts, some very specific notions about value crystallize. First, value is about customer perception, i.e. value can only be understood by taking a customer point of view. Second, value is the gap between perceived benefits and perceived sacrifices, i.e. a relative rather than an absolute value. And third that value creation can begin far before, and can end far after the transaction.

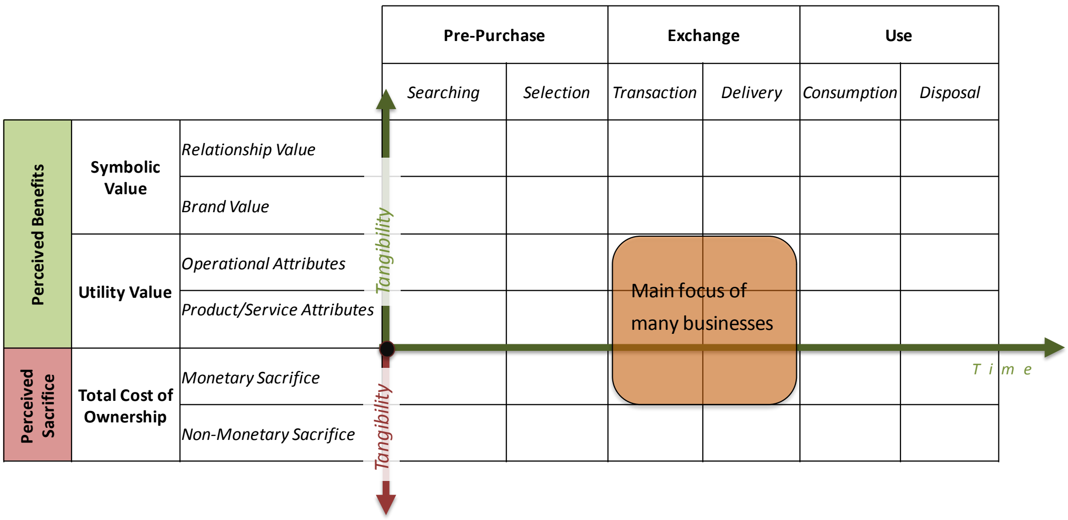

Figure 1: Customer Value Matrix

In the various rows (i.e. value perspectives) of the customer value matrix, the following dimensions can be observed:

- *Symbolic value* relates to the beliefs about the product/service and the firm (brand value) as well as relational feelings towards the firm, such as the level of trust. Clearly, the symbolic value satisfies the more psychological needs of customer and is less tangible;
- *Utility value* is about the functionality of product/service (product service attributes) as well as how the product/service is delivered (operational attributes). While the first one focuses on the features of the product /service, the second one generally focuses on the firm’s logistics & supply chain capabilities such as quality, speed, reliability, flexibility,

quality et cetera. As such the utility value is 'tangible' and satisfies the more practical needs of the customer;

- *Total cost of ownership:* has two components, namely:
(i) *Monetary sacrifice* which is the monetary cost incurred by the customer from the start of the search and selection process until the disposal of the product/service (which also includes cost for, e.g., request for quotation, acquisition price, transaction cost, maintenance cost and disposal cost); and
(ii) *Non-monetary sacrifice* which include (undesirable) time and effort to acquire and use the product/service (e.g. searching for the desired product in the shop, time spent in queues and having difficulty in using the product).

A customer's product/service experience passes through three basic phases that collectively, provides the full picture of the customer experience cycle (Woodall, 2003). These three phases are presented by the columns of the customer value matrix (i.e. the longitudinal perspectives):

- *Pre-purchase*: the customer's preconceptions about the value whenever the customer contemplates purchase (Woodall, 2003), which might be driven by the brand, the relationship, earlier purchase experience, word of mouth, etc.;
- *Exchange*: customer's experience during the transaction, which might be influenced by many factors such as the convenience and safety of the transaction environment, friendliness of sales personnel, delivery performance (speed and reliability), etc.
- *Use*: the customer's experience with the product/service during consumption, including ease of use, effectiveness of product features, maintenance, disposal, etc.

By combining the rows and columns, the customer value matrix has 36 different cells. An organization might use the matrix by assessing all the cells for each of their individual product-market combinations. Such an exercise probably results in both a better insight in the actual customer value provided and in possible opportunities for improvement.

4. Value creation

It is one thing to understand what customer value is, it is another thing to know how to actually create customer value. Simply put, a firm *creates customer value* when it increases the perceived benefits and/or reduces the customer's sacrifice better than its competitors. Note that this definition implies two things. First, value creation is a dynamic activity; it is about "increasing". Second, value creation is relative; it can only be seen in perspective of the customer's alternatives (e.g. competitors offering a similar product or organizations offering substitutes). In other words, a firm can only really understand how to create value when it has a deep understanding of the customer's processes and alternatives.

Newly conceptualized customer value can be produced either within the current value system (with existing resources and in existing supply chains) or it requires a new value system to produce. This paper focuses on enhancing value within the existing value system.

Elaborating on models from the academic literature (e.g., Khalifa, 2004; Parolini, 1999), below a so-called value exchange model is discussed for demonstrating how (net) total value can be increased, see Figure 2.

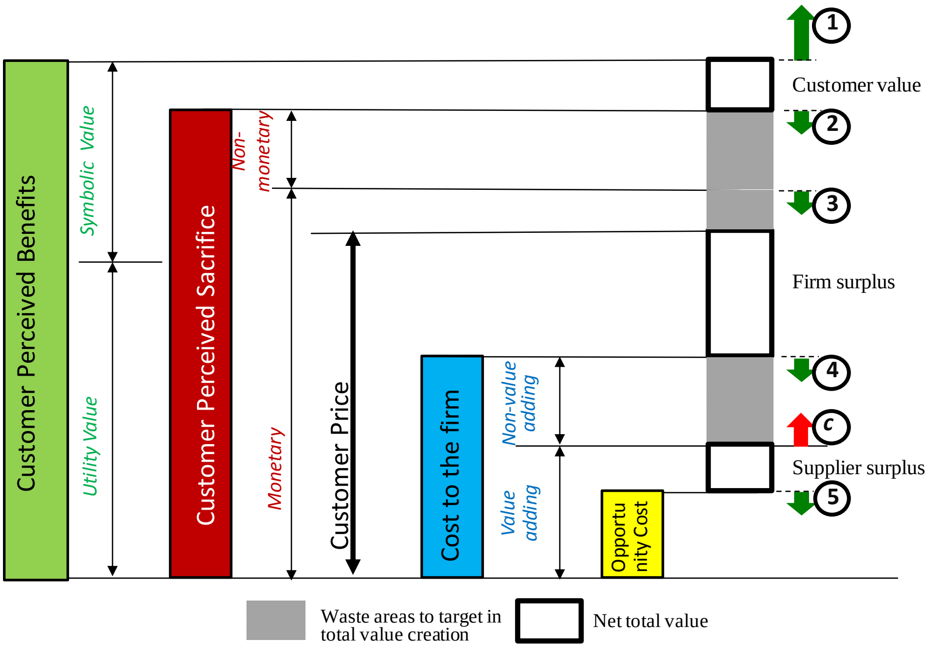

Figure 2: Value Exchange Model

In the value exchange model, *total value* is the value created within the supply chain consisting of:
(i) all the resource suppliers of the organization. This includes not only the material suppliers, but also employees, facilities suppliers, financial suppliers et cetera, i.e. all parties that invoice the firm one way or another. So, by definition, all cost incurred by a company is paid to a supplier;
(ii) the firm itself; and
(iii) the customer of the firm.

More precisely, total value is equal to customer perceived benefits minus the opportunity cost of all resource suppliers. Here the term *opportunity cost* should be interpreted as the cost incurred by the suppliers in a relative way, i.e. it is the loss of potential gain from engaging in other alternatives since it was decided to deliver the products or service to the firm. In Figure 2, total value is indicated by right most bar.

Net total value is defined as the total value left after subtracting the sacrifices of any of the three supply chain entities which do not benefit another entity. For example, the time and effort that a customer spends on reading and understanding the manual that comes with a product is a sacrifice to him which does not benefit the firm delivering the product. However, the price paid for a product is a sacrifice to the buyer and at the same time a benefit to the supplier. Summarizing, the net total value is all the value created in the supply chain and is equal to the customer perceived benefit minus the opportunity cost of the resource suppliers minus the sacrifices of each supply chain entity that are not beneficial to other entities. In Figure 2, the net total value is indicated by the non-shaded areas in the right most bar. Note that net total value consists of three parts, namely customer value, the firm surplus and the supplier surplus.

Now that the value exchange model has been explained, it can be used to argue that in essence there are five ways to *create (net total) value* (the number below reflect the directions as given in Figure 2):

1. Provide exactly what the customer wants, and when and where the customer wants it. By adding a better suited product/service, the overall customer perceived benefits will increase. The difficulty, obviously, with such an approach is that the costs are also likely to increase (which is indicated by 'C' in Figure 2). Clearly, this would only lead to increased (net) total value when the additional perceived benefits outweigh the additional (opportunity) cost;
2. Reduce the undesired customer time and hassle;
3. Reduce the unnecessary maintenance, transaction and disposal cost;
4. Improve quality and delivery performance and reduce non-value adding activities. Similar to what was said above, this would only lead to increased total net value when the benefits outweigh the cost;
5. Enhance the (multi-purpose) use of resources.

Upon reviewing the above list, two important observations emerge. First, it turns out that reducing unnecessary activities can be an important factor in creating a higher net total value, see points 2-4. Second, creating total net value requires a joint supply chain effort; it only works when the firm considers customer value as only one part of the total net value created in the three-entity supply chain.

5. Value appropriation

To a firm, increasing total net value is necessary but not sufficient to achieve a competitive advantage; they also need value appropriation methods to capture their portion of the created total net value. In essence *value appropriation* refers to the instruments, methods and mechanisms that help the firm to get their share of the net total value that is created in the supply chain. In other words, where value creation is about 'making the pie larger', value appropriation is about 'increasing your slice'.

One key point, which unfortunately is frequently overlooked, is that to survive on the long term, the firm's value creation (VC) and value appropriation (VA) activities should go hand-in-hand; one cannot go without the other (cf. Teece, 1986; Saloner et al., 2001; Dutta et al., 2003). On the one hand, all too frequently firms work very hard to increase the net total value, only to see their effort being captured (appropriated) by their customer (who gets more for a lower price) or by the supplier (that is paid more for less). On the other hand, many firms are focused on appropriating their value by building their power and exercising their dominance upon the other supply chain entities without paying much attention to VC. Such a 'zero-sum' approach might lead to some short-term gains but is also devastating for relationships and at the long term will destroy rather than create new value. Summarizing, a combination of VC capabilities with mechanisms for capturing a realistic part of the net total value are essential for the firm's long term existence.

There are two leading concepts that explain which supply chain entities capture the value that is created, namely competition and isolating mechanisms (Lepak, Smith, & Taylor, 2007). The level of intensity of the competition can determine how the created value slips away from the originator to the other competitors, suppliers and customers. For instance, in a highly competitive market where market-entry and imitation barriers are low (like basic transportation), there typically are many alternatives for customers to choose from. Similar to the argumentation in Section 1, such hyper competition will decline the price, hence customers can capture a larger share of the total value. In a monopolistic environment, however, the value creator can claim a 'large' share as there is no alternative for users. The above discussion suggests that firms are better off if they limit competition. This can be done by raising so-called *isolating mechanisms*. Several isolating mechanisms can be identified, among which are economies of scale, the firm's reputation and brand, copyrights and patents, supply chain relationships, etc. Note that all such isolating mechanisms improve the 'uniqueness' of the firm and as such increase the 'bargaining power' of the firm. That way, the firm cannot only increase its share by being unique provider but also, depending on sustainability of the mechanisms, maintains its share on the long run. So, VA is dynamic and it is not only about increasing the *share* (size of the slice) but also the increasing the *duration* of this advantage.

Value can be appropriated in three forms which address both increasing the share and the duration:

1) *Monetary* (increase per unit net profit): matching the price with the value offering (value-pricing). Clearly this requires a thorough value assessment and communication;
2) *Relational*: do one of more of the following three:
   (i) Increasing customer retention. For example, Reichheld (1994) reports that about 5% increase in customer retention (or 5% decrease in customer defection rate) leads to between 25-100% increase in profits and the results are consistent across various industries;
   (ii) Accessing suppliers and network partners' assets/resources/knowledge by having a collaborative relationship (liberate financial resources for a better use); and
   (iii) Using employees to their fullest potential, i.e. improve productivity and flexibility, thereby reduce unit cost;
3) *Learning:* creating knowledge through collaborating and co-creating with external stakeholders.

Note that the three forms can be combined yet that different situations might call for a different focus.

6. Value creation and appropriation in Logistics and Supply Chain

After emphasizing the importance of customer value in Section 1, in the previous three sections the basic concepts of VC and VA have been reviewed. In this section it will be highlighted what the most important lessons from these concepts for logistics and supply chain professionals are.

A first important finding is that customer value has a wide variety of aspects to it. However, traditionally, the fields of Logistics & Supply Chain focus only on a subset of these aspects, namely on exchange based utility and monetary sacrifice (see the shaded area in Figure 1). By extending VC to the other fields in the customer value, logistics and supply chain professionals could find new ways to creating value. Some examples of this include:

- Offering 'logistic menu cards' so that a customer can easily select its mode of delivery (and associated price);
- Making the return of packing materials (like crates and boxes) easy;

- Enhancing the reputation of the firm by constant and well-communicated excellence in delivery;
- Establishing an internal feedback loop so that the number of customer inquiries and complaints can be reduced.

A second key finding is that to creating and appropriating value, it is crucial that logistics and supply chain professionals gain in-depth knowledge on the entire customer journey (cf. Rawson, Duncan, & Jones, 2013), and where this customer process interacts with the firm's own processes. This would require logistics and supply chain professionals to work closely together with their marketing and sales colleagues and frequently visit and talk to customers.

Extending the previous point, a third key point for logistics and supply chain professionals is that VC and VA require collaboration with and engagement of various internal and external entities. As has been argued in the previous sections, customer value, the firm's shareholder value and resource supplier value (for suppliers and employees) are all related and collectively they form the net total value. Taking such stakeholder perspective, Figure 3 illustrates how value can be created and appropriated among four key stakeholders.

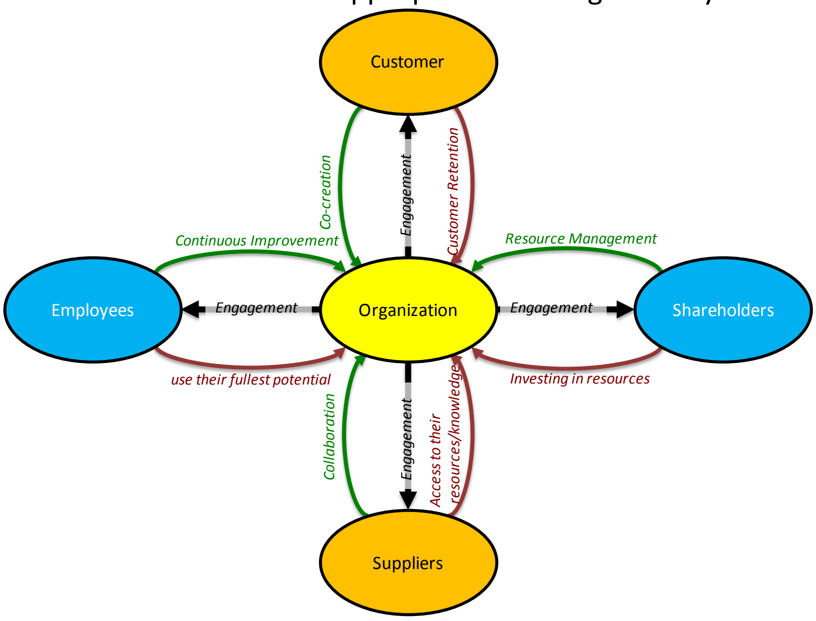

Figure 3: Value Creation and appropriation with and from four key stakeholders

As it can be seen from Figure 3, engagement of the four stakeholders is the key enabler of VC as well as VA, which suggests collaboration with all the stakeholders is paramount for firms to be more competitive. Below each of these four are shortly reviewed:

- *Engage employees:* From VC perspective, the firm can continuously improve its value offering while eliminating waste. From VA perspective, the firm can use their employees' talent in a more effective way, i.e. not only their hands but also their head (ideas, good thinking) and their heart (sense of belonging, going the extra mile);
- *Engage Suppliers:* From VC perspective, through collaboration the firm can improve delivery, quality, product design etc. From VA perspective, having strong relationship with suppliers and network partners, the firm can gain access to complementary resources/knowledge. Today, not even the most resourceful firm can afford to own all

the technology, distribution channels, innovations et cetera so that using such resources from the business network, and especially the suppliers is all important;

- *Engage Customers:* From a VC standpoint, the relation with the customer is to be viewed as interactional, i.e. the customer always is to be seen as a co-producer (Vargo & Lusch, 2008). From VA perspective, customer retention is viewed as the main focus to improve value capture.
- *Engage Shareholders*: From VC perspective, shareholders and top-management should manage firms' resource portfolio effectively to create value. From VA perspective, the shareholders should systematically invest in resources to improve existing capabilities as well as build new ones to be able to match to the changing environment.

The overall conclusion of this paper is simple. The areas of Logistics & Supply Chain can significantly contribute to value creation and value appropriation, and thereby to the competitiveness of the firm, just by doing what their core-competence traditionally has been: connecting and coordinating between all the different internal and external business entities.

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