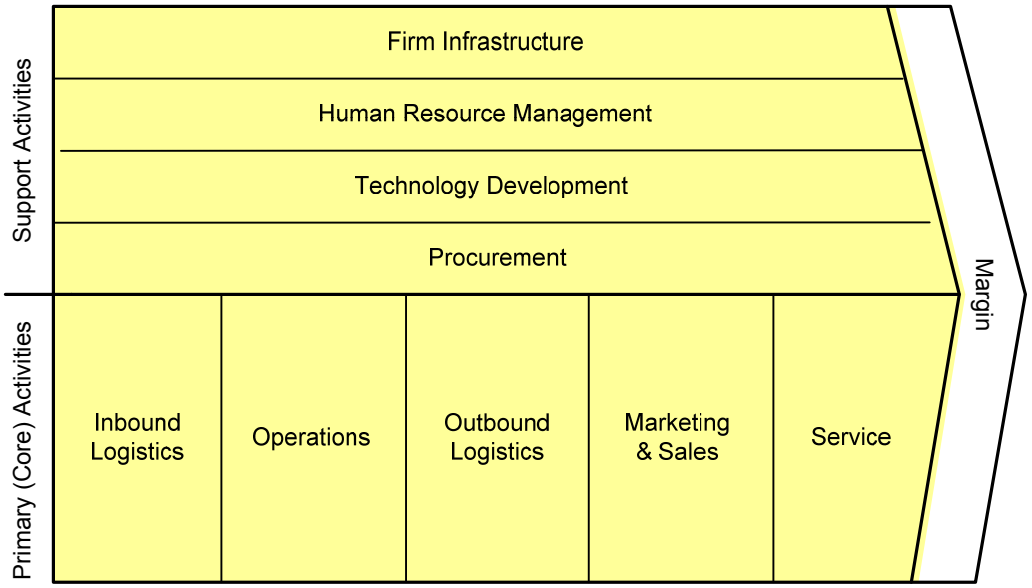
How Do Processes Create Value? [1]

Paul Harmon

How organizations create value, and the role of processes in the creation of value, are perennial concerns at many organizations. Ultimately, it is the tight link between processes and the creation of value that makes processes so important to organizations. In this article, I want to provide readers with a quick update on my current thinking about how processes create value.

The Value Chain

One of the major events in the evolution of modern process thinking was the publication of Michael Porter's book, *Competitive Advantage*, in 1985, which introduced the idea of the Value Chain. [2] (See Figure 1.) A value chain is the ultimate process of an organization. A value chain describes all of the activities that an organization undertakes to produce a product. The manager of the company can add all of the costs of producing the product, subtract those costs from the income received from the sale of the product, and determine the profitability of the product line.



After Michael E. Porter, *Competitive Advantage* (1985). p 87.

Figure 1. Porter's Value Chain

One key idea to come out of the value chain model, as illustrated in Figure 1, is the difference between core processes, pictured flowing across the bottom of the figure, and support processes, pictured as lying over all of the core processes. [3]

The Lean folks have focused on this quite a bit and discriminate between 1) Value Adding activities, 2) activities that do not add value but are necessary (MUDA1), and 3) activities that do not add value and are unnecessary (MUDA2). A good example of MUDA1 is accounting. Accounting doesn't contribute anything to the ultimate product, as the customer perceives it, but accounting is necessary, anyway, to allow managers to run the company efficiently and to satisfy tax requirements. So, according to a Lean analysis, we undertake some activities to create a valued product or service. We undertake other activities because they are "necessary," even

though they are overhead (MUDA1), and we sometimes undertake other activities that we really don't need to undertake (MUDA2). Process improvement efforts should eliminate the truly unnecessary (MUDA2) activities whenever they are encountered.

A second idea strongly associated with the idea of Porter's value chain is that there is a sequence of activities, each of which adds incremental value. Imagine a manufacturer of laptop computers. Inputs from suppliers may include chips, screens, a keyboard, and a cast aluminum box. The chips, wired together on a motherboard, are more valuable than the chips in isolation. The motherboard fitted with a case and attached to a screen is even more valuable. Similarly, the whole is even more valuable when a keyboard is set in place in the box and attached to the motherboard. Each activity transforms something that had only a little value to the ultimate customer into something that is closer to what the customer is willing to buy. In essence, one can imagine a value chain made up processes, each, in turn, made up of activities. Each activity transforms the material it gets, adding value, and making its output more nearly desirable to some ultimate customer.

In the early years of process work, most analysis efforts focused on manufacturing operations. In a sense, Porter's Value Chain concept was developed to describe a manufacturing company – a company that produces a product that can be sold to customers. A casual glance at Porter's model might suggest that the value chain concept is simple and linear. This isn't the case if one drills down into the details, but let's leave Porter at this point and move on to some other ideas of value.

The Customer Value Proposition

Another stream of thought that anyone exploring the idea of "process value" would encounter is the idea of a "Customer Value Proposition." This term has been a commonplace in the marketing literature for such a long time that it's hard to say where it originated. The essence of the idea is that a product or service should solve a problem for a customer. If a customer needs transportation, then bikes, buses, trains, planes, and cars are all options. As the customer's need is more precisely defined, the best solution becomes better defined. The customer wants to get about town, occasionally taking the family to the beach or the kids to school, or on ski trips. The customer doesn't want to invest much in transportation, wants it to last a long time, and loves the color red. At some point it becomes obvious that any of several small, well-built red cars will probably solve the customer's problem.

The idea of the Customer Value Proposition is more flexible than the idea of the value chain, as it is commonly presented, simply because the Customer Value Proposition stresses that the customer could have multiple needs and want an optimal solution. It shifts the emphasis from the product, as such, to the uses the customer will make of the product, and, secondarily, to customer desires. In essence, the customer value proposition describes a portfolio of benefits. Moreover, it stresses the idea that value is in the eye of the beholder, and that one can only determine value by asking the customer. [4]

A company may pride itself on creating the very best widget for some task, but it hasn't created anything of value if there aren't any customers who want buy that specific type of widget. Companies design and create products, but customers determine the value of the products.

Corporate Goals and Customer Values

Much of the more interesting work that has been done to extend Porter's idea of the Value Chain and to organize the idea of corporate goals and the value proposition has been done by Kaplan and Norton in conjunction with their work on Balanced Scorecards, and we will return to that after we have discussed processes in a bit more detail.

A Modern Theory of Process Value

So far we have considered the historical origins of the idea of process value. At the same time, however, we have seen that most of the early concepts were designed for manufacturing organizations and will need to be modified to serve organizations that are increasingly focused on providing services. So, what is required of a modern theory of process value?

- First, it has to be able to deal with the fact that today's processes, especially service processes, interact with customers on many different occasions. One can't simply figure out what it costs to produce a product; one needs to figure out what it costs to deliver the entire service. One needs to account for the cost and the value created by each customer-process interaction.

- Second, we must decide how many stakeholders we want to monitor. Obviously, we could simply monitor the value of the process as judged by the customer. That's what an approach like Porter's was designed to do. Increasingly, however, there is a recognition that we need to monitor the value the processes generate for multiple stakeholders. Obviously, the customer is still the key stakeholder – If you can't produce something that customers will value, you don't have a process that's worth much. On the other hand, if you can't produce a desirable service because you can't find and retain key employees, then you don't have anything of value either. Similarly, you can't produce a service that customers will value if the government closes your company because it has violated environmental laws. Any modern process value model must be designed to monitor how value is created to satisfy the perceptions of multiple stakeholders.

- Third, we need a model that defines how internal subprocesses or activities produce value. Without this type of model, we can't decide which subprocesses should be supported, which redesigned, and which eliminated.

An Example

Let's walk through an example that will illustrate all this. Assume you are hired by a rental car company and asked to help improve their car rental process. To start off the process, you might begin by creating a diagram like the one pictured in Figure 2.

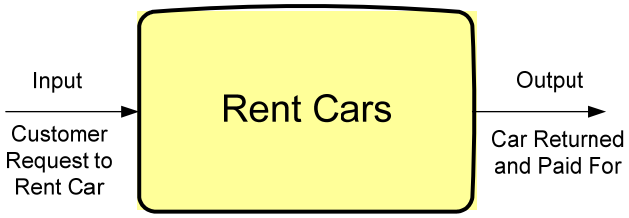


Figure 2. The Rent Cars process

Rent Cars is probable a major subprocess and not, in fact, a value chain, but, for the purposes of this discussion, it will serve. So, with just the information in Figure 2, what is the value being created by the rental car company? Clearly, the value proposition will talk about providing cars to customers at a reasonable cost at a particular location. From the customer's perspective, we are solving the customer's need for transportation at a specific time and place.

Before proceeding along this line, however, let's step back and ask: Who are the stakeholders in the Rent Cars process? Who cares if this process exists? Who would be upset if the Rent Cars process ceased to exist? Figure 3 pictures a Stakeholder Diagram that was developed by a consultant, working with the rental company process team.

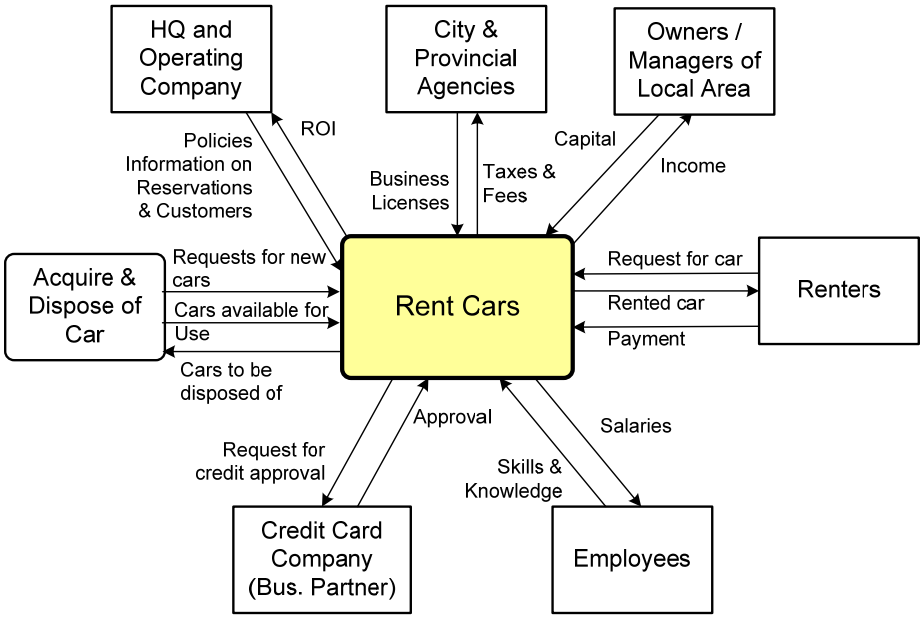


Figure 3. A Stakeholder diagram for the Rent Cars process

Each stakeholder gets something from the process, and most give something to the process, as well. Each of these stakeholders would be upset, for different reasons, if the process stopped functioning. Put a different way, each stakeholder values the process for his or her own reasons. Any good value model is going to have to take into account the value created for each of these stakeholders.

Internal Processes and Customers

Figure 4 shows four core subprocesses that transform raw materials to a product that the company's customers want. It also shows two non-core processes, a management process that receives data from Core Process C, and a support process that provides some resource that Core Process C needs to function.

From a process perspective, it is processes within processes within processes, all the way down. Thus, the value chain (process) shown in yellow in Figure 4 is the "customer" of the company providing the raw materials. Similarly, the output of the value chain is given to a customer. The customer of the value chain may not be the ultimate customer; it may simply be a distributor who warehouses and then ships the products to a retailer who then sells the products to some ultimate customer. The point, however, is that, at each level of analysis, as we drill down, the entity that receives the output of a process is that process's customer. [5] In the diagram shown in Figure 4, Core Process C is the "internal customer" of Core Process B. Similarly, Core Process C is an "internal customer" of a Support Process. At the same time, there is a management process that is an "internal customer" of Core Process C.

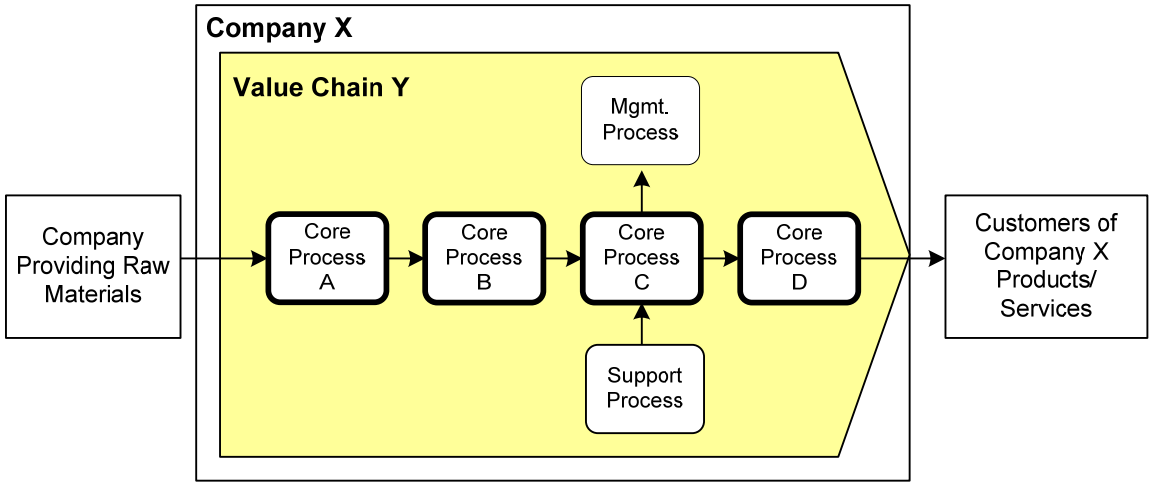


Figure 4. "Internal Processes" and "Internal Customers"

When we adopt the Value Chain perspective, we are looking at a company and begin by focusing on the customers of the Value Chain. These customers are also the immediate customers of the company that contains the Value Chain. At the same time, however, if the company we are considering is located within a multi-company supply chain, its customer may, as we suggested above, be a distributor. If we were to focus on the entire supply chain (what Porter termed the Value System [6]), we would definitely want to identify the ultimate customer. But if we are focused on a specific company inside the value chain, we are primarily focused on the immediate external customer of the company.

In a similar way, if we are looking inside the value chain, as we are in Figure 4, then each subprocess (or "internal process") has its own "suppliers" and own "immediate customers," and these will usually be other processes. Each of these processes, in its role as a customer, must define what inputs are of value. A part assembly that isn't complete or is delivered late may have little value, while one delivered on time and completely assembled, is of value to the process in question. Similarly, each process needs to be concerned that its outputs are of value to whoever receives them.

Now let's step back and take a somewhat broader view of relationship between internal flows and external stakeholders of all kinds. In Figure 5 we have pictured a value chain and a variety of internal processes. Some are core processes (bold outline) that transform raw materials into finished products or services for the primary customers of the company.

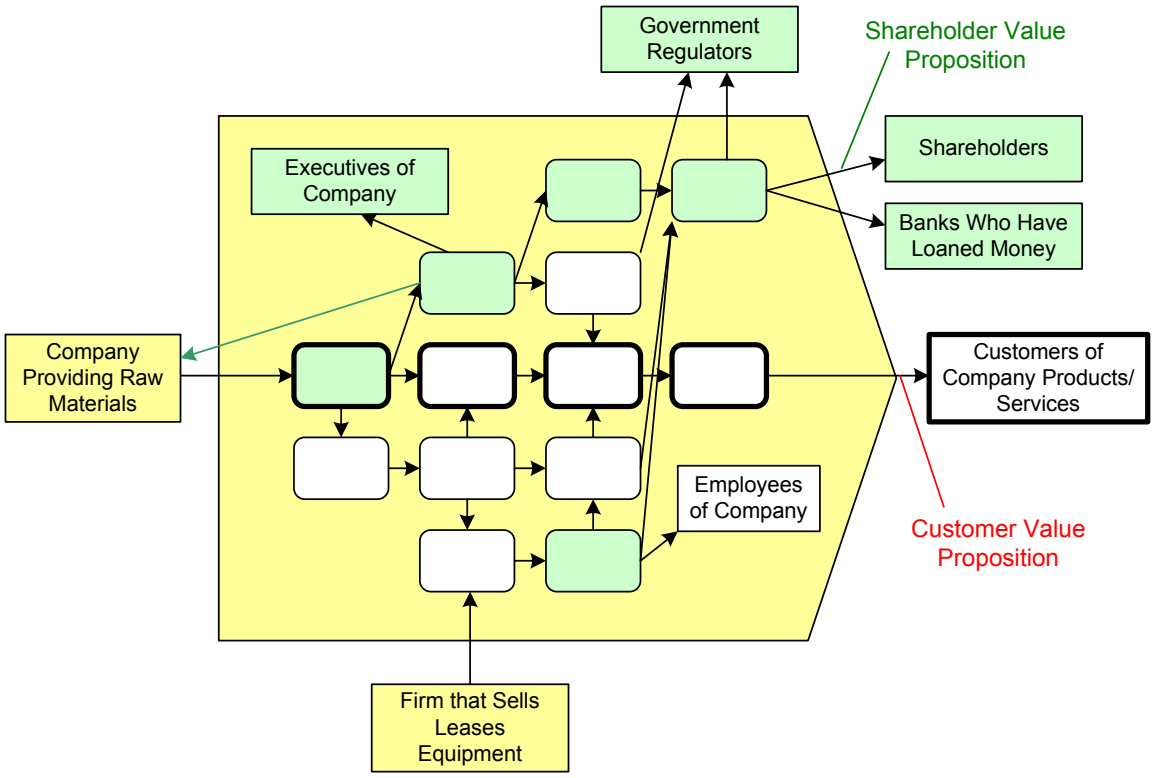


Figure 5. A value chain, some of the processes that make it up, and some stakeholders

Other processes provide management or support functions. Bookkeeping and accounting processes, for example, provide information for company executives and process managers to use in managing their processes and they also generate information for Shareholders, for other sources of capital, and for government regulators and tax authorities. Similarly, some accounting processes generate payments for suppliers, managers, and employees. [7]

Each of the six stakeholders pictured outside the Value Chain, as well as the internal stakeholders like the managers and employees, have an interest in the success of the process, and we should be able to write a "value proposition" for each of these stakeholders. The customer value proposition is of great importance, but the survival of the firm also depends on satisfying other stakeholder value propositions.

It is easy to imagine the flow from raw materials through the core processes to the company's primary customer. Each of the core processes should add value to the resulting product or service, as perceived by the customer.

It is also possible to identify flows from specific core processes, through management or support processes to other stakeholders. Each process in those flows should add value to that stakeholder's value proposition. Thus, a core process may include an activity that gathers data needed by an accounting process that, in turn, provides accounting data to a process that prepares financial statements and contributes to the creation of documents that have value for executives who are monitoring company performance, to government regulators and tax agencies, and to shareholders and banks that seek to monitor the performance of the organization. Each activity that falls on any one of these flows and adds value to that flow is necessary for the success of the organization and the value chain. Thus, the processes filled with green add value to the Shareholder's Value Proposition and to the Bank's Value Proposition.

Reconsider the Lean analysis that differentiates between Value Adding processes and MUDA1 ('necessary processes'). In an important sense, all processes should add value. Some add value for the ultimate customer and others add value for other key stakeholders. Accounting isn't just a "necessary" process; it's a process that adds value for management, for shareholders, and for government tax agencies. These stakeholders are important to the organization, and, thus, these processes add real value, albeit not customer value. On the other hand, any process that really doesn't add value for any stakeholder is an unnecessary process that should be eliminated. This is the key insight associated with the stakeholder approach to process analysis.

How the Process Actually Works

Now let's look at a BPMN diagram of the Rent Cars process (Figure 6.). This swim lane diagram shows the customer activities at the top, the Rent Car process in the center (the yellow area), and a support process below in its own swim lane.

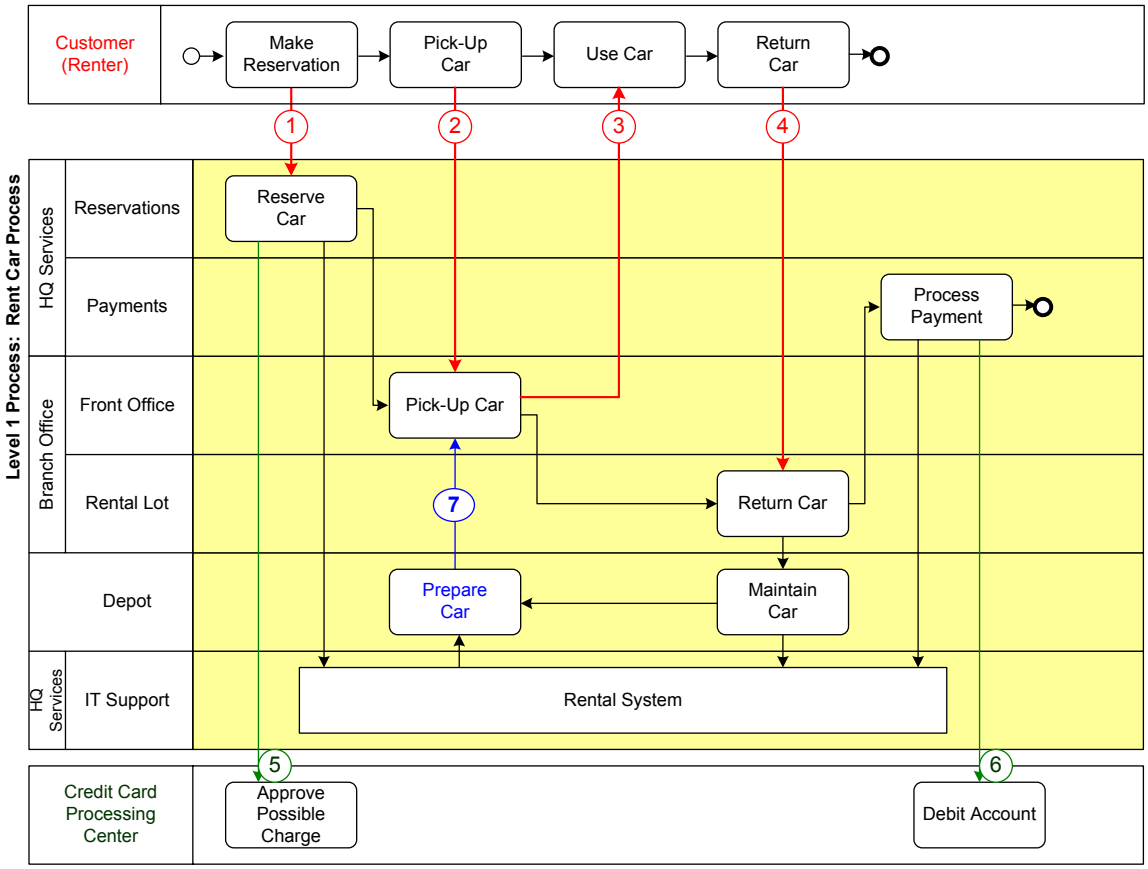


Figure 6. A BPMN diagram of the Rent Cars process

The first important thing to notice is how effectively a swim lane diagram can represent a service process; unlike a Value Stream arrow, there is no suggestion that the process generates one product. Instead, by placing a customer swim lane at the top and showing how the Rent Car process interacts with the customer's process, one can instantly see all the different interaction points between the Rent Car process and the customer. This is obviously a high level view of the

Rent Car process, but it identifies four different points where the customer and the process interact.

In a service process, the service IS the product. Thus, each interaction is part of the overall product, and each interaction is a chance to please the customer or to make the customer regret that he or she chose to do business with this company. There isn't a single product to evaluate, as one might determine the quality of a manufactured product by sampling units as they roll off the production line. One needs to evaluate each interaction to determine the quality of the service being delivered. One might object that evaluating human interaction can be subjective, but welcome to the world of service. Evaluating human interaction can be done; it just takes a bit more effort to implement it. [8]

So, a quick glance at Figure 6 provides us with a list of at least four customer interactions we want to monitor when we seek to determine how the customer might value the service the rental car company is offering. We can drill down into each interaction and determine the specific steps that prepare for and lead to the interaction. Thus, for example, we might evaluate the Return Car subprocess. How long does it take? Where does the customer wait? What does the customer have to do? What if the customer is running late for a flight? Lots of steps and quite a bit of language determines if the customer ends up feeling that the Car Return subprocess was efficient and pleasant, or drawn out and unpleasant.

In addition, although we haven't tried to show them all on this diagram, one needs to track the interfaces between the process-in-scope and the other stakeholders. In this case, we showed one business partner, the credit card company that the rental car company works with. The rental car company pays for and expects efficient service from the credit card processor, and each creates value for the other. In a similar way, we could show a government agency and the payment of taxes on rental transactions, or we could show the flow of money from this process to other processes and ultimately to the franchise owner.

Finally, Figure 6 lets us examine one more aspect of value – the creation of value by internal processes or activities. We might want to know, for example, how the preparation of the car contributes to the value of the Rent Car process. In this case we must back-in from the ultimate value delivered to the ultimate customer. The person renting the car expects to pick up the car at the rental site. He or she expects that the car will be clean and in good operating order. If he arrives and is offered a car whose windows won't open, as a result of an electronic failure, he probably won't be happy. If we offer the customer a car with a major defect that wasn't caught in maintenance or a car that wasn't cleaned properly, then those processes have failed to add the value we expected them to add it. By extension, if the check-in clerk noted that the windows were not working when the car was last returned to the lot and that information, entered into an appropriate database, failed to appear and be noted during the maintenance activity, then we might have evidence that IT Rental Support process was not adding the value we expected from that process.

Balanced Scorecard and Process Value Analysis

Now let's return to the idea of a scorecard that keeps track of multiple possible types of value and a scorecard system that allows us to align those values. There are many ways we could keep track of the kinds of values we have identified so far. A popular approach is the one first defined by Robert Kaplan and David Norton in their *HBR* article, "The Balanced Scorecard: Measures That Drive Performance" (Jan-Feb. 1992), and has since been elaborated in a series of books. In essence, Kaplan and Norton argue that financial measures are too narrow. As in the case of the Rental Cars process, the cost of the car is only one aspect of the overall value the process creates for the customer. The rental company location, the efficiency of the service, the quality of the car offered, and the pleasant nature of the interaction, and the total cost are all things the customer might consider when he or she consider whether to use that same car rental company in the future.

Kaplan and Norton suggest four broad categories of things to consider: Financial considerations, Customer considerations, Internal process considerations, and Innovation and Learning considerations. Others prefer scorecards with different categories, and some break the categories into 6 or 8 subdivisions, but the Kaplan and Norton approach works well enough for our purposes. First, it avoids the approach that seemed implicit in Porter's original Value Chain model – that we simply define value in terms of the profit we generate. Or that we measure value by the number of units we ship. The scorecard recognizes that we will measure value in multiple ways. Second, the categories suggest considerations that can be extended beyond the concerns of the ultimate customer. With a scorecard, we can represent not only the customer's concerns, but also the concerns of stockholders, employees, external partners, the government, and any other stakeholder we need to consider.

In the BPTrends Associates methodology, we start drafting our scorecard soon after we do our initial stakeholder analysis. We ask about the real importance of each stakeholder, and then ask what each stakeholder values. Then we ask how we would measure the value each stakeholder expects and enter those items on a balanced scorecard. Moreover, if we are dealing with a service process, we will probably want to track the value the stakeholder receives from each of his or her interactions with the value chain we are analyzing.

	Performance Goals & Measures			
Stakeholders	**Financial**	**Customer**	**Process**	**Learning**
Customers		Value from Interaction 1 Value from Interaction 2 Value from Interaction 3...		
Shareholders	Value from Interaction 1 Value from Interaction 2 Value from Interaction 3...			
Regulators				
Partners				
Managers				

Figure 7. A worksheet on which an analysis team can record the concerns of different stakeholders, stated in terms of goals and measures for a value chain that can be divided into the four scorecard categories

As we proceed with our process analysis we define more specific interactions with BPMN diagrams, as we did above, and can add those additional values and measures to our value chain scorecard.

At some point, we step back and rationalize all this. The organization has goals that can be expressed on an organization scorecard. We have identified values expected by stakeholders from processes, which are, in turn, included in larger processes and, ultimately, in a value chain. By examining the measures we have accumulated, and consolidating and assigning responsibility to different levels of process managers, we generate a balanced scorecard hierarchy that shows all of the values and measures we are going to monitor at each level of process work. Figure 8 provides an overview of the way we might organize such a value chain/process metrics/performance evaluation system.

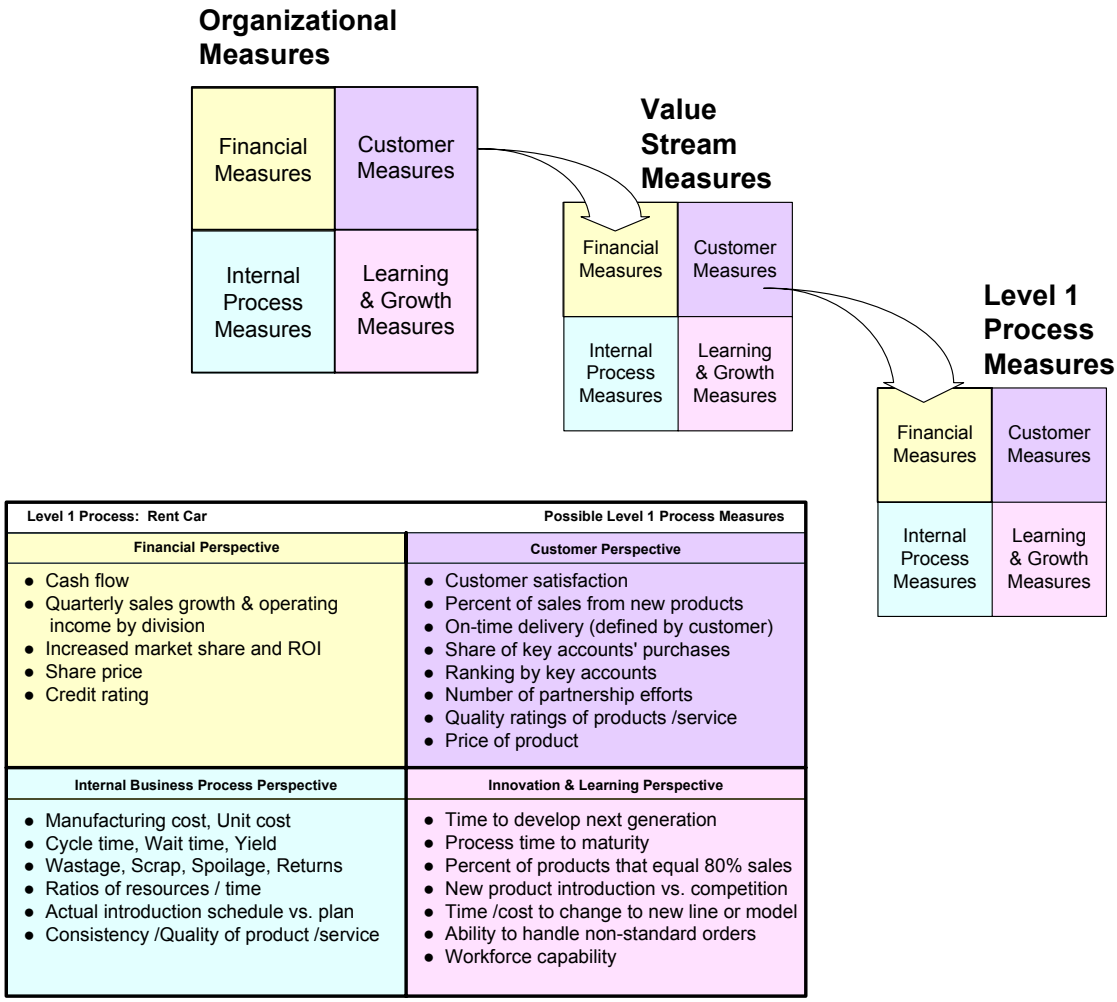


Figure 8. Aligning Values with a Scorecard System

A scorecard approach that uses multiple scorecards for different levels of processes provides a good way to capture the values that processes provide for different stakeholders and can show how layers of subprocesses and activities can contribute to the goals of the processes that contain them. At the same time, scorecards, used in performance evaluations, provide a good way to assure that managers are aware of their obligation to add value vis-à-vis the processes they manage.

Summary

We have come a long way from when process practitioners first began to try to define how processes created value. It turns out that it isn't as easy as early practitioners thought it might be – especially as most companies have shifted from producing products to providing services. When a customer interacts with a process to obtain a service, he or she typically interacts at many different points and each of those points constitutes a loci at which value is created or where a customer is disappointed. A good analysis of value needs to consider all the points at which the process touches the customer, and to consider how each adds to the ultimate value the process creates for the customer.

We have also realized that the ultimate customer, as important as he or she is, is only one stakeholder and that several different stakeholder need to receive value if the process is to succeed. Thus, we not only need to identify all of the points at which our process interacts with a customer, but all of the points at which it interacts with other key stakeholders. Any analysis of the ways that a value chain provides value for multiple stakeholders will necessarily define different kinds of values and measures. Some will be financial, and some will involve measures of customer satisfaction. Others will involve measures of subprocess outputs (e.g., reports for government regulators), and still others will involve learning that improves the process or the work environment. In essence, an adequate model of how a value chain produces value will be a matrix that includes a number of stakeholders and describes various types of goals or measures to track the various types of values perceived by the various stakeholders, as shown in Figure 7.

And, perhaps still the least understood, we need to decide how individual, internal subprocesses incrementally add to the value of the specific subprocesses that interface with the customer. In an ideal world, each subprocess would add incremental customer value. In reality, some do, but others don't. But a better way of saying this is to say that each subprocess should add value for some stakeholder, but that not all subprocesses add value for the ultimate customer. Some internal subprocesses, like accounting, for example, add value for government regulators, managers, or shareholders, while others add value for business partners. Ultimately, processes that don't add value for any stakeholder should be eliminated.

Meanwhile we have developed a list of different measures that we need to track to determine how a given value chain satisfies its different stakeholders. Now we need a way of showing how subprocesses add value that ultimately generates the value of the value chain, as a whole, or that satisfies the goals and objectives of the organization that owns the value chain. One good way of doing this is by means of Kaplan and Norton's Balanced Scorecard system, once it is given a slight spin, so it creates a hierarchy of processes rather than a hierarchy of functional units.

None of this makes accounting for the value produced by a process an easy task, but it certainly makes it a very doable task and is rapidly leading to a better understanding of the value created by an organization's processes.

Author

Paul Harmon is the Executive Editor of www.BPTrends.com and the author of *Business Process Change*, 2nd Ed. (Morgan-Kaufmann, 2007). I wish to thank Roger Tregear of Leonardo Consulting for his insightful feedback, which improved the final version of this article.

References

[1] This article is a longer version of an email Advisory that was posted on www.bptrends.com on January 25, 2011.

[2] In *Competitive Strategy*, Porter talked as if a company only had a single value chain. In other writings, it was clear that he actually meant that a line of business had a single value chain. In essence, for Porter, and for Hammer, who relied heavily on Porter's Value Chain concept, a value chain produces a product (or closely related group of products) for a customer or a well-defined market. A large corporation can easily support multiple Value Chains. Hammer used to suggest that a large corporation would usually have between one and ten value chains, depending on how they clumped things.

[3] Lean practitioners tend to focus on the flow of activities from when the customer places the order to when the product is delivered to the customer. This is usually termed the "Value Stream." Note that a Lean Value Stream is subtly different from the sequence of processes shown along the bottom of Porter's Value Chain, because it includes "New Product Development." In essence, Porter shows a Process Lifecycle, the operational subprocesses that begin with the creation of the product and end when the process is retired. If one subtracts "New Product Development" and focuses only on the subprocesses involved in delivering a product to a customer in response to a request, one has a Value Stream, which includes Operations, Distribution, Service and Marketing, and Sales. In any case, by focusing narrowly on core processes, the Lean practitioners have seemingly lost sight of other stakeholders, and classify as MUDA1, what, in fact, are value adding activities that lead to value for other key stakeholders of the Value Chain, as a whole.

[4] For a good discussion of the idea of the Customer Value Proposition, please see James Anderson, James Narus, and Wouter van Rossum's article, "Customer Value Propositions in Business Markets," which appeared in the March 2006 issue of *HBR*. In addition, see how the term is used in Robert S. Kaplan and David P. Norton's *Strategy Maps* (Harvard Business School Press, 2004.)

[5] Some process theorists dislike the idea of "internal customers" or "processes as customers." It's really just a matter of semantics as one sees when one considers that one might have outsourced each of the processes in a chain of core processes. I don't really care what term you choose to use – what's important is to recognize that each process – by definition – transforms an input into an output. And that each process should add value, as perceived by some stakeholder, when it undertakes a transformation. And that each downstream process wants an input with certain characteristics so that it, in turn, can transform the input into something still more valuable to some ultimate customer. Once one identifies a value stream – like the one in Figure 4, running from raw materials to a customer – one should assume that each activity either adds value to the ultimate output (or to some flow leading to some other stakeholder), or it doesn't and should be eliminated. To argue that half completed work has no value because the ultimate customer wouldn't buy it collapses when you consider that if each process were a separate company then the decision to purchase the half completed work would be the decision of the downstream process (functioning as the customer of the upstream process).

[6] In an aside in his *HBR* article, "Strategy and the Internet" (March 2001), Michael Porter commented on the fact that companies were increasingly linking together value chains to form multi-company chains, and suggested that these should be called "Value Systems." Organizations like the Supply Chain Council are a bit ambiguous about what they mean by a supply chain. In most cases SCOR practitioners describe a process internal to a single organization and therefore, presumably a subprocess of a value chain, but in some cases SCOR practitioners describe a supply chain process that includes processes at many different organizations and, in those cases, they are describing a value system – which involves value considerations we are not addressing in this article.

[7] Some process theorists have recently argued that the Value Chain concept is too linear and that it is better to conceptualize Value Chains as networks. I've never thought of the Value Chain as linear in this narrow sense, so I can't get too excited about this proposed shift. Still, for those who are interested, a quick glance at Figure 5 will suggest that a Value Chain, once you consider multiple stakeholders, is a kind of network. Moreover, if you consider the BPMN diagram illustrated in Figure 6, you can see that even when we focus on core processes – and especially when we focus on a service process – we are dealing with multiple interactions between the process and a customer. In effect, rather than a single flow that leads from raw materials to a product that is shipped to a distributor and sold to customers – as pictured in Figure 4 -- we have lots of activities that contribute to each subprocess in which an employee interacts with a customer around a single touchpoint. For example, to complete the subprocess "Pick-Up Car," one activity involves moving the customer from the airport to the rental lot, another involves

completing an application and checking documents, and still another involves taking the customer to the car. Each of those activities, in turn, is preceded by activities. Airport shuttles need to be maintained and staffed, software systems need to provide clerks with data about reservations and how to accept inputs and print contracts, etc. In other words, each touchpoint is supported by a web of activities that prepares for, and supports, each employee-customer interaction.

[8] One leading hotel chain requires that each employee greet customers whenever they encounter them. The hotel has a written description of when and how the greeting should be delivered, and supervisors check and record that employees are implementing the greeting procedure correctly. Subjective criteria can be evaluated – it just takes a bit more work to figure out a good way to communicate the performance desired and to measure and record the results. But if you want to succeed in the service industry, it is of key importance.

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