

## Product service value analysis: two complementary points of view

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### Abstract

Product Service System is an innovation strategy, used by manufacturers to increase their competitiveness, while satisfying specific customer needs. Here the focus is on the additional services associated to products and precisely on their value to determine their position in firms' portfolio and by extension their legitimacy to reach the implied objective of profitability. The study rests on the use of the value analysis methodology and compares the value of the offer for the manufacturer taking account of its expected benefits and the value of the same offer for customers defined by the way of expected quality criteria.

### Keywords:

Product-service, value analysis, product service oriented PSS, customer loyalty, innovation strategy

## 1 INTRODUCTION

Whatever their sectors of activity, firms are studying the opportunities to create, develop and propose product service system (PSS) to fulfill specific consumer demands and enhance firm competitiveness. For manufacturers, this problem is complex because the ownership of the tangible product can change (from the customer to the service provider) and also because the focus is on the utility value of products in relation to the client's activities.

In this article we consider the case of product oriented PSS defined as a PSS where ownership of the tangible product is transferred to the consumer, but where additional services are provided. The problematic concerns the definition of the price of such an offer as additional services are most of the time perceived by customers as tools for differentiation and consequently supposed to be free of charge. Practically only few firms' sell such service although they cost money. The main reasons come from:

- The difficulty for manufacturers to clearly define the cost of services because of their IHIP characteristics (Intangibility, Heterogeneity, Inseparability and Perishability).
- The difficulty to associate a standard of price to an offer linked to a mercantile strategy.

The challenge is then to define a PSS that would be profitable for both new manufacturer service providers and customers i.e. of a so high value that these latest would pay to own the additional services. To reach this objective, firms' have to manage:

- Customers' satisfaction through the fulfillment of service needs and through the respect of quality criteria expected by during the whole service life cycle.
- The value of each customer regarding the profitability that is generated. This profitability runs on the short, medium and long term, is not only monetary and necessitates comparing the costs that rest on the offer definition and delivery to the set of advantages that reflect firms' benefits.

The idea behind is to compare the value of an additional service for the customer to the value of the same offer for the provider to determine its position in the portfolio of the firm and consequently its legitimacy to be proposed and enhance firm competitiveness and profitability.

The study rests on the use of a smoothly adapted version of the value analysis principles proposed by Lawrence Miles in 1946 [1]. The position of the offer in the portfolio is determined using a matrix inspired by the BCG matrix well known in the management science [2]. Indeed, the results of the value analysis are gathered in a matrix that can be used as a strategic tool to analyze the relevance of an additional service offer integrating its costs and the mercantile strategy.

Outlines consist in analyzing the functions expected by the customer and by the firms' managers to the cost of the offer and to compare them, once the additional service is determined. For this concern, in the remaining section of this paper, we first present the context and the motivations of this study and define the offer we consider and its characteristics. Second, after a reminder of the value analysis method and of its limits, the cost function matrix of the firm is presented based on the benefits expected from a product service offer and based on the inherent costs. The cost function matrix of the customer is detailed based on its expectations in a fifth part and finally compared to the previous one using a matrix before giving limits to our works and before concluding.

## 2 STUDY CONTEXT AND JUSTIFICATIONS

### 2.1 Product-service offer

Currently the revenues of many firms are becoming dominated by the sales of services rather than products, or by the sales of products together with services to gain competitive differentiation in markets marked by increasing product commoditization [3]. Service offers have different denomination in the literature depending on which character is considered regarding the tangible offer: complementary [4], [5], combined [6], or dependent [7], [8]. Here we focus on product-service as defined by Furrer in 1997: "Product-service are services supplied in addition to a product and increasing its value for the

customers" [9]. Technology-based firms can propose services such as maintenance contracts for product upgrades, technical support, strategic consulting, etc, because of the complexity of their products and to technological progress. Other examples of services proposed by manufacturing firms are listed in [10] and [11]. As we can see these services are mainly a matter for the tertiary sector of activity.

## 2.2 Profitability background

Revenues released by such services can become larger than product revenues. Software product companies are a good example of the success of service sales. Basically, big companies have become customary with product-service sales; they generate profit and can even sell services independently from products. SME in the manufacturing area are less hardened to this routine and only propose to sell a service jointly to the sale of a product. Profit for these kinds of enterprises is questioned; practically, a study performed by Baglin showed that whatever the type of service only 31% of SMEs sells them. The reasons that explain this loss of profit and this brake to the development of service offers is twofold [12]:

- Service costing which can be difficult to evaluate because of service specificities [13], [14].
- Price fixing that can be modified depending on whether the service is interpreted: tools for competition demarcation or real added value for the customer.

## 2.3 Specificities of product-service

Products / services distinctions, mainly proposed by marketing and other disciplines, stem from "*idiosyncratic qualities or the development of service packages according to market segment*" [15]. Historically, services were defined using IHIP<sup>1</sup> characteristics and the duality outcome-versus-process. Conclusions being that services contrast with goods and are what these latest are not. Recently, a debate that challenges these definitions has become clear considering that they only serve the definition and use of specific managements models, methods and tools. As a result products and services can encompass the same properties according to the scale of time and place considered and can be more or less IHIP. Product-service can be tangible or not, but what is sure is that (i) they serve firm differentiation and the underlying objective of customer loyalty and, (ii) they cost money to the firm which provide them.

Providers have then to master the costs of a product-service and to enhance its value so that it is worth in the eyes of the consumer. In this case, customers might become loyal and even pay for the service.

The value of the offer might also be examined from the provider point of view to determine if the costs generated by the production and delivery of the service are not too important regarding the performance of the expected benefits especially if customers do not participate.

The comparison of the two values could help responding to two questions:

- which product-service providers should propose that can be of a so high value that customers will pay to own it, of a so high value that it is profitable for firms and does not encroach upon the margin released by the core product?
- which position does my product-service occupy in term of value: firm and customer high value, only firm

or customer high value or firm and customer low value?

These questions fall into the problematic of new product-service design in a win-win strategy. De facto, we will use the value analysis method to study this sub-problematic.

## 3 VALUE ANALYSIS: A SIMPLISTIC RECALL

### 3.1 Value analysis definition and outcomes

Value Analysis (VA) is "A systematic approach used to analyse functional requirements of products or services for the purpose of achieving their essential functions at the lowest total cost". It defines a "basic function" or "main functions" as anything that makes the product work or sell and defines "secondary functions" or "supporting functions" as functions describing the manner in which the basic function(s) are implemented.

Main functions cannot be cancelled (their fulfillment is essential), while secondary functions can be modified or eliminated to reduce product cost.

Basically, objectives of VA are to optimize product design and to increase the difference between the cost and the value of a product via the application of a function analysis to the component parts of a product (standard EN 12973).

The concept of value is difficult to determine as it is a subjective concept. Its common characteristic is a high level of performance, capability, emotional appeal, style, etc. relative to its cost. A review of the literature led Zeithmal to identify four common uses of the term [16]:

- value as a price;
- value as what I get for what I give;
- value as the trade-off between price and quality;
- value as an overall assessment of subjective worth.

In the following, we use this latter definition as it is the widest one and encompasses all attributes of price, quality, and satisfaction... in the subjective worth concept.

In 1999, Goyhenetche has expressed the value concept by a ratio [17].

$$\text{value} = \frac{\text{appreciation of offered services}}{\text{appreciation of resources expenditures}} * \frac{\text{trust}}{\text{risks}}$$

$$\text{value} = \frac{\text{performance of functions}}{\text{costs}} \quad (1)$$

where the cost is the amount that is incurred in the production and delivery of the product. It might refer to the total life cycle costs: over the whole life span of the product (costs of the material, the manufacturing and assembly as well as all planning, investment and arrangement costs). In practice, in VA costs refer to cost components.

### 3.2 Value analysis method and process

From a product design point of view, products of high value first address the basic function's performance and stress the achievement of all of the performance attributes. Secondary functions used to attract customers are then developed. A way to increase value consists in increasing the performance of the product functions or in reducing the costs. The elimination or combination of secondary functions can for example reduce costs without detracting from the worth of the product.

In all cases, as performance and costs can be neither reduced to zero nor infinite, VA allows to compare the costs of a product to the value as perceived by the

<sup>1</sup> Intangibility, heterogeneity, inseparability and perishability.

customer on the basis of the expected service specificities covering.

The VA procedure contains different steps that can be summarized as follows: once the problem and its scope are defined, basic and secondary functions are listed. A cost function matrix is then built and allows to allocate shares of the cost to the individual functions. Product functions with a high cost-function ratio are identified as opportunities for further investigations and improvement that are brainstormed, analyzed and selected.

### 3.3 Value analysis strengths and points for improvements

Strengths concern:

- the method recognition all over the world,
- the method applicability to all sectors of activity,
- the interdisciplinary, systematic and organized approach to problem solving.

Points for improvements:

- the use, limited to the design of tangibles,
- The cost determining that is often oversimplified. Indeed, when referring to consumer products, the costs taken into account are mainly and directly associated with product manufacturing: component costs. In the case of expensive capital equipment, costs refer to manufacturing, installation, maintenance and decommissioning costs. Most of the time, no indirect costs are taken into account.
- The scarcity of points of view confrontation. The VE method states that the repartition of the products costs is coherent with the benefits expected by the customer. The method is never used as a strategic tool that can help a business operator to choose which business to develop, which product or service to sell or what customer to target regarding its expected benefits, the cost of the offer and the customer value.

The following sections deal with all these points, trying to apply value analysis to new product-service design of high value for the different protagonists.

## 4 PRODUCT-SERVICE VALUE ANALYSIS: FROM THE PROVIDER POINT OF VIEW

### 4.1 Problem and scope

The works procedures of VA lead us firstly to define the problem and its scope. Obviously, here we focus on new product-service design. This one can be either tangible or intangible which means that there can be components or not. This point is important to notice because value analysis deals with a cost function matrix based on the sharing out of component costs. Adaptations should be made to address the intangible product-service part. The service is not free of charge, costs are determined hereafter.

### 4.2 Value analysis matrix construction

*Description of functions: from the provider point of view*

We assume that the functions which participate to the definition of the value for the provider concern the expected benefits of a product-service proposal. A study performed by Malleret on this subject showed that they relate to four major themes [11]:

- The construction of a customer loyalty by the building of dependency relationships between a consumer and a provider that can lead toward profitability.
- The search for differentiation that allows to retain existing consumers and to attract new ones.

- The increase and stabilizing of firms' turnover due to the possibility to generate regular income and to have cash flow disposal.
- The corporate image reinforcement in fields like technological advanced, product quality...

A review of the literature in management led us to list other benefits that can be expected, among which:

- The occupation of an existing or new market to participate to market share division.
- The possibility to create alliance with service providers and to share risks.
- The possibility to increase the quickness of a design or production process using product-service based on information and communication technologies.
- The possibility to shorten sales delay or negotiation phase using financial services.
- The search for a PSS that is designed to have "a lower environmental impact than traditional business models" [18]. It is to note that this specific benefit is not taken into account in the rest of our study as it is not very relevant regarding the part of the PSS we consider.

Each of these functions can be classed as expected performances that stem from a strategy and have priorities one to the other: classification in main or secondary functions and/or classification in percent importance of each one using cross analysis. Quantifiable criteria can be associated to each function whose level also stem from the strategy. The level really measured, that reflect the performance of the function, compared to the global cost of the service could allow determining the value of the service for the firm.

#### *Definition of costs*

Costs to take into account can be divided in direct and indirect costs. Usually, direct costs are entirely tied to a product or service while the other charges common to several ones that belong to a same type or to different ones are indirect costs. In the case where costs are not only to be set for one function, they are to be added proportionately. Cost emphasis can be performed by associating a weight to the participation of the component to a function.

Regarding product-service characteristics, several costs can be addressed that depends:

- on its degree of tangibility,
- on the degree of interaction that is necessary between the firm contact personnel and the customer to deliver it,
- on the degree of standardization of the product-service delivery process.

Then costs can encompass component costs, cost of labour, and overheads.

Cost of component concern: (i) the cost of consumables that are used to make the product-service tangible (raw materials, paper for documentation, ink for printers, CD for filing...), and (ii) cost of physical support necessary for its realization (eg. Manufacturing resources, specific software, computers, and vending machines).

Cost of labour depends on which management function is implied in the product-service delivery system. Strategic and management studies on immaterial delivery have shown that three main functions are concerned: the marketing one, the human resource management one and the commercial one. This seems to be coherent with the concept of service activity rather based on individuals' interactions. In material production, the

design and manufacturing costs are the most important ones.

Some of these costs of labour are direct ones while others are indirect ones. For the immaterial part of product-service delivery, a service life cycle stemming from the cost functional analysis process [19] led us to insert the labour of the marketers in the indirect costs while the labour of commercial people can be considered as a direct cost.

Overheads concern fixed costs (investment, rent, writing off), facility costs (taxes), and indirect labour (marketing, finance, cleaners...).

Regarding the method, elements of costing are to be determined and gathered by categories taking account of the product-service specificities. Then, an estimation of the value of each one is to be done.

#### *Function cost appreciation*

The description of the functions from the provider point of view and the consciousness of the product-service costs allow to build a first value analysis matrix (see Figure 1 at the end of the paper). The value analysis matrix displays the list of elements of the product service that might be taken into account, and their cost, along the left vertical side of the graph. There are as many lines as elements and several lines per element can be noted. The top horizontal legend contains the functions expected by the provider.

To determine the value:

- Overheads and indirect cost labour must be shared between all of the product-services of this kind delivered to customers. This can be done on the basis of marketing studies which identify the potential amount of customers as well as the minimal amount of customers to ensure firm profitability.
- Component cost must be shared between the functions according to their participation to the functions fulfilment as well as costs of direct labour. The valuation of this cost is done by comparing the duration of the interacting process to the charged cost of labour per time unit of the commercial people in the case where interactions are necessary.

Once costs are shared out, it is possible to calculate the cost of each function and evaluate the relative cost of all functions. The total cost and percent contribution of the functions of the product-service under study will guide the firm deciders in selecting which functions to address for value improvement analysis regarding its percent importance.

#### **4.3 Investigate improvement**

Now that the cost contribution to the functions is established, providers are in a position to determine if high cost parts can be removed, identify high cost/low value and low cost/high value parts; ask basic questions concerning the elimination, reduction, simplification, modification or standardisation of functions, or even more of the service by itself.

### **5 PRODUCT-SERVICE VALUE ANALYSIS: FROM THE CUSTOMER POINT OF VIEW**

The problem and its scope are obviously the same. It is to note here that in customer understanding, a product-service is most of the time a service that must be tangible for a part and that requires an exchange phase with a contact personnel of the firm.

### **5.1 Complexity of functions and costs determining**

#### *Product service technical functionalities*

Initially, the service orientation that encourage manufacturing firm to accompany product with service referred to all activities suppliers can undertake to help purchasers in choosing, acquiring and using a product. Regarding Furrer's definition, added value linked to product-service concern product functionalities valorization as well as facilities to obtain and correctly use it. Then, each one has a "raison d'être" regarding the core product, characterised by technical functionalities, herself characterised by performance levels. Moreover, product-service can also have specific functions that can be determined by analysing its life cycle and/or by analysing its environment. Interactions between the contact personnel, the users, the means necessary to realize the service, the partners, the environmental and legislative constraints ...can lead to identify secondary functions. By the same way, realization constraints can give rise to additional functions.

The performance recorded for each function of the product-service, once it is delivered to the customer compared to its global cost might, as previously, allow determining its value. In practise, value is much more complex to determine because of the difficulty to determine the complete list of functions expected by the customer and also because of the difficulty for him to define an objective cost.

According to Hermel & Louyat [20], the customer challenges the overall value to the complete cost. The overall value refers to the different advantages obtained, supported by the provider brand image. The costs are composed of the monetary, functional and psychological cost, as well as the costs linked to the time spent to evaluate, acquire, use and eventually abandon the offer.

$$\text{customer value} = \frac{\text{whole appreciation of offered services}}{\text{costs}}$$

This way of doing renders the value concept very subjective as it depends on customers' frame of mind. Moreover, advantages should not be restricted to benefits expected on technical functionalities as lots of studies have shown that the customer is waiting for something else from the exchange with the contact personnel: empathy, reactivity, availability... These latest elements can be associated to implicit functions whose fulfillment can lead to customer loyalty and to value increase for the customer and for the provider.

#### *Implicit performance expected by customers*

Customer loyalty comes under customers' satisfaction. In 1991, Zeithaml, Berry and Parasuraman have developed a method that allows evaluating the quality of a standard service [21]. This model called servqual is based on ten criteria gathered in 5 dimensions regarding their correlations:

- **tangibility:** appearance of physical facilities, equipment, personnel and communication materials,
- **reliability:** ability to perform the promised service dependably and accurately,
- **responsiveness:** willingness to help customers and provide prompt service,
- **assurance:** **competence, courtesy, credibility and feel secure,**
- **empathy:** **accessibility, good communications and customer comprehension.**

As we can see, quality criteria refer to the reliability that is similar to the function "to satisfy the technical

functionalities” and to other aspects that refer to service characteristics (tangibility) and to service delivery system (terms characterizing the exchange with the contact personnel). This comes from the difficulty to separate the process from its outcome in service production. As the customer can be involved, most of the time he mixes its feelings. In the following, we assume that only the criteria that concern the service by itself have to be taken into account in the list of customers’ functions while the others have to be taken into account by the firms as they refer to the way they could make customers loyal (explanations are given in section 7).

*Product-service list of function from the customer point of view*

The list of functions of a product-service expected by customers, expressed as a verb and a noun consists of:

- **the product-service raison d’être:** help choosing, acquiring or using the main product,
- **the secondary functions linked to its environment:** due to interactions with the contact personnel, the users, the means necessary to realize the service, the partners, the environmental and legislative constraints and realization constraints as mentioned previously...
- **the implicit functions coming from quality criteria discharged from the functions that refers to the delivery process:** to obtain a tangible service.

**5.2 Customer value investigation**

To increase the customer value appreciation and its satisfaction degree, providers have two solutions (see equation 2):

- to diminish the cost of the product-service,
- to minimize the gap between the quality criteria extended to several functionalities of the product-service that the customers is waiting for (WQ) and the quality he perceives once the service is delivered (PQ), while maintaining costs (C), (2).

$$customer\ value = function\{PQ, WQ, Costs\} \quad (2)$$

*Cost diminishing for customer value increase*

Even if the customer participates to the service delivery process, costs are not easy to determine for him as they are composed of providers’ internal accounting data. Regarding the previous statement how is it possible to determine the costs linked to the time spent to evaluate or realize a service? Does any customer time the duration for service evaluation and compare it with his cost per hours? And how can be defined this latest? Going further, has any customer an idea about the salary of the contact personnel? Basically, a customer will define a cost by comparison of the prices applied on a market (acting that the margin is equal for all competitors) and/or by experience of a price applied (supposing that the margin is constant). This implies that a non lining up of the price to the concurrence or a price modification will have to be deeply justified. Most of the time, the justification comes from the explanation of the difference between a service defined as a standard and the proposed service. The price that a sample of potential customer agrees to pay an additional satisfaction increases the price of the standard and is used as a reference on the market. Conversely, a price reduction will be associated by the customer to a satisfaction diminution. As margin is low in service delivery, the price can be compared to the cost. Then a smooth modification of costs can be envisaged but is not the solution to increase customer value perception.

*Whole appreciation of service increase for customer value increase*

Increase of the appreciation can be done by managing service quality while reviewing cost ventilation on customer quality criteria extended to several functionalities to avoid cost due to a bad repartition or due to the covering of unnecessary functions. This analysis can be done building the value analysis matrix from the customer point of view, see Figure 2.

The same elements and costs than in the value analysis matrix from the firm point of view are mentioned while the list of functions has changed accordingly to the appreciation criteria.

**6 COMPARISON BETWEEN THE CUSTOMER AND THE FIRM VALUE**

Regarding the two value analysis matrix, it is possible to determine the cost contribution of the functions and to propose improvement for better repartition if necessary. Then using aggregation operator, it is possible to deduce the whole value of the product-service proposed by a firm. This one can have two positions: high or low. The value of a product-service can be analysed regarding two dimensions: the customer dimension and the firm dimension, see Figure 3.

Then four cases can occur:

- The value is high for the customer and for the firm. In this case, the product service is profitable for the firm and satisfies customers. It must systematically accompany the product.
- The value is low for the customer and for the firm. The abandon of the product-service or not will depend on the cash that is necessary to provide it or on the delivering difficulties.
- The value is high for the customer and low for the firm. In this case, to make the customer loyal, firm should propose the service but might found solution to increase its value perhaps by increasing the price if the service is worth in the eye of the consumer, adding others services located in the high/high value. Advantages will be to dilute the costs.
- The value is low for the customer and high for the firm. This position is good for the firm as it is synonymous of high profitability and customer loyalty if the customer participates or if the cost of the offer is not too important. Otherwise, as the value is low for him, he won’t be interested by this list of sales point and will surely look for other offers with high value from the firm or from its concurrent.

		Firm value	
		High	Low
Customer value	High	Profitable and interesting	No profit but interesting
	Low	Profitable but No interest	No profit, no interest

Figure 3: Value matrix

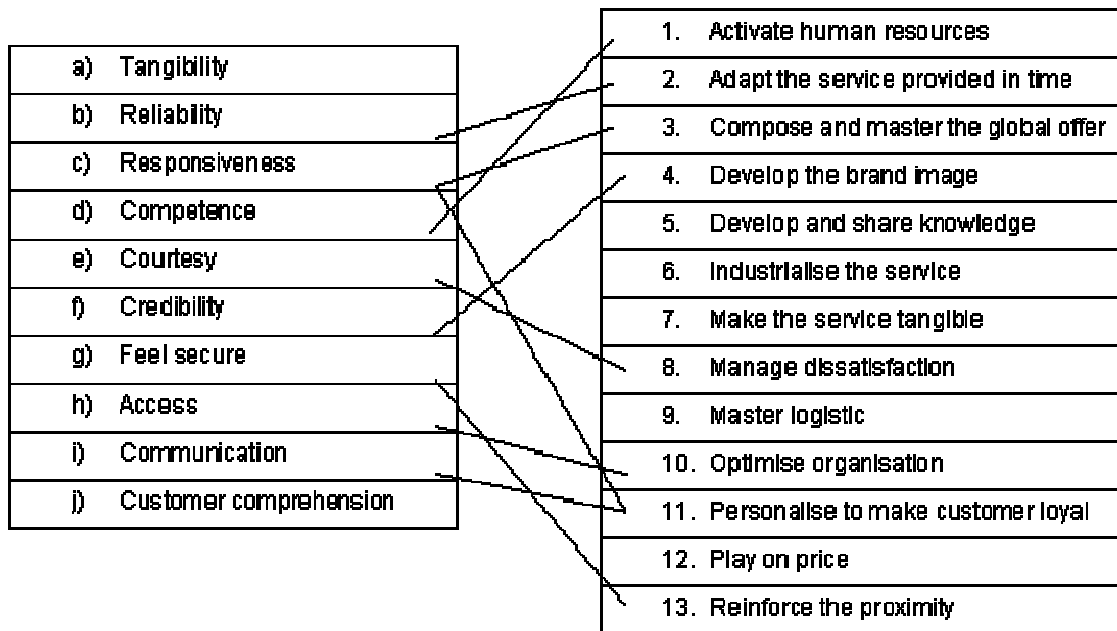


Table 1: mapping providers priorities for quality assurance to customer quality criteria

The analysis of each product-service associated to a specific product, in one category, gives a synthetic view of the equilibrium of the global offer. To ensure firm global profitability, the portfolio of product-services have to be shared out to all categories.

## 7 LIMITS OF VALUE ANALYSIS

The value analysis process underestimates most of the time the dependencies of the functions. When studying firms expected benefits, it becomes apparent that functions do not operate in a random or independent fashion. Functions as well as elements form dependencies link with other elements to make the system works. The quality criteria developed by Zeithmal can help defining sub-functions and dependencies between firm expected benefits.

### 7.1 From quality criteria to firm's management priorities

As mentioned in section 5.1, on the ten criteria defined to evaluate the quality of a standard service, only two were integrated in the list of functions expected by the customer. What about the others? The remainders refer to the service delivery process and characterize the interactions between the contact personnel and the customer. The qualities of the exchanges are to be supported by the service provider to satisfy these latest. Lots of works done recently in the domain of service quality management have been proposed. Thirteen priorities that firms have to complete to ensure quality have been identified [21]; see the right side of Table 1.

All these priorities are obviously customer oriented in order to manage an economical context of hyper competition in a continuous evolution, filled with enterprise networks and immaterial assets to acquire new customers, retain existing one by the way of an high value perceived. The link between the quality criteria and some of these priorities gives key to support customer loyalty; see Table 1.

### 7.2 One step to function analysis system technique

The Function Analysis System Technique (FAST) represents functions dependencies and allows creating a

process to study function links while exploring opportunities to develop improved systems [26]. The diagram is built upon the HOW-WHY dimensions to structure the logic of the system's functions. Regarding the two types of FAST diagrams, the priorities could help understanding the technical aspects to set up an effective service. Then, to answer the question "How to make customer loyal", sub functions are: to adapt the service provided in time, to activate human resources, to manage dissatisfaction, to reinforce proximity, to personalize to make customer loyal, to optimize organization, to compose and master the global offer. As we can see there exist a link between that latest sub-function of the function called FC1 in the value analysis matrix and the function FC4 of the same matrix. Then costs have to be carefully shared in order to avoid redundancies or cost bad repartition.

## 8 CONCLUSION

The adjunction of additional services to the main product manufacturing firm provide to their customers also called product oriented service-system is now a current way of doing even if problems concerning the cost, the price and the value of such a proposal are not solved. Our contribution is based on the use of the value analysis matrix to determine the value of an additional service offer from two points of view. The first one relates to the provider and takes its expected benefits into account. The second one relates to the customer and takes expected functionalities as well as quality criteria expected during the whole service life cycle into account. The results are gathered in a matrix that can be used as a strategic tool to analyze the relevance of a product-service offer that integrates the real costs of design, production and delivery as well as the mercantile strategy.

The main limit of our contribution concerning the underestimation of functions dependency let foresee lots of potential improvements. First, dependencies should be analysed to reinforce benefits expected by the use of a value analysis matrix (i.e. improve product-service design and lower cost, focusing on essential functions to fulfil customer requirements while being profitable. Second

the link with the QFD matrix might be better analysed to develop and analyse improvements in the offer. Third, the list of priorities might also be better analysed to see if others functions or sub-functions become clear for the provider. Here we have only paid attention to the function "to make the customer loyal" as it correspond to the "raison d'être" of a product-service. Third, the validation of the structure of the two proposed matrix is to be done quickly, on concrete examples to verify their legitimacy.

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	Total cost	%Cost	Function (FC)							
			Make	Search	Increase	Reinforce	Occupy	Share	Increase	Shorten
			Customer loyal	For differentiation	Firm turnover	Corporate image	New market	Risks	Process quickness	Delays
			FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8
Elements										
Consumables										
Physical support										
Direct cost labour										
Indirect cost labour										
Overheads										
			Cost of FC1	Cost of FC2	Cost of FC3	Cost of FC4	Cost of FC5	Cost of FC6	Cost of FC7	Cost of FC8
		% cost	FC1 percentage of importance	FC2 percentage of importance	FC3 percentage of importance	FC4 percentage of importance	FC5 percentage of importance	FC6 percentage of importance	FC7 percentage of importance	FC8 percentage of importance

Figure 1: Value analysis matrix from the product-service provider point of view

	Total cost	%Cost	Function (FC)							
			Help	Make	Satisfy	Satisfy	Satisfy	Satisfy	Satisfy	Satisfy
			Choosing, acquiring or using the main product	Service tangible	function concerning interactions with contact personnel	function concerning interactions with users	function concerning interactions with means	function concerning interactions with partners	Environment or legislative constraints	Realisation constraints
			FC'1	FC'2	FC'3	FC'4	FC'5	FC'6	FC'7	FC'8
Elements										
Consumables										
Physical support										
Direct cost labour										
Indirect cost labour										
Overheads										
			Cost of FC'1	Cost of FC'2	Cost of FC'3	Cost of FC'4	Cost of FC'5	Cost of FC'6	Cost of FC'7	Cost of FC'8
		% cost	FC'1 percentage of importance	FC'2 percentage of importance	FC'3 percentage of importance	FC'4 percentage of importance	FC'5 percentage of importance	FC'6 percentage of importance	FC'7 percentage of importance	FC'8 percentage of importance

Figure 2: Value analysis matrix from the customer point of view