

## An overview of value and value chain models in healthcare services

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### Abstract:

A well-organized value chain is the most effective way to provide value to customers in general, and patients in particular, as value is what customers care about the most. The value chain model has been used widely in the industrial sector, as opposed to the service sector, where its application has been limited.

Due to the general distinct nature of services in general and healthcare services, in particular, the value chain for services is not the same as the traditional one proposed by M. Porter. Despite their differences, the service and industrial value chains are similar in that they both include primary and secondary activities.

**Keywords:** Value; Generic value chain model; services value chain; healthcare services value chain.

**Jel Classification Codes:** D16

## 1. INTRODUCTION

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The service sector plays an important role in the economic development of a country. This sector has experienced tremendous growth in recent years all over the world (Cuadrado-Roura, 2016). It has been identified as an important contributor to the GDP of a country. It makes a major contribution to the creation of employment and investment opportunities, which are critical to a country's overall development (Singh & Dixit, 2020).

Services, as opposed to goods, are defined as an intangible, non-physical work performed by a service provider for the benefit of the customer. The most well-known characteristics that distinguish services from goods are intangibility, perishability, simultaneous production and consumption processes, and heterogeneity. These features are crucial; they have long been and continue to be used to provide a clear and comprehensive description of the service. As services differ from goods in several ways, special care must be taken when marketing them (Rathee & Rajain, 2013).

Healthcare, on the other hand, is one of the fastest growing sectors in both developed and developing countries (Dey & Hariharan, 2006). Population growth, increased life expectancy, and higher living standards are all factors that contribute to an increase in demand for healthcare services and facilities in the twenty-first century (Hosking & Jarvis, 2003).

Healthcare system is different from other industries because it has a distinct nature due to its unique characteristics which include a direct contact with people, frequent communication with them, and providing customized and professional medical services (Mohammed, Mansour, & Khadar, 2020). It is a complex sector in which there are so many interacting parts, with an asymmetry of knowledge between them (example of doctors and patients), and where patients are most of the time vulnerable. Due to these differences, healthcare will never be a purely commercial transaction in which patients seek the best "deal" (IOM), 2009).

An ideal healthcare system is the one that provides value to its patients, as value is what matters the most nowadays. The best way to provide value to customers in general and patients in particular is through a well-organized value chain. The value chain concept was popularized by Michael Porter in

his famous book "Competitive Advantage: Creating and Sustaining Superior Performance" (1985).

In contrast to the service sector, where the use of the generic value chain model is limited, this tool becomes quickly applicable in the industrial sector.

The value chain for services is not the same as Michael Porter's traditional value chain. Despite their differences, the service and industrial value chains are similar in that they both include primary and secondary activities. Primary activities in healthcare services, for example, and specifically hospitals, are defined as patient flow, whereas secondary activities are the same as in the generic Michael Porter's value chain.

### **2. Services**

In contrast to goods, services are described as an intangible, non-physical work performed by a service provider for the customer's benefit. In their attempts to define physical and service products, (HOFFMAN & BATESON, 2010) conclude that many services have tangible components, and the majority of goods provide some forms of service delivery. For example, medical surgeries require the use of specific medical devices such as tissues, unifying instruments and materials, cutting and dissecting instruments, and so on. In sum, these authors argued that neither pure goods nor pure services exist.

Services are defined in the service marketing literature in three ways: (1) as a "process," (2) as a "solution to customers' problems," and (3) as a "beneficial outcome for customers " (Polyakova & Mirza, May 2015). Initially, services have been defined as a process or performance rather than a thing (Lovelock, 1991). Later, (Grönroos C. , 2001), defined services as an intangible activity that typically occurs during the interaction between the customer and service employees to provide solutions to the customer's problems; from this perspective, services are seen as a solution to the customer's problems. Further (Vargo & Lusch, 2004 a) (Vargo & Lusch, 2004b) described services as the application of specialized competencies - knowledge and abilities - through deeds, processes, and actions for the benefit of another entity or the entity itself.

Healthcare, on the other hand, differs from other types of services. These services are the most complex, expensive, and widely used services (Berry & Bendapudi, 2007). In most cases, the features that distinguish the service in healthcare are the patient’s “continuous” nature of participation throughout the entire process and even after services are completed (Myszewski & Sinha, 2020). In addition to this feature, the following aspects of these services were highlighted:

**Tableau 1:** Characteristics of Health care services

<b>Characteristics</b>	<b>Brief description</b>
<b>Healthcare is a need service</b>	A patient arrives suffering from illness, pain, anxiety, fear, and stress.
<b>Lack of control</b>	Patients do not have control, for example, they cannot enter and leave the hospital whenever they like.
<b>Surrender confidentiality</b>	Patients hand over their privacy to Clinicians.
<b>Healthcare services are labor- and skill-intensive</b>	Performance varies from one clinician to Another.
<b>Made-to-order</b>	Patients require a more holistic and customized services; these services must be tailored.
<b>Collaboration</b>	A patient’s cooperation is essential for successful treatment both during the encounter (answering questions honestly) and afterwards (taking the prescribed medication).

**Source:** adapted from ((Berry & Bendapudi, 2007); (Pai & Chary, 2013); (Singh & Dixit, 2020))

### **3. Value in healthcare services**

Value is a broad concept with many facets. The fact that it is applied in numerous disciplines explains its multidimensionality (Babin, Darden, & Griffin, 1994). Its roots can be found in a variety of disciplines, including philosophy, psychology, sociology, economics, and marketing (Sidorchuk, April 2015). Each field played a role in determining ‘value’. This concept

was first introduced by Neoclassical economics to define the relative worth, utility, or importance of something (Lindsey E. Sirianno, 2016).

In order to better understand what value implies in the healthcare field, The Institute of Medicine (IOM) held a two-day workshop in 2008 to examine the perspectives of important stakeholders on health-care value. The Institute's findings revealed that there was no consensus among the participants about a single definition of value ((IOM), 2009). The definition of value varies depending on the reference sample: the value of doctors does not always match that of patients, and vice versa (Marzorati & Pravettoni, 2017).

According to the Institute's findings, providers perceive value based on the appropriateness and effectiveness of care, as well as evidence-based interventions; economics on the other hand defined it as the clinical benefits obtained for the money spent; whereas patients focused on health care's ability to meet their needs. We can conclude from these findings that value is a relative concept that is defined by each stakeholder in the healthcare field based on his or her point of view.

In the absence of agreement on a definition of value, Michael Porter's definition has become the most widely accepted in the field of healthcare. Michael Porter proposed that the overarching goal of healthcare should be to increase value for patients, where value is defined as health outcomes (quality of care) achieved per dollar spent (cost of care) (Porter M. E., 2010).

Health outcomes, as defined by porter, are the outcomes that matter for the patient's condition throughout the cycle or care. They are divided into two parts, on the one hand, they are assumed to be an improvement of the medical status, and on the other hand, they are referred to as changes in the patient's awareness of illness, whereas the overall cost of treatment for the patient's condition over the course of the care cycle are referred to as "costs" components (Marzorati & Pravettoni, 2017).

Conceptually, M. Porter's definition belongs to the realm of technical efficiency; it is primarily focused on maximizing objective health gains for a fixed amount of financial resources (Seixas, Dionne, Conte, & Mitton, 2019). The current definition does not take into account the patient as an individual,

particularly her preferences for various aspects of care (Kamal, Lindsay, & Eppler, 2018). It ignores the human factor, which is essential in describing how medical benefits are delivered to patients (Kawczynski & Taisch, 2009). Furthermore, the (IOM) report stated that value is difficult to define in a way that can be assessed practically, especially in a sector like health care where neither the benefits nor the resources used to create them are clearly defined ((IOM), 2009).

As a result of the preceding discussion of the definition of ‘value’, this concept has been regarded as a complex term with no universally agreed-upon definition due to the wide range of frameworks and contexts in which it emerges (Franklin, Nichols, Charap, Buzaglo, Zaleta, & House, 2019).

The need today is to understand value. Value is determined by consumer perspective (rather than service providers’ perspectives) and is not always a presentation of exact costs (Myszewski & Sinha, 2020). These authors stated that patients do not go to hospitals or see doctors solely for low price; rather, they seek ‘value’.

As previously stated, value has various connotations. From a marketing perspective, (Zeithaml, 1988) provided one of the most important definitions of the concept of value. According to her research, customers defined value in a variety of ways: 1) “value is low price,” 2) “value is anything I want in a product,” 3) “value is the quality I get for the money I pay,” and 4) “value is what I get for what I give. Based on these findings, the author defined value as the consumer’s overall assessment of a product’s utility based on perceptions of what is received and what is given.

One of the most widespread value conceptualizations today is the one based on ‘give’ and ‘get’ components. CV is a tradeoff between what the consumer receives and what he or she is willing to ‘give up’ in order to acquire and use a specific product. Thus, patient value is described as the customer’s overall evaluation of a medical service’s utility based on perceptions of what is received (benefits) and what is given (sacrifices). Perceived service quality is the most important benefits for customers in general (Pevac & Pisnik, 2018), especially in healthcare services (Pevac & Pisnik, 2016). Customer sacrifices, on the other hand, include costs. Costs are divided into monetary

and non-monetary costs. Non-monetary costs are substantial in the healthcare services sphere (Moliner M. A., 2009).

Many marketing researchers have identified the following value characteristics:

- Value is an abstract concept that is closely related to and usually confused with concepts of quality, benefits, and price (Zeithaml, 1988);
- Because customer value is subjective, ambiguous, and dynamic concept that evolves over time, it is challenging to define (Woodruff R. , 1997);
- Customer value concepts differ in terms of the circumstances within which customers think about value (Woodruff R. , 1997).

In a highly competitive world, one of the best strategies for businesses to survive is to provide value to customers, and the best way to provide value that satisfies customers is through a well-organized value chain (Nagel & Cill, 1990).

#### **4. The traditional value chain model**

The concept of value chain is not new. It is a business management concept first introduced and popularized by Michael PORTER in his best-selling book "Competitive Advantage: Creating and Sustaining Superior Performance" (1985). It is defined as a set of organizational activities that create, deliver, and capture value at each stage, starting with the processing of raw materials and ending with the finished product in the hands of end users (Simatupang, Williams, & Piboonrungrroj, 2017). It is, in the broadest sense, the set of activities carried out within a company in order to produce a specific output. As the product moves from one player in the value chain to another, it is assumed to gain value (Hellin & Meijer, 2006).

Michael Porter's major contribution was his analysis of how a company gains a competitive advantage. A competitive advantage, according to Porter, can be gained whether by becoming the lowest-cost competitor or by differentiating its physical products or services. Professor M. Porter stated that analyzing a firm as a whole does not allow for the identification of the source of its competitive advantage; thus, he introduced the value chain,

which breaks down a company into its relevant activities to help in the identification of where the value emerges.

According to Porter, there are two categories of value activities: ‘primary’ and ‘support’ activities. Primary activities on the one hand include inbound logistics, operations, outbound logistics, marketing and sales, and services. Support activities, on the other hand, include procurement, technology development, human resources management, and infrastructure. Porter’s generic value chain is suitable for manufacturing companies whose primary process is typically the transformation of physical inputs into physical outputs.

According to (Porter 1985):

#### **4.1 The primary activities**

These activities include those involved in the physical creation of the product, as well as its sale and transfer to the buyer and after-sales assistance, they are:

- **Inbound logistics**-Receiving, warehousing, and inventory control of a company's raw materials are all part of inbound logistics. This also covers all relationships with the suppliers.
- **Operations**-Operations include all the activities required for converting raw materials into a finished product or service. These activities are responsible for transforming inputs into outputs.
- **Outbound logistics** This category of activities is required to collect, store, and physically distribute the output.
- **Marketing and sales**-These activities are linked to the development of strategies to enhance visibility and target the right customers. This category contains activities such as advertising, pricing and promotion.
- **Services**-This category comprises activities that improve the physical product's qualities through after-sales servicing, installation, and maintenance, etc.

#### **4.2 Support activities**

The main purpose of the value chain support activities is to support the primary activities. In the value chain, each primary activity is often supported by a support activity (Porter, 1985). These activities are:



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- **Procurement**-This activity concerns the acquisition of inputs, or resources, for a firm. It represents the process of how a firm receives raw materials; hence, it comprises locating and negotiating prices with suppliers and vendors. This is significantly related to the major activity of inbound logistics.
- **Human resources management**-This includes all activities related to recruiting, hiring, training, developing, rewarding, and sanctioning employees in the firm.
- **Infrastructure**-Infrastructure refers to a company's support systems and the functions that allow it to operate. This encompasses all accounting, legal, and administrative functions.
- **Technology development** -Activities that build and maintain an organization's use of technology, such as research and development, IT management, and cybersecurity

**Figure 1:** The value Chain model



**Source:** (Porter, 1985).

Despite the fact that the value chain has received a lot of attention in the industrial sector, its application in the service sector, which includes healthcare services, banks, hotels, and so on, has been limited, in some cases, non-existent. According to a study conducted by (Stabell & Fjeldstad, 1998), the researchers findings revealed that applying the generic value chain model into services is difficult. They argued that the use of this tool in the service

industry makes assigning and analyzing activities in terms of the five generic primary value chain activities difficult, but also frequently obscures the essence of value creation. They concluded that more than one model of value chain is required to understand the activities of various types of services.

In his attempt to apply the generic value chain of Porter in the higher education services (Gabriel, 2006) contacted Professor M. Porter, who admitted that the generic value chain model had little direct application in this sector. He also stated that the model's shortcoming is that it was developed without taking higher education sector into consideration. Based on Porter's answer, we conclude that the generic model cannot be directly applied into services due to their distinct nature as intangible products that require the presence of the customer during the production process in many cases, such as healthcare services, as opposed to physical products where the production process occurs in isolation of the customer.

The limitation of the generic value chain model is that some components of the value chain, such as inbound and outbound logistics, cannot be directly applied to services, due to the four basic characteristics of services, which are intangibility, inseparability, variability, and perishability (Pathak & Pathak, 2010). Furthermore, (Meihua, 2013) stated that one of the limitations defined in Porter's value chain theory is that the strategic goal of a company is only to maximize profit while ignoring the importance of customers. Customer's importance in marketing literature in general, and in service marketing literature in particular, is well documented, as these individuals are constantly involved in the service production process, as is the case with healthcare services.

Based on the limitations of the generic value chain model, (Pitta & Laric, 2004) adapted the definition of Porter and defined the value chain from a marketing perspective as a set of internal activities of a company that create value for its customers, by converting raw materials into final products. This definition seems to be more suitable for the marketing perspective as it highlights the importance of creating of value for customers, as "*customers are not looking and will never be buying products but value*", as stated by (Gabriel, 2006)

### 5. The value chain of healthcare services

Contrary to the manufacturing sector, few value chains have been developed in the service industry in general, and healthcare in particular. As previously stated, the application of the generic value chain model to services does not work. Value chains structures are assumed to differ not only between industries but also within the same industry (Jones & Walters, 2001). These differences stem from various causes, two of which, from a marketing perspective, are good and services (Bhadwal, 2015).

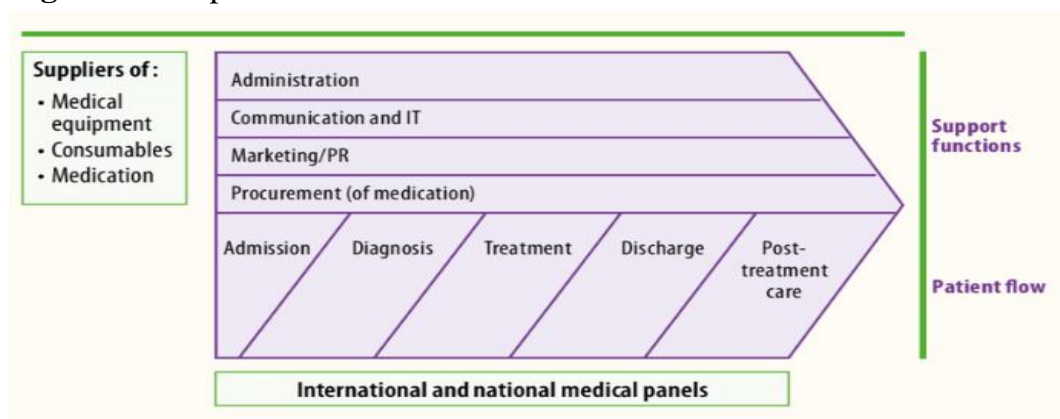
Despite the critiques mentioned above, the generic value chain of Porter provide insight into designing other value chains (Makkar, Gabriel, & S.K.Tripathi, 2008), including the one for healthcare services. The value chain structures of both the industrial and services sectors therefore include both primary and secondary activities. Based on this, the secondary activities of healthcare services are the same as in Porter's generic value chain (infrastructure, human resource management, development and innovation, and procurement). These activities are considered 'back-office' of activities that occur 'behind the stage'. They are dedicated to provide human, technical, and material resources to support primary activities of healthcare services (Heintzman & Marson, 2005).

A patient's treatment in the context of healthcare services requires a wide range of resources, including people, equipment, space, and supplies, all of which have different capabilities and costs (Kaplan & Porter, 2011). These resources are used in processes that begin with a patient's first contact with the organization and continue through a series of clinical consultations, treatments, and administrative processes until the patient's care is completed. All of these activities are required to create value for customers with specific medical needs and represent the value chain in the healthcare context (Porter, Nabi, & Lee, 2021).

Primary hospital activities, according to this mechanism, can be organized around the stages of treatment that patients go through, according to (Weissinger, 2014), this is known as 'patient flow'. According to, (igi-global, Dictionary) patient flow refers to the systematic process of attending to patients from the time they enter a medical facility until they check out for

discharge, it includes both medical and administrative procedures. To summarize, primary activities include the admission, treatment, and discharge processes; additionally, the activities performed to bring the patient to the hospital are considered as primary activities (Konnect, 2017). They typically include a list of providers that the patient should see in order to get relief from their pain (Sharan, Schroeder, West, & Vaccaro, 2015).

**Figure 2:** Hospital value Chain



**Source:** (Weissinger, 2014;P:112)

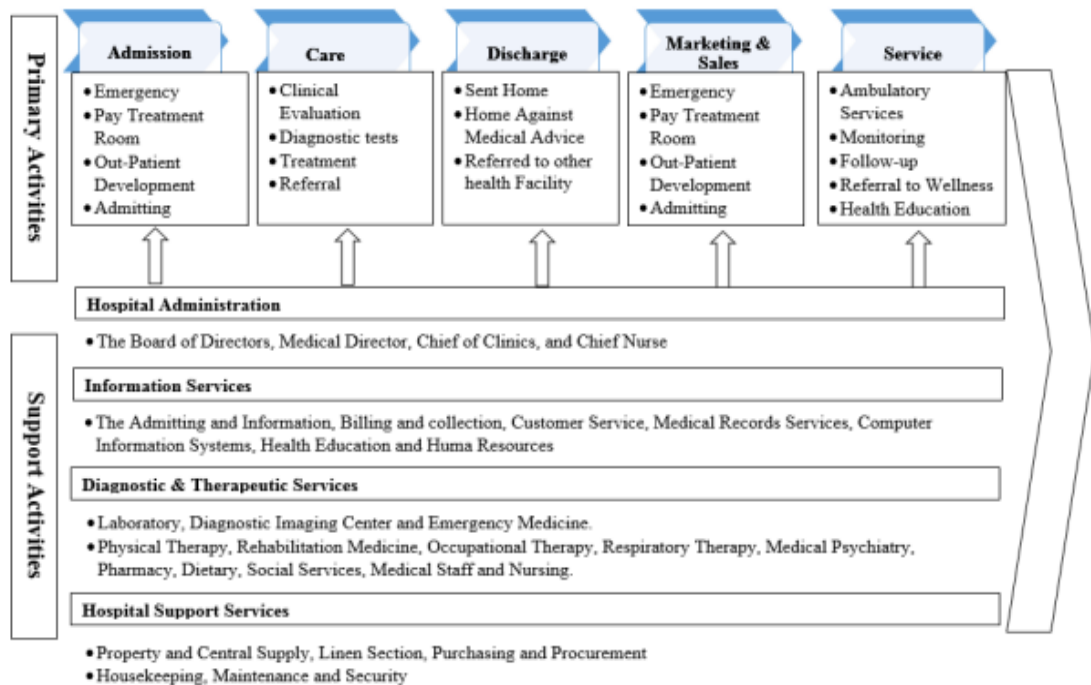
### 6. Value chains developed in the context of healthcare services

As previously stated, few value chains models in general, and particularly in healthcare services have been developed. Despite the fact that they are services, healthcare services differ from other types of services in several ways, the most important of which, from a value chain perspective, are the level of customization of the provided service, the degree of customer participation, and the uncertainty underlying the basic process (Pitta & Laric, 2004).

(Burns, DeGraaff, Danzon, & Kimberly, 2002) were the first to develop a more conventional value chain framework for healthcare services using a modified version of Porter's generic value chain. According to these researchers, the value chain framework redefined a reversed order in which the support activities, which include hospital support services, diagnostic and therapeutic services, information services, and hospital administration, form the foundation activities while the primary activities, which include

admission, care, discharge, marketing and sales, and service, form the front-end activities.

**Figure 3:** Value Chain Framework of Hospital (Adapted from Burn et al. 2002)



**Source:** (Bedeley & Iyer, 2016; P: 5)

In a study conducted by (Kawczynski & Taisch, 2009), the researchers used the value stream map technique and experts' interviews to design the value chain of a healthcare service. Their findings revealed that education and marketing are essential activities that provide value to patients. Through these processes, patients are gaining knowledge about available treatments, sicknesses, threats, new diseases, preventive actions, and health care providers available on the market. These researchers proposed a new aspect of the healthcare value chain. According to (Kawczynski & Taisch, 2009), some value creation processes may take place partially or entirely outside of clinic boundaries. Service delivery may occur partially outside the boundaries of the health care provider by referring patients to outside laboratories. The same thing could happen with follow-up and recovery.

(Buttigieg, Schuetz, & Bezzina, 2016) conducted a qualitative study where they invited 30 health-care professionals with experience ranging from 5 to 35 years (medical administrators, medical doctors across specialties, dentists, nurses, physiotherapists, occupational therapists, and laboratory scientists), from both the private and public sector to participate in their study. Their goal was to design the value chain of both private and public hospitals of Malta. Their findings revealed that the value chain of public hospitals is longer than the one of private hospitals and it includes the following activities: pre-hospital care (screening, education, etc); referral; healthcare facilities; admission; treatment/care; outcome (discharge, referral, rehab); follow-up; and patient experience. On the other hand, the private hospital value chain includes: admission; care; discharge; and sales and marketing activities. According to these researchers, marketing and education are considered as primary activities that bring value to patients.

The distinction between private and public value chains was provided by (Heintzman & Marson, 2005), who stated that public sector's value chain is an adaptation of the private sector's value chain, with the difference being that the focus in the public sector is on the customer, whereas in the private sector, the focus is on profit.

## **7. CONCLUSION**

Value is one of the most overused and misused concepts in social sciences in general, and particularly in the marketing, management literature (Khalifa, 2004). It has been defined in various ways, but until now there has been no single universal definition. It is assumed that value is provided to customer through a well-organized value chain. However, the generic value chain of Porter has little application in services in general, and particularly in healthcare services. As services differ from physical products, applying the generic value model to them did not work. As a result, a modified version of the value chain is required, particularly in the case of healthcare services, which are distinct from other types of services as they are more complex in nature and require the presence of skilled professionals due to the fact that they are technical and specialized services that deal with human lives. The secondary activities of Porter's generic value chain have been agreed to

remain unchanged in healthcare services. Primary, on the other hand, differ from the generic value chain model. These activities represent the patient's path from the time he arrives to the hospital until he leaves.

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