

# E-Health Business Models



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## INTRODUCTION

Advances in technology, such as big data analytics, mobile devices and sensors, are the basis for an increasing number of services in the healthcare domain that promise to enhance efficiency, access, and quality. However, many of these services struggle to be economically successful. The root cause is frequently seen in a lack of business model considerations (van Limburg et al., 2011). Evidently, it is not enough to rely on technical innovations alone when introducing a new e-health service: new concepts are needed with regard to the business model, i.e. how value is created, delivered as well as captured (Osterwalder & Pigneur, 2010). Introducing e-health services without designing a thought-out business model incurs several risks, for example

1. The risk of missing all relevant stakeholders,
2. The risk of failing to address the needs of the customers,
3. The risk of not implementing an adequate revenue model, which jeopardizes the service's success or even its survival (Amit & Zott, 2001; Chesbrough, 2007a; Teece, 2010).

One famous example is Google Health, a service that gave people access to information on their personal health and wellbeing status, but that was discontinued due to the lack of impact (Brown & Wehl, 2011). One reason for the absence of success was that certain business model related questions weren't addressed in the first place, such as "who are the customers?" and "what do they need and value?" (Mora, 2012).

Accounting for all business model related factors while designing business models for an e-health service is of course not trivial: The healthcare industry is highly regulated – consisting of many local health regulations – and has therefore many stakeholders that need to be considered to ensure economic viability (Mettler & Eurich, 2012).

This chapter has the goal to further elaborate on business models and to apply this concept to the e-health domain. Since businesses in the e-health area usually have to deal with different interrelated customer groups, a specific focus is put on so called multi-sided business models. Moreover, the specific challenges for business models in the healthcare industry are considered.

In this sense, "E-Health Business Models" has on the one hand theoretical implications as it extends the existing business model literature by applying the business model concept to the e-health area. On the other hand, the chapter has practical implications as practitioners are supported in creating viable business models for their specific e-health business environment.

## **BACKGROUND**

### **E-Health**

The term e-health usually refers to Internet-based activities, such as Web 2.0, in the healthcare context (van Limburg, et al., 2011). Oh et al. (2005) conducted a literature review in which they identified common patterns in over 50 definitions of the term e-health, e.g. (1) e-health involves health activities as well as technology, (2) technology is both the enabling tool and the embodiment of e-health, and (3) e-health often involves a variety of stakeholders.

Due to advances in technology a multitude of e-health services can be offered. However, most of these services result in a failure as financial viability, relevant stakeholders, service consumption and organizational issues are not considered (Fielt, Huis In't Veld, & Vollenbroek-Hutten, 2008). This is the point where business models for e-health services can help as they are concerned with covering all relevant parties as well as their interrelations to (co)create, deliver, and capture value (van Limburg, et al., 2011).

### **Business Models**

Even though business models are getting more and more interest from both academics and practitioners there is not an agreed upon definition for the term “business model” (Baden-Fuller & Morgan, 2010; Zott, Amit, & Massa, 2011). In some papers, the business model is defined by its functions: Chesbrough (2007b) for example sees the essence of business models in the two functions of creating and capturing value, whereas Osterwalder and Pigneur (2010) extend that definition by adding the third function of delivering value.

Others define the business model by its components, whereas Yunus (2010) summarizes that among the different definitions of business models, three main elements are usually in common: the product or service that is offered to the customers, the way a company is set up in order to deliver that offering and the revenue model that illustrates how a company makes money.

Based on the definitions that look at the business model as a set of interrelated components, the term business model can also be defined as the main logic of the underlying firm (Burkhart, Krumeich, Werth, & Loos, 2011; Casadesus-Masanell & Ricart, 2010).

In this chapter, we take the definition from Osterwalder and Pigneur (2010) as a basis: A business model describes the rationale of how an organization creates, delivers, and captures value. This definition seems appropriate for our context as it encompasses the function of delivering value which stresses the customer focus. This is especially important in the health domain as a health business usually has to consider several customer groups and has to make sure, that the value created is also delivered to each customer segment.

In those contexts, where a company not only serves one or more independent customer groups, so called multi-sided business models exist.

As this constellation is also relevant in the e-health business (see section above), a further elaboration of this business model type is of interest.

### **Multi-Sided Business Models**

Multi-sided business models (often also referred to as multi-sided platforms, networks, or markets) bring together two or more interdependent groups of customers and thereby facilitate interactions between those

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