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Business Modelling in the Dynamic Digital Space

An Ecosystem Approach

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Chapter 2
Digital Business Models: Review and Synthesis

2.1 Origins of Business Models

While technological disruptions are changing the competitive landscape, their full impact on business structures, processes, and innovativeness are less understood and vary significantly across companies in the same industry, and may ironically be similar for companies in different industries. A primary reason for such a seemingly "random process" is the lack of a generally accepted definition of the term "business model" within which to provide systematic analyses. In fact, multiple definitions of business models exist, which pose significant challenges for understanding essential components.

In general, there is no accepted definition of the term "business model" (Shafer et al. 2005; Ho et al. 2010; Muller et al. 2011). Although, the origins of the expression business model can be traced back to the writings of Peter Drucker (Ramon et al. 2009), the concept had gained prominence only in the last decade or two. Many have observed that the term "business model" became widely adopted by practitioners during the dotcom revolution of the 1990s. While business model has been part of the business jargon for a long time, it has been argued that the focus initially involved a scientific analysis of firms has been on industry, and resources, as shown by the works of Porter (1980) and Wernerfeld (Hoyer et al. 2009). Others, in fact, some have argued that the concept of a business model, is relatively new, dating back to only the early 1980s. Furthermore, there is little theoretical underpinning in the literature, (Linder and Cantrell 2000; Morris et al. 2006; Kalantari 2010) particularly in economic theory (Teese 2010).

The plethora of definitions poses significant challenges for understanding the essential components of a business model. They also lead to confusion in terminology as "business model, strategy, business concept, revenue model and economic model are often used interchangeably… (and moreover) the business model has been referred to as architecture, design, pattern, plan, method, assumption and statement" (Morris et al. 2005).

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For example some definitions of business models:

a. Baden-Fuller et al. when they define *business model*s "the logic of the firm, the way it operates and how it creates value for its stakeholders (2000).
b. Timmers defines the business model as architecture for product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for various business actors; and a description of the sources of revenue (Timmers 2000).
c. Mahadevan defines a business as is a unique blend of three streams that are critical to the business. These include the value stream for the business partners and the buyers, the revenue stream and the logistical stream (Mahendran 2000).
d. Johnson et al. define "Business model consists of four interlocking elements that, taken together create and deliver value… customer value proposition… profit formula… key resources… key processes".
e. Ostenwalder et al. define "A business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm. Therefore we must consider which concepts and relationships allow a simplified description and representation of what value is provided to customers, how this is done and with which financial consequences (Ostenwalder et al. 2010).
f. Teese, defines, "business articulates the logic and provides data, and other evidence that demonstrates how a business creates and delivers value to customers. It also outlines the architecture of revenues, costs, profits associated with the business enterprise delivering value" (Teese 2010).
g. Demil and Lecocq, define "business model as, the description of the articulation between different business model components or building blocks to produce a proposition that can generate value for consumers and thus for the organization" (Demil and Lecocq 2010).
h. Sorescu et al. define "a business model is a well-specified system of interdependent structures, activities, and processes that serves as a firm's organizing logic for value creation (for its customers) and value appropriation (for itself and its partners)" (Sorescu et al. 2011).

In addition, the concept of business models can be seen as having progressed in 5 stages as shown in Fig. 2.1 (Gordijn et al. 2005). In the initial phase, when the term business model started to become prominent, a number of authors suggested business model definitions and classifications. Then, during the second phase authors started to complete the definitions by proposing what elements belong into a business models. Initially, these propositions were simple shopping lists, just mentioning the components of a business model. Only in a third phase followed detailed descriptions of these components (Hamel 2000; Weill and Vitale 2001; Afuah and Tucci 2003). In a fourth phase researchers started to model the components conceptually culminating in business model ontologies. In this phase models also started to be more rigorously evaluated or tested. Finally, in the fifth phase, the reference models are being applied in management and IS applications.

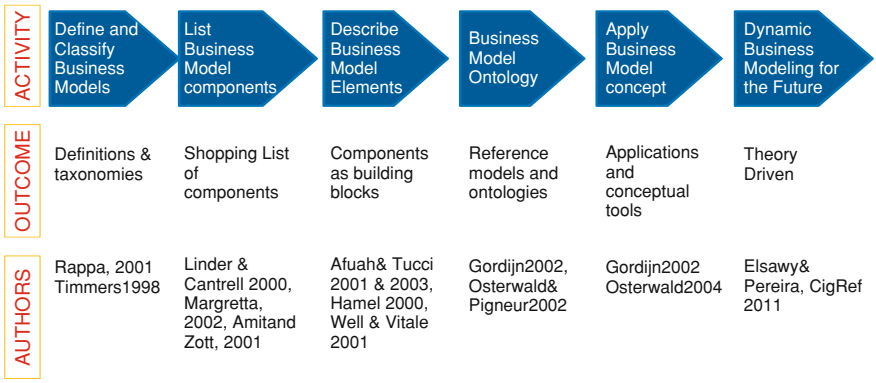

Fig. 2.1 Progression of business model studies

We assert that in the sixth phase, the focus is now on theory building and dynamic modeling.

A business model is a representation of the strategic choices that characterize a business venture. These choices are made either intentionally or by default, so the contribution of a business model is to make them explicit (Morris et al. 2005). Thus, the business model can be seen as a communication or a planning tool. It allows entrepreneurs, investors, and partners to examine strategic choices for internal consistency, to surface the assumptions of the business plan, and to understand the vision toward which the business is being built. Business model development may be part of new venture planning, but is often just as useful in sense making around a going concern, or when new opportunities and threats indicate a need for reinvention (Johnson et al. HBR 2008).

Furthermore, although properly formed business models are very useful and can be a strategic tool for a firm, many business models however suffer from 4 common problems (Shafer et al. 2005), namely:

- Flawed or untested assumptions underlying the key premises of a firm's business plan; these resolve around untested assumptions about future conditions, or implicit or explicit cause-and effect-relationships that are not well founded or logical.
- Limitations in the strategic choices considered; addressing and developing the business logic in only one "component" of the business model, and making untested assumptions about the others.
- Misunderstanding about value creation and value capture; the inability of organizations to financially capitalize on the "value" they create, which may thus negatively affect the "revenue generation" aspects of business models.
- Flawed assumptions about the value network; assumptions that the current value created through the network would continue unchanged into the future and not change dynamically.

Table 2.1 summarizes some of the attempts to capture the concept of business models over the last two decades or so. The number of components proposed in each model ranges from 3 to 9. In general, three general categories of definitions based on their emphasis, namely economic, operational and strategic, each with their unique set of decision variables have been identified (Morris et al. 2005). The economic approach focuses on how a firm can make a profit and key variables from this approach include revenue sources, pricing methodologies, cost structures, margins and expected volumes. Fundamentally stated, this approach deals with how a firm can make money and sustain its revenue stream into the future (Stewart et al. 2000). Alternatively, the operational approach focuses on the firm's internal processes and design of infrastructure that enables firms to create value, with key components such as production or service delivery methods, administrative processes, resource flow and knowledge management, with the objective of key designing interdependent systems that create and sustain a competitive business (Mayo and Brown 1999). In the strategic approach, emphasis in on the overall direction of the firm's marketing position, interactions across organizational boundaries, and growth opportunities. This approach espouses the totality of how a firm selects its customers, defines and differentiates its offerings, creates utility for its customers, define the tasks it will perform or outsource, configures its resources and ultimately captures profits (Slywotzky 1996). Decision variables focus on stakeholder identification, value creation, visions, values and networks and alliances.

2.2 Why Digital Business Models

The role of information technology and its relationship to the business has shifted over the last 20 years. We have progressively transitioned from a focus on the design of information systems, to the design of IT-enabled business processes, and more recently to the design of business models for services provided through digital platforms (Fig. 2.2). While this attention to business models for digital platforms initially started in the networked digital industry (telecom, media, entertainment, gaming. software, etc.) it is increasingly being propagated to all industries whether healthcare, energy, retail, or financial services. As more customers consume products and services offered through digital platforms, the managerial stakes in understanding those models is becoming much higher, especially when these products and services have to be offered to and priced for consumers. A review of Table 2.1 also illustrates that most of the espoused business models do not consider explicitly the effects of digital platforms specifically.

Thus, digital business ecosystems are new and different. Companies operate in a technology-enabled and digitally interconnected environment characterized by new affordances, structures, and rules (El Sawy et al. 1999). The information systems discipline has explored and explicated many of these differences. One of its most important conclusions is that technology and business are effectively fused

Table 2.1 Comparison of business model approaches

Source	Components	Number of components	Eco-system	Digital platform
Horowitz (1996)	Price, product, distribution, organizational characteristics and technology	5	No	Some
Viscio and Pasternak (1996)	Global core, governance, business units, services and linkages	5	No	No
Timmers (1998)	Product/service/information flow architecture, business actors and roles, actor benefits, revenue sources, and marketing strategy	5	No	Some
Markides (1999)	Product innovation, customer relationship, infrastructure management, and financial aspects	4	No	No
Donath (1999)	Customer understanding, marketing tactics, corporate governance and intranet/extranet capabilities	4	No	No
Mahadevan (2000)	Value stream, revenue stream, logistical stream	3	No	No
Gordijn et al. (2001)	Actors, market segments, value offering, value activity, stakeholder network, value interfaces, value ports and value exchanges	8	No	No
Linder and Cantrell (2001)	Pricing model, revenue model, channel model, commerce process model, internet-enabled commerce relationship, organizational form and Value proposition	8	No	Some
Chesbrough and Rosenbaum (2000)	Value proposition, target markets, internal value chain structure, cost structure and profit model, value network and competitive strategy	6	No	No
Gartner (2003)	Market offerings, competencies, core technology investments, and bottom line	4	No	Some
Hamel (2001)	Core strategy, strategic resources, value network and customer interface	4	No	No
Petrovic et al. (2001)	Value model, resource model, production model, customer relations model, revenue model, capital model, and market model	7	No	No

(continued)

Table 2.1 (continued)

Source	Components	Number of components	Eco-system	Digital platform
Dubosson-Torbay et al.	Products, customer relationship, infrastructure and network of partners, and financial aspects	4	No	Some
Afuah and Tucci (2001)	Customer value, scope, price, revenue, connected activities, implementation, capabilities and sustainability	8	No	Some
Weill and Vitale (2001)	Strategic objectives, value proposition, resource sources, success factors, channels, core competencies, customer segments, and IT infrastructure	8	No	No
Applegate (2001)	Concept, capabilities and value	3	No	No
Amit and Zott (2001)	Transaction content, transaction structure and transaction governance	4	No	No
Alt and Zimmerman (2001)	Mission, structure, process, revenues, legalities and technology	6	No	No
Rayport and Jaworski (2001)	Value cluster, market space offering, resource system, and financial model	4	No	No
Bertz (2002)	Resources, sales, profits and capital	4	No	No
Hedman and Kalling (2003)	Value network, resources, capabilities, revenue and pricing, competitors, output, management	7	Some	No
Chesbrough (2003)	Customer, value network, capabilities, revenue and pricing, cost, strategy	6	Some	No
Rappa (2004)	Types: Brokerage, advertising, infomediary, merchant, manufacturer (direct), affiliate, community, subscription, utility	9	Some	No
Stanoevska-Slabeva and Hoyer (2005)	Features of specific product, features of specific medium, customers, value chain, financial flow, goods and services, societal environment	7	No	No
Osterwalder and Pignuer (2009)	Customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, cost structures	9	Some	No

(continued)

Table 2.1 (continued)

Source	Components	Number of components	Eco-system	Digital platform
Al-Debei and Avison (2010)	Value proposition, value architecture, value finance, value network (integrated approach)	4	Yes	No

Adapted from Morris et al. op. cit. and Schafer et al. op. cit.

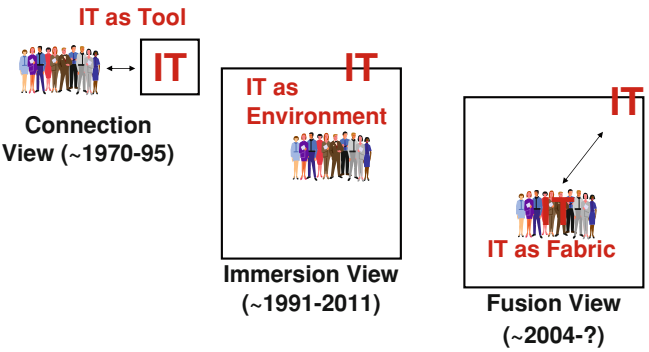

Fig. 2.2 Changing role of technology in business

into one fabric—it no longer makes sense to talk about information technology as a tool or environment that is kept at arm's length from business activities (El Sawy 2003). To theorize about new business models and by adding a few "digital" features to the theory would lead to what we call the "horseless carriage" fallacy. That term for the first automobiles constrained the imagination and blinded inventors to the fact that the new design challenge was fundamentally different than the old. We realize that a theory of digital business models and digital service must integrate the distinct attributes of digital business ecosystems from the get-go (Yoo et al. 2010). There are at least three such attributes: time compression, turbulence, and new architectures.

2.3 New Architectures

Digital business ecosystems feature not only idiosyncratic technological architectures (Yoo et al. 2010) but also important new interorganizational business architectures. Responding to the velocity and turbulence of the environment, and taking advantages of the affordances of digital technology, firms and groups of firms have been prolific in establishing *digital platforms* for the combination of technologies and the delivery of services (Gawer and Cusumano 2008). Platforms

are standards or architectures that allow modular substitution of complementary assets (West 2003). Taking advantage of the digital affordance of modularity, platforms enable firms to focus their attention (and innovation) on one part of a system at a time, and to assemble those parts—whether they are products or activities—into a variety of configurations. As business models have become more digital, firm capabilities themselves have become more modular, more easily connectable, and more conveniently shareable. In prior decades it might have taken a formal alliance and a joint venture to make one firm's technology compatible with another's, but today, riding on rails of application programming interfaces (APIs) and broadband fiber optics, we can "mash up" digital services like Google's maps and Facebook's social newsfeed in no time and on a shoestring budget. Digital business ecosystems enable the possibility of combining capabilities across boundaries into innovative new offerings and solutions to create and capture value (Schlagwein and Schoder 2011).