

Some Heuristics for Digital Business Model Configuration

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Abstract. This paper presents a summary of ongoing research with regard to the reconfiguration of business models with the help of digital technologies. Based in Amit and Zott's seminal notion of a business model, studies of a large set of digital business models have uncovered a set of *dimensions* that when reconfigured with the help of digital technologies may produce successful digital businesses. These dimensions are a business model's *outputs, activities, actors, transaction mechanism* and *governance*, and may be regarded as a set of heuristics to guide managers' business development efforts into the digital world.

Keywords: Digitalization · Economic value · Unbundling · Decoupling · Sharing

1 Introduction

The renewed American firm *Kodak* was a hugely successful market leader in the camera and film industry, at its peak employing more than 120 thousand people. In 2012 it filed for reconstruction as it was on the brink of bankruptcy. Despite being early in developing digital options to its main analogue products, *Kodak* failed to align its business model to this new technology and died from relying on an outdated business model that had lost market relevance [1]. In the same year, the tiny start-up firm *Instagram* employing only a dozen people was acquired by *Facebook* for \$1 billion, after having been in the marketplace for less than a year! [1] Today's market capitalization of *Facebook* is greater than \$ 200 billion (e.g. *ychart.com*) and all these three firms are operational in the same fundamental business, namely information logistics. This is also valid for many other digital companies such as *Google*, *Spotify*, *Netflix*, *UberTaxi* and *AirB2B* and also for traditionally non-digital firms that are now pursuing digitalization efforts, such as *General Electric's* digitalization of electric power generators and related equipment [2].

One question that emerges is why some firms succeed with their digital efforts while others fail. This is of course a complex question that resists simplistic answers. Our research efforts address the structure, content, governance and dynamics of digital business models [3], where a *digital business* is understood broadly as a business that employs contemporary information and communication technologies for its business activities. This includes such aspects as the actual configuration of the content of a digital business model, the managerial processes needed for their development and

adaptation, their revenue models, and their sources of value creation and appropriation. This paper presents a summary of the preliminary findings of ongoing research that addresses configuration of the content of a digital business model.

The paper is organized as follows; the next section summarizes some key challenges, both empirical and theoretical, to the comprehension of a digital business. Thereafter, the assumed notion of a Digital Business Model, with its theoretical underpinnings, is briefly accounted for. The next part represents the main contribution of this paper, being a summary of our current research findings with regard to the configuration dimensions of the content of a digital business models. These dimensions may be utilized by managers as heuristics, or rules of thumb, for challenging existing business models and guiding their transformation into digital business models. The paper ends with a brief description of areas for future research.

2 The Digital Challenges of Conventional Notions of a Business

The desire to acquire a comprehensive understanding of a firm, including its nature, success and failure has been around at least since Adam Smith's *The Wealth of Nations*. To that end, a number of qualified candidates have been advanced. Such a list may include at least the following intellectual contributions: Schumpeterian innovation [4], value chain analysis [5], competitive strategies [5], corporate strategies [5], strategic capabilities [6], dynamic capabilities [7], game theory [8], strategic network theory [9], transaction cost economics [10], and more recently organization economics as such [11]. When faced with an empirical phenomenon such as *Instagram*, *Facebook* or *Spotify*, a practitioner may ask how to make sense of the theoretical bodies provided by decades of research and their studies.

Indeed, one limitation of current comprehension attempts of any business is that the conventional theoretical bodies currently available provide a *partial* understanding at best – sometimes complementary while other times contradictory [12]. Another key limitation inherent in those theoretical bodies, which is particularly pertinent to our context of digital businesses, is that those theoretical constructions have largely been developed from empirical studies conducted several decades ago, prior to the advent and adoption of contemporary information and communication technologies (ICT), as well as other key changes of marketplaces, for instance massive deregulations. This means that potentially, most current theoretical bodies addressing the notion of a business cannot fully account for the phenomenon of a digital business and its context of contemporary marketplaces.

3 The Notion of a Digital Business Model

Given the assumed position that current theoretical bodies are not equipped to offer a comprehensive conception of digital businesses, various attempts have emerged with the aspiration to overcome the mentioned theoretical partiality and to account for the

digital reality of businesses. These attempts are sometimes rather unfortunately labelled ‘*business models*’. This is not the place to provide a comprehensive review of business model literature, including its various strands of thought; rather we rely on one such recent and excellent review [13]. The research findings reported here rely on one particular notion of a business model, as advanced by Amit and Zott [1, 3, 14–16]. This notion is by far the most advanced in terms of theoretical groundings and empirical support, and offers some unique abilities to account for the realities of digital business models.

In summary, Amit and Zott’s elaboration understands a business model as the *structure*, *content* and *governance* of a specific actor network, linked by transaction mechanisms that jointly execute value chain activities so as to create and appropriate value in a marketplace [1]. In this conception, the *structure* accounts for the actors involved, how they are related and the transaction mechanisms involved in their interactions as well as the order of actors’ interaction. The *content* of a business model accounts for the inputs received and outputs generated, so as to provide products to their recipients in the network; the content also accounts for the capabilities inherent in the actor network conducting the transformation of inputs into outputs. Finally, the *governance* of a business model refers to the present design of command and control set-ups that govern the mentioned transformation of inputs to outputs (both informational and material) and the actor-network conducting it; this also includes the legal content of the *contracts* that govern both each actor and the actor network, as well as their *incentive* set-ups. Both early and recent contributions emphasize that a business model should be regarded as a *system*, hence featuring and accounting for its *systemic* characteristics [14, 17, 18], even though some challenges to this have been observed [19].

This business model notion focuses on how economic value is created and appropriated and who generates it, and is thereby not limited to a single firm only or an industry – indeed it is truly boundary spanning of firms and even industry [14], thereby being able to account for such firms as Apple, whose business model spans several industries and is highly dependent upon a successful interaction with a large set of actors.

By integrating several existing theoretical bodies, this conception of a business model enables us to articulate several sources of economic value creation and appropriation. The Schumpeterian foundation accounts for business models that offer *novel* designs and generate value from creative destruction. The resource-based view of business focuses on the importance of *complementarity* of capabilities, and products that a business model can account for. The strategic network theory accounts for the frequent situations when the locus of value creation is not a single firm but a network of firms, and thereby brings in the *lock-in* mechanism as value appropriator. Transaction cost economics account for the governance *efficiency* of alternative governance mechanisms that mediate transactions between actors.

Given the above conception of a digital business model, with its constituents and functions that generate economic value creation and appropriation, the core question of our concern here is: how can the content of a business model be configured by means of digitalization. The remaining part of this paper addresses that question.

4 Heuristics for the Configuration of a Digital Business Model

The starting point here is how conventional, not digitalized, business models can be transformed into digital business models. At least five dimensions of a business model may be regarded as areas for modification, which have shown capability of producing novel digital business models. These are *Output*, *Activity*, *Actors*, *Transaction Mechanisms*, and *Governance*.

4.1 Reconfiguring Outputs

Reconfiguration of the products that are present in a marketplace was one of the first effects of novel digital business models in the market places. Often referred to as unbundling [20] this kind of reconfiguration focuses on the content of given information products, such as books or newspapers. As such products are typically composed of several subcomponents that are bound into one offering, the reconfiguration or unbundling of such a package aims to provide the customer with some of its parts only or another configuration or bundling of the product. For example in the case of a book constituted by a dozen chapters, the customer may acquire one or two chapters only if so desired and is not forced to acquire the whole book due to its bounding. In this manner, the customer acquires only what represents value to her while the business model differentiates itself from the conventional by offering that freedom to acquire only those parts of a given book that are needed.

It is difficult for conventional business models to defend themselves against such reconfigurations. One defence is to block the technical opportunities to unbound and rebound bound products, which is rather difficult both technologically and also from a market opportunity viewpoint – i.e. if a chosen album of music is not provided digitally song by song, then customers will take their money elsewhere. Another defence of business models that unbundle products of conventional business models is to reconfigure the products in novel manners aimed at various customer segments with different pricing models. For example; music, songs, films, and books or magazines may be bundled into packages with a single monthly fee, and where a specific bundling is provided to a given customer segment with distinct needs. This approach realizes transaction efficiency in so far as it reduces the cognitive burden for customers' search and also offers significant discounts for the consumption of the given products during a given time period, while at the same time securing a certain volume of revenues per customer.

4.2 Reconfiguring Activities

As the notion of reconfiguration of a business model into a digital one, as such, was introduced above, together with the output reconfiguration, the focus here is on the reconfiguration of activities present in the actor network that constitutes a business model. Starting with non-digital reconfigurations, a notable example is the Swedish

furniture maker IKEA, who reconfigured the notion of furniture production, distribution and consumption. One key change to the old business model of furniture was to sell them disassembled accompanied with instructions so that consumers who bought them could assemble their new kitchen table at home from the parts provided – in this, the assembling activity was relocated from the producer to the consumer. This solution together with IKEA's sales via very large outlets positioned in the suburbs of major cities realized both on innovation and transaction efficacy and complementarity as their product range with regard to home furniture is almost endless.

Innovative digital business models frequently disentangle, or decouple, an existing activity chain [21]. One such reconfiguration is manifested by IP telephony providers, such as *Skype*. In the conventional business model the calling activity is coupled with paying-per-each-call activity, where the latter offers revenue stream for the telephone service provider. IP telephony, on the other hand, succeeded with a decoupling of those two activities – the first value creating and the second value appropriation – and cut a large part of long distance calls from the conventional telecom industry. As a response, these companies must look to change their business model both with regard to outputs and activities and also revenue sources. In the case of telecom firms, one such attempt is to rebalance the revenue streams from being dominated by telephone calls into data traffic. At the same time, IP telephony is associated with another value appropriation activity, namely advertising. *Skype*'s main value creation came from its disruptive innovation, hence novelty, and also the efficiency offered – the first faded as other players with similar offerings arrived in the market place while the second is still present. It also shows the power of the lock-in mechanism, as by being first in the marketplace *Skype* realized network effects, as the more subscribers this free service acquired the harder it was for them to move to another supplier.

4.3 Reconfiguring Actors

Yet another form of business model reconfiguration targets the actual resources that execute the activities present in a business model. A recent and somewhat sensational example of this is the *UberTaxi* firm that offers a new business model for taxi rides [22]. Conventional taxi firms acquire their key resource, the taxi car, and typically use it for that purpose only while also employing car drivers; they also offer a taxi calling function and a payment transaction service. *UberTaxi*, on the other hand, does not acquire cars nor employ drivers; rather it connects people with a car to those in need of transportation at a given point of time and place by offering dedicated digital services for calling and payment. Clearly, the key resources of the conventional taxi business model – the car and the driver – are here replaced with other resources. As this business model assumes a significantly lower cost mass than any given taxi drive, it is able to ask a much lower ride-fee and thus attract a large customer segment out of the conventional business model. This business model also realizes novelty and effectivity as sources of economic value creation.

4.4 Reconfiguring Transaction Mechanisms

Yet another reconfiguration of the digital business model addresses the way a transaction mechanism is designed. A transaction “occurs when a good or service is transferred across a technologically separable interface. One stage of processing or assembly activity terminates, and another begins”, says Williamson [10:104]. Indeed, the advent of internet has shown a large array of transaction mechanism reconfigurations, enabling for example the so-called outsourcing of some business model activities to other suppliers, often operating at distance, geographically, temporally and culturally. Procurement of digital books from *Amazon.com* capitalizes on its transaction mechanism being radically different from the conventional book store, with regard to how information about products is exchanged, how the actual products are exchanged and also how payment is conducted. One of the more radical transaction mechanism reconfigurations is represented by the case of *Priceline.com* with so-called reversed auctions (that received a US patent!). In this case, a potential customer provides information about travel and the fee that she or he is willing to pay for such travel, while travel providers can bid for that customer by offering as favourable offerings as possible. Besides the obvious innovation, this transaction mechanism also offers significant transaction efficiencies for both parties: the buyers and the sellers.

4.5 Reconfiguring Governance Set-ups

The last reconfiguration area of a business model to be articulated here is that of the actual governance of a business model, which addresses the set-up of command and control of the actors, the activities and the transaction being conducted. This includes the legal content of contracts, business norms, and incentive structures. The obvious digitalization of the governance of some activities and actors is that of automation that has been pursued since the advent of the computer. However, it is particularly the effects of the dimensions of the business model being digitized as detailed above that gives rise to a reconfiguration of the governance set-ups of a business model. One example is peer-to-peer lending, where money is lent to unrelated individuals, or peers, without going through the conventional banking activities of risk assessment and so on. In this governance reconfiguration, the lending and risk assessment (i.e. activities) is not allocated to a central bank but to a peer (i.e. actors), who decides on whether to lend money or not, how much and with what conditions. In addition, music streaming services, such as *Spotify*, reconfigure the legal content of the music, by offering the right to listen to a song and not to download a file, where the latter is also a legal reformulation compared with the DVD-based music distribution.

5 Further Research

The above-listed dimensions of a business model articulate characteristics that can be re-configured with the help of digital technologies. While these dimensions are presented one-by-one, as the various accompanying illustrations suggest, they are in practice often reconfigured jointly in a specific and unique manner to produce a digital

business model that aims to realize some of the four sources of the economic values creation and appropriation. With regard to this kind of business model re-configuration, much research is still necessary if we are to discover which digitized configurations succeed and why. Do some particular underlying patterns of reconfigurations give rise to particular patterns of value creation and appropriation? Another crucial area, mentioned above briefly only, is that of the revenue models utilized by a specific business model configuration. Do some specific business model configurations depend more on certain revenue model set-ups, and if so which? These and similar questions deserve further attention if we are to develop a firm understanding of our future digital businesses.

References

1. Economist: Coming to an office near you. *The Economist*, 18 January 2014
2. Iansiti, M., Lakhani, K.R.: Digital ubiquity: how connections, sensors, and data are revolutionizing business. *Harvard Bus. Rev.* **92**, 91–99 (2014)
3. Amit, R., Zott, C.: Value creation in e-business. *Strateg. Manag. J.* **22**, 493–520 (2001)
4. Schumpeter, J.A.: *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Harvard University Press, Cambridge (1934)
5. Porter, M.E.: *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press, New York (1985)
6. Barney, J.B.: Firm resources and sustained competitive advantage. *J. Manag.* **17**, 99–120 (1991)
7. Teece, D., Pisano, G., Shuen, A.: Dynamic capabilities and strategic management. *Strateg. Manag. J.* **18**(7), 509–533 (1997)
8. Brandenburger, A.M., Nalebuff, B.J.: The right game: use game theory to shape strategy. *Harvard Bus. Rev.* **73**(4), 57–71 (1995)
9. Dyer, J., Singh, H.: The relational view: cooperative strategy and sources of inter-organizational competitive advantage. *Acad. Manag. Rev.* **23**, 660–679 (1998)
10. Williamson, O.E.: *Markets and Hierarchies, Analysis and Antitrust Implications: A Study in the Economics of Internal Organization*. Free Press, New York (1975)
11. Gibbons, R., Roberts, J. (eds.): *The Handbook of Organizational Economics*. Princeton UP, Princeton (2012)
12. Roberts, J.: *Modern Firm: Organizational Design for Performance and Growth*. OUP, Oxford (2007)
13. Zott, C., Amit, R., Massa, L.: The business model: recent developments and future research. *J. Manag.* **37**(4), 1019–1040 (2011)
14. Amit, R., Zott, C.: Creating value through business model innovation. *Sloan Manag. Rev.* **53**(3), 41–49 (2012)
15. Zott, C., Amit, R.: Business model design and the performance of entrepreneurial firms. *Organ. Sci.* **18**(2), 181–199 (2007)
16. Zott, C., Amit, R.: The fit between product market strategy and business model: implications for firm performance. *Strateg. Manag. J.* **29**(1), 1–26 (2008)
17. Osterwalder, A., Tucci, C.L., Pigneur, Y.: Clarifying business models: origins, present, and future of the concept. *Commun. Assoc. Inf. Syst.* **16**, 1–40 (2005)
18. Berglund, H., Sandström, C.: Business model innovation from an open systems perspective: structural challenges and managerial solution. *Int. J. Prod. Dev.* **18**(3–4), 171–184 (2013)

19. Haftor, D.M., Koczka, A.: Two limitations of the systemic conception of a business model. In: Presented at the 3rd Business Systems Laboratory International Symposium Advances in Business Management. Towards Systemic Approach, Perugia, 20 November 2015
20. Koukova, T., Kannan, P.K., Ratchford, B.T.: Bundling and unbundling of electronic content. In: Shaw, M.J. (ed.) E-Commerce and the Digital Economy. Advances in Management Information Systems, vol. 4. M.E. Sharpe, Armonk (2006)
21. Teixeira, T.S., Jamieson, P.: The Decoupling of Digital Disruptors. Working Paper 15-031, 28 October 2014, Harvard Business School (2014)
22. Economist: Peer-to-Peer Rental: The Rise of the Sharing Economy: On the Internet, Everything is for Hire. The Economist, 9 March 2013