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Published in:
From Digital Disruption to Business Model Scalability

Publication date:
2017

Document Version
Early version, also known as pre-print

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Nielsen, C., Lund, M., & Thomsen, P. P. (2017). From Digital Disruption to Business Model Scalability. In From Digital Disruption to Business Model Scalability ISPIM Conference.

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From Digital Disruption to Business Model Scalability

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Abstract: This article discusses the terms disruption, digital disruption, business models and business model scalability. It illustrates how managers should be using these terms for the benefit of their business by developing business models capable of achieving *exponentially increasing returns to scale* as a response to digital disruption. A series of case studies illustrate that besides frequent existing messages in the business literature relating to the importance of creating agile businesses, both in growing and declining economies, as well as hard to copy value propositions or value propositions that take a long time to replicate, business model scalability can be cornered into four dimensions. In many corporate restructuring exercises and Mergers and Acquisitions there is a tendency to look for synergies in the form of cost reductions, lean workflows and market segments. However, this state of mind will seldom lead to business model scalability capable of competing with digital disruption(s).

Keywords: Business models; disruption; digital transformation; scalability

1 Introduction

When today's companies fail, they inadvertently blame disruption, but the definition of disruption is murky at best.

The message conveyed in this article is that while providing a good value proposition may help the firm ‘get by’, the really successful businesses of today are those able to attain business model scalability and many companies are found to be achieving this through the mechanisms associated with digital disruption. However, currently no contributions focus specifically on the relationship between digital disruption and business models although Christensen *et al.* (2015) argue that disrupters often build business models that are very different from those of the incumbents they disrupt. And the power of business models lies precisely in their ability to visualize and clarify how firms’ may configure their value creation processes (Nielsen *et al.*, 2017).

Among the key aspects of business model thinking are a focus on what the customer values, how this value is best delivered to the customer and how strategic partners are leveraged in this value creation, delivery and realization exercise (Nielsen and Roslender, 2015). Central to the mainstream understanding of business models is the value proposition towards the customer (Osterwalder and Pigneur, 2014) and the hypothesis that if the firm delivers to the customer what he/she requires, then there is a good foundation for a long-term profitable business. Hence, initially there seems to be a good match between the value understandings contained in the business model literature and the notions of disruption as argued by Christensen (2013).

Further, contemporary understandings of the mechanisms of achieving business model scalability are imprecise (Nielsen and Lund, 2015). While there is a multitude of current research looking a business model innovation (Foss and Saebi, 2017) and specific business model configurations from which business model innovation can take place (Gassmann *et al.*, 2014; Taran *et al.*, 2016), no research is yet to provide guidance on potential trajectories of business model innovation using digital disruption mechanisms to achieve scalability. And because Christensen’s (2013) theory of disruption has become “talk of the town”, this is a timely endeavour.

It is imperative to address and link the notion of digital disruption to business model scalability because this provides a framework for discussing business potential and thereby the potential effects that the disruption creates. In addition, this also feeds into configuring how to compete against disruptive entrants. Business potential is important not only to disruptors and incumbent company executives, but to many stakeholders both within and outside the focal firm. From a social and community perspective, business potential is related to societal wealth creation through the creation of jobs and thereby also tax money for sustaining welfare. From an investor perspective business potential is the backbone of valuation techniques like the Discounted Cash Flow (DCF) model and the bets that many investors make, regardless of whether they merely hold a few stocks on their private account, are active Business Angel investors or large institutional investors. From the perspective of stakeholders directly involved in a business and its ecosystem, like for example employees, customers, suppliers and other types of business partners; business potential is important for lowering risk perceptions such as loss of jobs, loss of receivables, and loss of money. We might accrue scalability and business potential to the related topic of *growth*.

This article answers the research question: How do we identify digital disruption(s) that lead to business models with scalability attributes and are there specific business model configurations that enable these mechanisms?

This article is organised as follows: The next section clarifies the term disruption and creates a link between disruption and business models. Hereafter, business models and the notions of scalable business models are introduced. The following section describes the applied methodology for identifying scalable business models, through a series of dimensions and empirically couples this to specific business model configurations that meet these criteria in the discussion section. The paper is rounded off with implications for practice as well as a concluding section that outlines the connections between disruptive business models and business model scalability.

2 Clarifying disruption

Without entering into a deeper semantic discussion of the term *disruption*, the Merriam-Webster dictionary provides a number of examples of the use of the word disruption, meaning a disturbance or problems which interrupt an event, activity, or process:

- The barking dogs *disrupted* my sleep.
- The weather *disrupted* our travel plans.
- A chemical that *disrupts* cell function

From these uses we argue that in our context, disruption therefore concerns unanticipated changes affecting the company's competitiveness. According to Christensen *et al.* (2015), *disruption* describes a process whereby a smaller company with fewer resources is able to successfully challenge established incumbent businesses. They go on to argue that disruptive entrants typically begin by successfully targeting segments that are overlooked by the *incumbent* companies, because these segments might have too low profit-margins for the business models currently applied. The process described by Christensen (1997) argues that disrupting companies will work on gaining a foothold by delivering more suitable functionality to overlooked segments, frequently at a lower price. One strategy whereby to achieve this, is by analysing the fit between the existing product/services (Osterwalder and Pigneur, 2014) and the jobs-to-be-done (Christensen *et al.*, 2016) valued by these overlooked customer segments.

Christensen and Overdorf (2000, p. 72) argue that disruptive innovations create entirely new markets through the introduction of an adjusted product or service with a lower value proposition in terms of performance metrics than currently being delivered to mainstream customers. This creation of a new market can either be in the form of a *low-end foothold* of the existing market or a *new-market foothold* by drawing in and addressing customer segments not previously using that product or service. It might be debated whether Ryanair is a true disruptor of the airline industry. However, this company definitely addressed the *low-end foothold* of air travel by providing a No-frills experience (Nielsen *et al.*, 2017), and they also succeeded in achieving a *new-market*

foothold by capturing new customer segments, like e.g. low-budget travellers around Europe that used to revert primarily to *Interrail* or bus-travel.

3 Disruption is radical and not incremental

While successful companies are good at responding to incremental changes, Christensen (1997) argues that they run into trouble in handling or initiating radical changes, i.e. disruptive innovations, in their markets. The problem for them is disruption is precisely characterized as having radical effects. Incremental, also called sustaining innovations, are improvements or advances that make a product or service perform better in ways that customers in the mainstream market already value and these are more easily managed.

Disruptive innovations, on the other hand, are initially considered inferior by the customers in the mainstream market. Typically, these mainstream customers are not willing to switch to the new offering merely because it is less expensive. This is because it typically is an inferior product, at least when compared across all features of the existing solutions. The disrupting product/service, on the other hand, might focus on a particular aspect of the offering and do this very well. According to Christensen *et al.* (2015), instead of moving to the disrupting product/service, the mainstream customers wait until its quality rises enough to satisfy them. Once that's happened, the mainstream customers eventually adopt the new product and happily accept its lower price, thus driving prices down in a given market. Going back to the example with Ryanair, it is perceivable that they, along with a multitude of other low-cost airlines, have driven down the price of air travel, however, it is disputable that they have completed the disruption trajectory described by Christensen (1997) by gradually raising the quality of their offering. This might be among the explanations for the ease in competitive pressures in the airline industry in general in the latter years. Christensen *et al.* (2015) conclude that there are four important notes to consider:

- 1) Disruption is a process as is any form of business model innovation for that matter
- 2) The business models applied by the disruptors are often very different from those of the incumbents, which means that in cases where incumbents try to follow they will be hampered by the fact that the disruptive innovation becomes a poor fit with the organization's existing values
- 3) Not all disruptive innovations succeed, meaning that the incumbents need to incorporate this in the strategies for tackling disruption
- 4) Disrupt or be disrupted is a misleading mantra

Leaning on these highlights, we wish to dispute the definition of disruption offered by Christensen (1997) and revised in the later text by Christensen *et al.* (2015). Here Christensen *et al.* (2015) use the example of Uber as a well-known and widely applied case of disruptive innovation and argue that it may in fact not be a case of disruption because it misses the points of both low-end foothold and new-market foothold.

For a major part of the last century, it was a general perception that if you had a proven product in combination with the right resources, competent employees, suitable buildings, machines and other assets, you were likely to have a successful business. Competition mainly came from comparable rivals that were able to sell similar products, perhaps at slightly lower prices. The 1980s saw the rise of a new and somewhat radical type of competition that would change the conservative strategy to success, namely *low cost competition*. In retail a completely new low-cost business model was introduced. Here the cost structure was radically different, shocking the industry and changing it forever. The same story took place in the airline industry where new companies entered the market and challenged the established industry with low-cost products.

For decades, the fear of this new form of competition from low-cost business models were extant for managers in most industries. The next major event that changed our understanding of competition came from the IT bubble, where well-known business models all of a sudden were declared dead, and start-ups got access to almost endless funding enabling them to invest in all necessary resources for success, even buying the customers if needed. When these companies started failing they blamed the business model, in turn letting Michael Porter point out that the business model term was inconclusive. He argued that “the definition of a business model is murky at best. Most often, it seems to refer to a loose conception of how a company does business and generates revenue. Yet simply having a business model is an exceedingly low bar to set for building a company” (Porter 2001, p. 73). Since this statement, time has passed and we have come closer to understanding the business model concept, and the complex configurations of successful companies.

In recent years, we have seen a number of companies, including the likes of Uber, Apple, Dell and Amazon, radically change the industries in which they compete. These companies provide examples of revamping the standard “industry business model” configuration into a new and highly competitive, often market dominant, way of doing business. This typically leaves the surprised (and unsuccessful) competitor to blame “disruption” as the reason for not realizing the impact before it was too late. Hence, we can repeat and refine Porter by stating that “when today’s companies fail, they inadvertently blame disruption, but the definition disruption is murky at best”.

4 The Disruption predicament

Christensen *et al.* (2015) acknowledge the importance of business models to the disruption context and we wish to take this one step further by arguing that new technologies or products that are more specialized to the needs of specific customer groups by themselves do not offer disruptive characteristics. The disruption, we argue, is always rooted in the challenges posed by the encompassing business models.

Let us take a look at the example of Uber used by Christensen *et al.* (2015) to argue that Uber was probably not a disruption because it was not a low-end offering or an offering that created a new market segment. And then again, maybe it was? Uber’s prices are renowned for being lower than traditional taxis, hence drawing in a potentially larger customer-base. In addition, Uber provides a higher value proposition by creating trust

between the driver and the passenger, creating transparency in Uber arrival, transparency in the choice of driver/passenger, and also the ease of payment. On the financial side, Uber is seen to redistribute the profits away from the traditional middlemen and towards the drivers. Among the facets that Uber has had difficulties in aligning to are a number of legislative issues relating to union protectionism, taxi legislation, insurance issues and taxation issues. Despite Uber's system being capable of managing insurance and revenues, it has met resistance in a number of countries. From our review of the contemporary literature we suggest to define disruption as:

“A radical advancement to an industry achieved with a distinctly new business model configuration that challenges existing ways of doing business”

Disruption leads to new business models with new attributes where new types of knowledge, intellectual capital will be driving the value creation (Dane-Nielsen and Nielsen, 2017). However, disruption is a difficult endeavour, both for the disruptor and the disrupted. There are risks in launching business models into new territories, which might hurt the existing business. Fear and aversion from established industries, means that they will often fight disruptive businesses because they are afraid. In addition to this there are the legal issues. Uber faces the unions and taxi legislation, Airbnb the insurance and hotel legislation and Ryanair the unions and worker's rights organisations.

Comparing business models of the incumbents and the existing companies is a viable way of defining whether disruption has occurred or not and the digital element is important because it holds a number of vital ingredients for achieving scalability. Leaning on these notions, we define digital disruption as:

“A radical advancement to an industry achieved with the help of a digital transformation that enables a distinctly new business model configuration to enter into that industry”

5 Business models and Business model scalability

Having evolved from a “murky term” (Porter, 2001), today the concept of business models has now gained a widespread and successful foothold in the minds of both researchers and practitioners. With a focus on customer value creation, the contemporary concept of business models offers an innovative and useful frame of reference to the principles of value creation, regardless of whether the object of analysis is a private company or a public organisation or other. Although typically considered a young field, notions of business models can be traced back to, among others, the seminal works of Chandler (1962) and Child (1972). It is an agreed perception that the increased interest and utilization of the term business models is rooted in the emergence of the Internet and the business opportunities this new communication platform brought along (Amit and Zott, 2001) by allowing for novel ways of configuring businesses.

The importance of the business model concept today is underlined by the fact that since the millennium, 14 of the 19 entrants into the Fortune 500 owe their success to business models innovations that either transformed existing industries or created new

ones (Christensen & Johnson, 2009). Therefore, business models are valuable when it comes to optimizing business performance and therefore important for companies to understand (Teece, 2010) and measure (Montemari and Nielsen, 2013). The field of business models is currently discussed throughout a number of different disciplines such as: e-business (Amit and Zott, 2001), information systems (Hedman and Kalling, 2003), management, entrepreneurship (Morris *et al.*, 2005), innovation, strategy, and economics (Teece, 2010).

Parallel to the interest of developing business model definitions and frameworks, there has been an interest towards identification of general type structures of successful business models across different industries to discuss and define value creation. Linder and Cantrell (2000), for example, highlighted 33 different forms of “operating business models”, while Johnson (2010), pinpointed 19 potential business model analogies. In their book *Business Model Generation*, Osterwalder and Pigneur (2010), draw attention to five so-called business model patterns, while Gassmann *et al.* (2014), using the same term, identified 55 potential business model patterns. This latter approach by Gassmann *et al.* (2014) is to date the most valid business model configuration approach. Each of their 55 patterns is analysed based on a four-dimensional framework addressing the value proposition (what?); value chain (how?); profit mechanism (why?); and target customer (who?).

Baden-Fuller and Morgan (2010) argue that business models in effect are distinct recipes of doing business that can be classified by the nature of how they are configured and that sometimes the naming of the specific business model is often done through the example of a well-known company. According to Taran *et al.* (2016), notable examples of this is the *E-auction* business model configuration (eBay), the *Disintermediation* business model configuration (Dell), the *No-Frills* business model configuration (Ryanair), the *Razors and blades* business model configuration (Gillette) and the *Freemium* business model configuration (Skype). A commonly applied business model definition that captures these notions of configuring a business is Osterwalder and Pigneur’s: “A business model describes the rationale of how an organization creates, delivers, and captures value” (2010). Baden-Fuller and Morgan (2010, p. 157) argue that scale models of business models “offer representations or short-hand descriptions of things that are in the world, while role models offer ideal cases to be admired”. Therefore, the scale models have the advantage that they can inspire other companies to alternative ways of designing their value creation, delivery and capture.

Taran *et al.* (2016) offer an ontology of 71 business model configurations coded into a relational database and interconnected through individual value drivers. Currently the database contains 251 such value drivers, which constitute the ingredients for the 71 configurations. Each business model configuration is unique in its combination of value drivers, but shares value drivers with other business model configurations. This structure enables a very nuanced understanding of how value drivers can influence different business models in different contexts. This means that it is possible to single out all the business model configurations with a certain value driver, take for example *leasing* as a revenue stream value driver or *co-creation* as a customer relationship. This also has the advantage that it is possible to see how many value drivers would need alteration in one business model configuration for it to be altered to another business model configuration.

In relating the concept of scalability to business models, a number of interesting questions arise: Are there degrees of scalability evident in these business model configurations? and; Under which circumstances is the relationship between scale and scope of particular importance?

6 Business model scalability

The adjective 'scalable' means "Able to be changed in size or scale" (Oxford Dictionaries), hence we use the term scalability to denote a state where change in size is achievable. Prior contributions have explored factors that influence business model scalability in entrepreneurial settings (Stampfl *et al.*, 2013) and the traits of exponentiality in global corporates (Ismail *et al.*, 2014). In the context of IT infrastructure, Bondi (2000) argues that, "Scalability is ability of a system, network, or process to handle a growing amount of work in a capable manner or its ability to be enlarged to accommodate that growth". Here scalability refers to the capability of a system to increase its total output under an increased load when resources (typically hardware) are added. This is directly transferable to the context of scaling businesses.

Going back to the notions of scale and scope from an economics perspective, three different variations of returns are given (Basu 2008, Gelles and Mitchell 1996), namely increasing, constant and declining returns to scale. In addition to this can be added the dimension of a linear relationship versus an exponential relationship. In table 1, this provides an overview of the possibilities according to these two dimensions. Obviously, in situations of declining returns to scale, the question is merely how quick to leave the business. For example, in the case of linear relationships there might be a case for selling off the assets tactically so as to destroy as little value as possible in that process. In a situation with constant returns to scale, the business needs to be innovated or investments of excess capital should be done elsewhere, and finally in the increasing returns to scale column, the business models become more attractive from a scalability perspective.

	Declining RtS	Constant RtS	Increasing RtS
Linear attributes	Sell out sensibly	Innovate or invest elsewhere	Synergies make this a good place to be
Exponential attributes	Leave as soon as possible		The sweet-spot

Table 1: Analyzing business model scalability

Table 1 illustrates that scalability can take several forms according to these dimensions. For the manager of a company, it should be considered unsatisfactory to expect an increase in returns of 10% if the capital employment to reach that goal also is 10%. This is the case of constant returns to scale as depicted in the table. And employing an increase in staff of 10% to receive a positive net-result of 5% would be an example of declining returns to scale, which would be even more unsatisfactory.

Take the example of a small but stable design company having four partners that create a profit of USD 80.000 in year one to be split among them. In year two they hire in a 5th partner, resulting in a profit of USD 100.000, but splitting this into five parts results in constant returns to scale. This is a situation seen in many small consultancy and design companies and scalability achieved merely by selling more hours of a given service is seldom an activity with increasing returns to scale. It might be the case that some administrative costs, over time, can be spread out across a greater revenue base to achieve some form of synergy effect, but this is not a scalable business model.

The point we are trying to make is that the objectives of scaling a business should not just be the ability to employ 10% more employees, 10% more capital or resources and get 10% more output from that. Even despite the fact that synergies might provide the case for linear increasing returns to scale. For a business model to be truly scalable, it should hold the promise of *exponentially increasing returns to scale*. While achieving scalability in linear increasing returns to scale setting is concerned with finding synergies, the promise of exponential returns to scale are found in cases where the applied resources, competences and value propositions of a business model in combination with one another evolve to completely new properties, by Nielsen and Dane-Nielsen (2010) denoted emergent properties, and this can be achieved via digital disruption.

7 Methodology

The empirical basis of this article is a longitudinal action research project from 2007 to 2013. It reports the research focusing specifically on the innovation of the 10 network-based business models being studied. The Danish research program “International Center for Innovation” (ICI) was initiated in 2007 and ended in March 2013. The collaborating companies were structured into networks consisting of at least 5 companies. Each network was followed for a period of at least two years. ICI has since 2007 followed and documented the development of 10 network-cases including a total of 92 companies that were in the process of understanding their business model with the ambition to innovate their existing business models into global network-based business models.

We applied longitudinal interventionist type methods (Lukka 2005) to the facilitation and study of business model innovation processes. These were combined with a series of non-interventionist type semi-structured interviews (Yin 2013). The research group followed the companies involved in the 10 networks through workshops, company meetings, board meetings and observations. During the research project, there were numerous meetings, workshops, reports and semi-structured interviews, which were recorded and documented with minutes, pictures or video. The terminology of business models was introduced to all participants during workshops, and especially the use of the Business Model Canvas (Osterwalder and Pigneur 2010), and narratives exemplifying existing, successful business models (Lund and Nielsen, 2014) were mobilized to the business model innovation project.

For the sake of the present paper, we analyzed the data concerning the business models of the 92 participating companies as well as the business models being leveraged in the networks. This provided a sound basis for identifying companies where distinct

business model innovation had taken place and also companies were growth had been achieved. We analyzed these two dimensions of our “intervention success” and looked for the underlying mechanisms that were responsible for their developments. Finally, the analysis phase categorized and consolidated these mechanisms with the objective of identifying characteristics that could be conveyed to other companies to achieve similar innovations and positive effects.

8 Discussion

In our data as described above, we found five basic mechanisms that the companies were using to innovate their business models for achieving better scalability attributes. These mechanisms were in some instances of purely a digital nature, while in other instances they could be disruptive in both physical and digital manners. These five mechanisms to achieve business model scalability were:

1. Adding a new channel enriches the value proposition to existing customers
2. Selling data instead of selling man-hours or products
3. Letting strategic partners create lock-in for existing and new customers
4. Letting customers do the marketing or become salespeople
5. Altering the business model so that competitors become customers

Our research uncovered that these mechanisms enabled the companies to innovate and concurrently re-design their business models. These mechanisms were by themselves not guarantees of instant success. In fact, in instances they risked leading to declining, constant or at best linear increasing returns to scale. However, novel ways of configuring the business models around these mechanisms were what made the difference. Our analyses revealed that in making the connection to business models the mechanisms identified here fall into four dimensions capable of leveraging exponentially increasing returns to scale:

1. Features/components that enrich the existing value proposition (for free)
2. Features/components that free the business model of existing capacity constraints
3. Features/components that change the business model to a platform for other businesses
4. Features/components that change the role of existing stakeholders and utilize them in simultaneous roles in the business model

Table 2 below illustrates how the five mechanisms interact with the four dimensions of achieving business model scalability. It illustrates how the five mechanisms (horizontal) cross the four (vertical) dimensions.

Enriching Value Propositions	Removing Capacity Constraints	Creating Platform	Change the role of Stakeholders
New channel enriches the value proposition to existing customers			
Selling data instead of selling man-hours			
Strategic partners create lock-in for customers			
		Customers do marketing or become salespeople	
		Competitors become customers	

Table 2: Dimensions of achieving business model scalability

A general insight achieved from this exercise is that companies that only search for cost-cutting alternatives typically will find their way to declining, constant and at best linear increasing returns to scale. However, achieving exponentially increasing returns to scale means thinking in terms of value propositions between and among the stakeholders and partners involved in the immediate business-ecosystem of the company.

9 A scalability dimension example

Understanding the value perspective of the immediate stakeholders surrounding and interacting with the company and how to optimize the value proposition of the company's product/service offering to them is an important starting point. Apple is able to capture 30% of revenues from the partners that are in fact the mechanism ensuring the lock-in of Apple's paying customers to – yes you guessed it – Apple themselves. This example illustrates the powerful mechanisms of thinking in terms of business models, simply because Apple leverages its resources and partners in more intelligent manners than its competitors.

The ability to optimize the liquidity constraints, cash flow and working capital attributes of one's business model would diminish the worries from many a nervous CFO. Since cash is almost never in abundance or free, business models that are able to push capital requirements over to strategic partners are often advantageous. In the case of SkyWatch, a company that has developed and produces a drone, a business model with fewer financial and other resource constraints than the firm's competitors, was developed using Apple's lock-in mechanism. SkyWatch stuck to developing its core platform and let other companies develop the software and hardware technologies the drone could carry. Much like the business model of Apple, where software developers create content for the iTunes platform and pay to have it presented there, SkyWatch's partners created software and hardware for checking oil tanks, mapping minefields, search and rescue operations, just to name a few.

Tupperware applies similar attributes in attaining a free sales force through sales people as core partners in the business model, and in the era of social media, Groupon and similar collective-buying companies have taken this leveraging of customers as key marketing partners to a whole new level, thereby creating leverage for distribution, creating customer loyalty, giving access to resources and performing other activities according to the value configuration of the business model.

	Declining RtS	Constant RtS	Increasing RtS
Linear attributes	Financing R&D at suppliers' development departments with external financing	Buying in R&D development partners with external financing	Partners create technologies for the platform
Exponential attributes	Own R&D of applications and technologies for the drone		Partners provide content and perform key activities in the business model

Table 3: Scalability achieved through strategic partners

10 Business model configurations with scalability characteristics

The five dimensions illustrate the configuration of 'exponentially increasing returns to scale' business models. They also show that it is possible to find novel ways of configuring the business models of companies in even very traditional industries through digital disruption. The identified dimensions in table 3 also highlight how to distinguish between the synergetic offerings of the linear increasing returns to scale and the emergent properties of the exponentially increasing returns to scale characteristics.

Leaning on the examples discussed above, we searched for generalizations capable of capturing the identified characteristics of sweet-spot business models. There are various levels of abstraction available for the modelling of the value creation of businesses. For example, Osterwalder *et al.* (2004) distinguish between meta-models of business models, taxonomies of business model types, modelled instances of business models and real-life companies. Lambert (2015) and Groth and Nielsen (2015) also survey the usefulness of taking ones point of departure in specific levels of abstraction. While Lambert's (2015) goal is to set the scene for a stronger theory-building practice within the field of business models, Groth and Nielsen's (2015) objectives are concerned with illustrating that the level of business model taxonomies is the most advantageous point of departure for developing statistically reliable models of different ways of doing business. In another recent contribution, Massa and Tucci (2014), distinguish between six levels of abstraction (see figure 1).

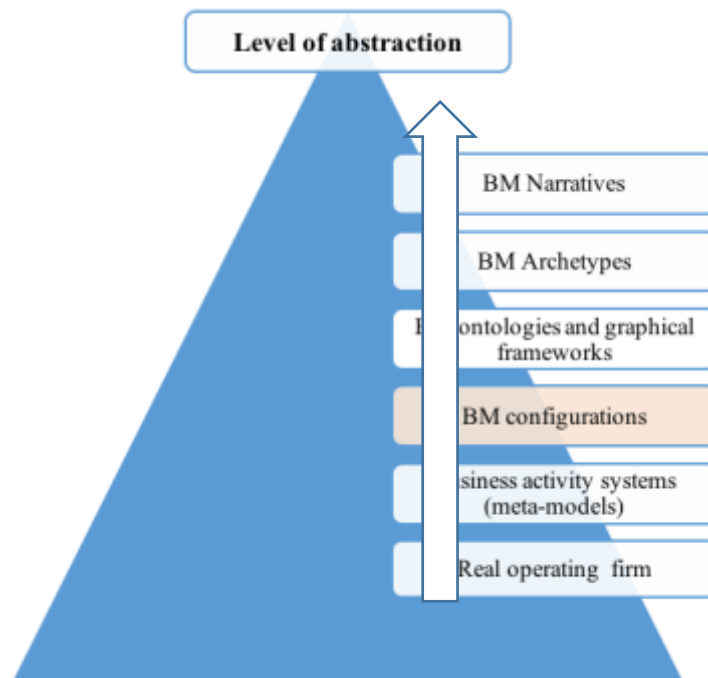


Figure 1: Different levels of business model abstraction (inspired by Massa and Tucci, 2014)

For the purpose of the following analysis and identifying and describing the characteristic features of business models and their value creation processes, we choose the level of business model configurations as our point of focus here. In this phase of the study, we considered the configurations suggested by Linder and Cantrell (2000), Osterwalder and Pigneur (2010), Gassmann *et al.* (2014) and finally Taran *et al.* (2016). Coupled with the four dimensions of business model scalability derived from table 2, table 4 below reports the desk survey of the sources quoted above. The objective here has been to identify already recognized and classified business model configurations capable of containing the four scalability characteristics. This in turn is expected to lead to a sounder understanding of how to generalize the five patterns and provide a possible framework for further investigation.

Enriching value propositions	
Virtual community	
Named by	Weill & Vitale, 2001
Description	Facilitate and create loyalty to an online community of people with a common interest enabling interaction and service provision. Members (customers or partners) add information into a basic environment and thereby create value for one another
Real life examples	Trust Pilot, YouTube
Related labels	Community model (Rappa, 2001), Crowdsourcing (Johnson, 2010), Open source (Gassmann <i>et al.</i> , 2014)

e-shop/shop	
Named by	Timmers, 1998
Description	Customers will pay premium prices for convenience such as: broad selection, ubiquitous access and fast delivery
Real life examples	ASOS.com
Related labels	Merchant model (Rappa, 2001); One stop, convenient shopping (Linder and Cantrell, 2000); Supermarket (Gassmann <i>et al.</i> , 2014), Shop in shop (Gassmann <i>et al.</i> , 2014), linked to E-commerce (Gassmann <i>et al.</i> , 2014)
e-mall/mall	
Named by	Timmers, 1998
Description	A collection of shops or e-shops, usually enhanced by a common umbrella
Real life examples	eBay
Related labels	Merchant model (Rappa, 2001), one stop low price shopping (Linder and Cantrell, 2000), Shop in shop (Gassmann <i>et al.</i> , 2014), linked to E-commerce (Gassmann <i>et al.</i> , 2014)
Removing capacity constraints	
Channel maximization	
Named by	Linder and Cantrell, 2000
Description	Content is delivered through as many channels as possible
Real life examples	Coca Cola
Related labels	
Integrator	
Named by	Gassmann <i>et al.</i> , 2014
Description	Be in command of the bulk of the steps in a value-adding process by controlling all resources and capabilities in terms of value creation
Real life examples	Zara
Related labels	Bundling business models (Osterwalder and Pigneur, 2010)
Disintermediation	
Named by	Johnson, 2010
Description	Deliver directly to the customer a product or a service that has traditionally gone through an intermediary
Real life examples	Dell
Related labels	Manufacture (direct model) (Rappa, 2001), Direct to consumer (Weill and Vitale, 2001), Direct selling (Gassmann <i>et al.</i> , 2014)
Customer focused	
Named by	Taran et al. 2016
Description	Focus on the customer relationships activity and outsource the infrastructure management and the product innovation activities
Real life examples	Mobile Telco, Private banking
Related labels	Unbundling business models (Osterwalder and Pigneur, 2010),

	linked to from push to pull (Gassmann <i>et al.</i> , 2014), linked to Orchestrator (Gassmann <i>et al.</i> , 2014)
Trade show	
Named by	Taran et al. 2016
Description	Leave marketing or other value chain functions (payment, logistics, ordering) to a 3 rd party with a well-known brand name e.g. licensing, outsourcing
Real life examples	Alibaba.com, Exhibition fair
Related labels	Third-party marketplace (Timmers, 1998)
Changing the role of stakeholders	
Round up buyers	
Named by	Taran et al. 2016
Description	Buyers are rounded up to gain purchase discounts and thereby offer attractive prices
Real life examples	Costco, Groupon
Related labels	Buying club (Linder and Cantrell, 2000)
Content creator	
Named by	Taran <i>et al.</i> 2016
Description	Provide content (e.g. information, digital products and services) via intermediaries
Real life examples	Bloomberg L.P.
Related labels	Content provider (Weill & Vitale, 2001), Digitalization (Gassmann <i>et al.</i> , 2014)
Creating Platform-Based Value	
Free for advertising	
Named by	Linder and Cantrell, 2000
Description	Offer free products and services through a platform and make revenues from selling advertising space
Real life examples	Facebook, GOOGLE
Related labels	Advertising model (Rappa, 2001), Free advertising (Osterwalder and Pigneur, 2010), Market aggregation (Linder and Cantrell, 2000), Hidden revenue (Gassmann <i>et al.</i> , 2014)
Integrated	
Named by	Chesbrough, 2006
Description	Routinely utilize external sources to fuel the business model and unused ideas are allowed to flow outside to others' business models. The company becomes a system integrator of internal and external technologies
Real life examples	Procter & Gamble

Related labels	Open Business Model (Gassmann <i>et al.</i> , 2014)
Adaptive	
Named by	Chesbrough, 2006
Description	Create an “ecosystem” by establishing its technologies as the basis for a platform of innovation for the value chain and benefit from the investments of other in the platform
Real life examples	Apple Iphone
Related labels	
Value chain service provider	
Named by	Timmers, 1998
Description	Specialize on a specific function for the value chain, such as electronic payments or logistics, with the intention to make that into their distinct competitive advantage.
Real life examples	Shipping- and freight companies
Related labels	Layer player (Gassmann <i>et al.</i> , 2014); Reliable commodity operations (Linder and Cantrell, 2000), Service-wrapped commodity (Linder and Cantrell, 2000)
Value chain coordinator	
Named by	Taran <i>et al.</i> 2016
Description	Provide transaction coordination services and optimization of the communicational and organizational workflows for all parties involved in the same value chain
Real life examples	Celarix, PrintConnect.com
Related labels	Value net integrator (Weill & Vitale, 2001), Value chain integrators (Timmers, 1998), Transaction service and exchange intermediation (Linder and Cantrell, 2000)
Collaboration platforms	
Named by	Timmers, 1998
Description	Provide a platform (a tool kit and an information environment) for collaboration between enterprises
Real life examples	Podio
Related labels	Shared IT infrastructure (Weill and Vitale, 2001)
Brokerage	
Named by	Johnson, 2010
Description	Bring together buyers and sellers and facilitate transactions
Real life examples	Saxo Bank, stock exchanges

Related labels	Information brockering, trust and other services (Timmers, 1998), Intermediary (Weill and Vitale, 2001), Affiliate model (Rappa, 2001); Brokerage model (Rappa, 2001), Open market making (Linder and Cantrell, 2000), Exclusive market making (Linder and Cantrell, 2000)
Infomediary	
Named by	Rappa, 2001
Description	Collect or/and produce information for other in regards to market information, products, producers and consumers
Real life examples	Edmund
Related labels	
Multi-sided platforms	
Named by	Osterwalder and Pigneur, 2010
Description	Multi-sided platforms create value by facilitating interactions between two or more distinct but interdependent groups of customers
Real life examples	Nintendo, GOOGLE, VISA
Related labels	Two-sided market (Gassmann <i>et al.</i> , 2014), Multi-party market aggregation (Linder and Cantrell, 2000), Hidden revenue (Gassmann <i>et al.</i> , 2014)

Table 4: Business Model configurations with business model scalability attributes

The analysis of the configurations according to the four dimensions led to a set of common attributes that could be mobilized in relation to attaining exponentially increasing returns to scale. Using the language provided by the Business Model Canvas (Osterwalder and Pigneur, 2010), the business model configurations presented here have a tendency to concentrate around the building blocks on the left-hand side of the canvas, also denoted the back-end of the business model (Günzel and Holm 2013) or the value configuration side (Osterwalder *et al.* 2004). These building blocks relate to Strategic Partners, Activities, Resources, Cost Structure and are connected to the Value Proposition.

This analysis of already recognized configurations in the present business model literature illustrates that while the notions of creating platform-based business models with exponentially increasing returns to scale is quite widespread, there is much more scarcity according to the three other proposed dimensions. These listed configurations offer to the reader the possibility of finding inspiration. However, in order to come to terms with analysing the business models of their own companies, managers might need an additional framework from which to start such an analysis. This is provided in the practical implications below.

11 Practical implications

This article suggests a three-step roadmap that managers can apply to analyse their own business models for scalability potentials. In innovating or reconfiguring businesses, we could stomp down the habitual road of analysing cost structures, product segment profitability and market-segment growth. However, the perspective of business models provides a much more novel angle to creating a roadmap for achieving business model scalability. Based on research with companies, we propose the following roadmap, set out in three steps, for testing and designing business model scalability. We suggest the company to go through these three stages in three management meetings set over 3-4 weeks. The meetings need not be longer than 90 minutes each to foster brainstorming and discussion on identifying whether there are novel ways to tweak the existing business model.

STEP 1: Contemplate the two pathways to business model scalability

Business model thinking provides us with an alternative to business development, which should be considered by entrepreneurs or company managers. The configurations identified in the literature were found to be mainly related to strategic partners, cost structures, activities, resources and the value proposition of the company and in analysing the business model innovation in patterns one to five that led to exponentially increasing returns to scale, two routes emerged. Depicted in figure 3, we label these the two pathways to business model scalability.

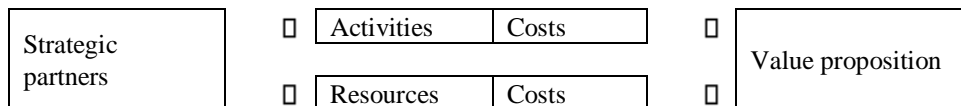


Figure 2: Two pathways to business model scalability

Figure 2 illustrates that exponential business model scalability typically connects strategic partners to the value proposition either through activities and costs or resources and costs. Remember that achieving scalability requires thinking beyond the scope of cost sharing and cost reductions. Asking the following questions does this:

1. Are there potential strategic partners that could perform activities in our business model cheaper while providing a higher value proposition to our customers at the same price?
2. Are there potential strategic partners that could provide resources in our business model at a cheaper price while providing a higher value proposition to our customers at the same price?

The answers to these two questions give indications of which aspects of the business model that are prone to innovation. The next step is to become more detailed about how to configure this.

STEP 2: Examples and questions that uncover business model scalability

Use the ideas generated in STEP 1 to gain more detail into how novelty and scalability can be un-locked. One way forward is to have prioritized the three best ideas from STEP 1 and to challenge each of them with the questions below:

1. Can partners offer features that enrich the existing value proposition or create a customer lock-in for your business, while receiving value back themselves?
2. Are there alternative revenue patterns that free the business model of existing capacity constraints?
3. Is it possible to change the business model to a platform for other businesses?
4. Is it possible to change the role of existing stakeholders and utilize them in simultaneous roles in the business model?
5. Who would pay for either access to your customer-base or knowledge about your customers and their characteristics?
6. How strong are the “hard to copy” and “time to copy” attributes in your business model?
7. How agile would your company be towards threats from new entrants or new technologies and would you be able to readjust within 6 months?
8. How agile would your company be if activity level was to drop by 50 % next quarter because of declining revenues? How would you rate your flexibility in terms of cutting total costs correspondingly?

STEP 3: Analysing scalability attributes

Finally, step 3 in the roadmap to scalability is to analyse the attributes of the possibilities the company has identified in steps 1 and 2 according to table 1. The example below in table 5 illustrates this in regards to the introduction of a new distribution channel. While cannibalization between channels was a real threat, this company succeeded in configuring the business model so that the new channel provided value to customers of existing channels, hence achieving *exponentially increasing returns to scale*.

	Declining RtS	Constant RtS	Increasing RtS
Linear attributes	Sell out the assets in a sensible manner	Innovate the business model or invest excess cash in other business	Cost synergies make this a good place to be
Exponential attributes	Get out of the business ASAP (as soon as possible)		The sweet-spot

Table 5: Analyzing business model scalability

These questions and problems are generic for all types of companies. As a matter of fact, this methodology may help companies in traditional industries in learning from today’s successful companies even from sectors like software and social media.

12 Concluding remarks

This article introduced the terms disruption, digital disruption, business models and business model scalability. It sought to illustrate that while Christensen et al. (2015) provide a good re-definition of disruption linking it to business model components, these very same authors failed to see that the relations to business models are what makes the new technology or revised product disruptive.

In seeking to answer the research question: “How do we identify digital disruption(s) that lead to business models with scalability attributes and are there specific business model configurations that enable these mechanisms?”, we first defined what scalability meant and then we sought out an empirical basis to find specific business model configurations that held promise of holding such attributes. A series of case studies illustrate that besides frequent existing messages in the business literature relating to the importance of creating agile businesses, both in growing and declining economies, as well as hard to copy value propositions or value propositions that take a long time to replicate, business model scalability can be cornered into four dimensions. From our empirical work, we identify digital disruptions that create business model scalability according to four dimensions:

- 1) Removing the firm from otherwise typical capacity constraints of that type of business
- 2) Include partners that enrich the value proposition without hurting profits
- 3) Stakeholders take multiple roles in the business model and create value for one another
- 4) The business model becomes a platform that attracts new partners, including competitors

In order to overcome the hurdle of stranding at the identification of synergies in the form of cost reductions, lean workflows and market segments, we propose a roadmap that can lead managers to business model scalability capable of competing with digital disruption(s). Managers can apply this roadmap to develop business models capable of achieving exponentially increasing returns to scale as a response to digital disruption. Achieving exponentially increasing returns to scale is achieved by thinking in terms of value propositions between and among the stakeholders and partners involved in the immediate business ecosystem of the company.

It seems obvious that what we here would define as a scalable business model is: “A business model that is agile and which provides exponentially increasing returns to scale in terms of growth from additional resources applied”. Hence, we would be looking for business models flexible enough to cope with internal and external forces and demands, and where business potential is not constrained by physical or material assets, such as number of man hours, machine time, liquidity, storage, and other forms of capacity. The search for business models that are able to juggle the characteristics of having few or no capacity constraints while simultaneously providing unique and hard to copy value propositions to customers seems to be the name of the game.

The contribution of this submission is therefore the provision of a set of business model innovation trajectories that utilize the fashionable notions of disruption and digital disruption, and couple this with business model recipes in the form of distinct configurations, to achieve business model scalability.

References

- Amit, R. and Zott, C. (2001), "Value creation in e-business", *Strategic Management Journal*, Vol. 22 No. 6, pp. 493-520.
- Baden-Fuller C. and Morgan, M.S. (2010), "Business models as models", *Long Range Planning*, Vol. 43 No. 2, pp. 156-71.
- Basu, S. (2008). Returns to scale measurement, *The New Palgrave Dictionary of Economics*, 2nd Edition.
- Bondi, André B. (2000). "Proceedings of the second international workshop on Software and performance - WOSP '00". p. 195. doi:10.1145/350391.350432
- Chandler, A. D., Hikino, T., & Chandler, A. D. (2009). *Scale and scope: The dynamics of industrial capitalism*. Harvard University Press.
- Chesbrough, H. (2006). *Open business models. How to thrive in the new innovation landscape*, Boston: Harvard Business School.
- Child, J. 1972. Organizational Structure, Environment and Performance: The Role of Strategic Choice, *Sociology*, Vol. 6, pp. 1-22.
- Christenson, C.M. (1997). *The Innovator's Dilemma*. Harvard Business School Press, Cambridge, Mass.
- Christensen, C. M., & Johnson, M. W. (2009). *What are Business Models, and how are They Built?* Harvard Business School Press: Massachusetts.
- Christensen, C. M., & Overdorf, M. (2000). Meeting the challenge of disruptive change. *Harvard Business Review*, 78(2), 66-77.
- Christensen, C.M., Hall, T., Dillon, K., and Duncan, D.S. (2016), Know Your Customers' "Jobs to Be Done", *Harvard Business Review*, Vol. 94, No. 9, pp. 54-60
- Christensen, C., 2013. *The innovator's dilemma: when new technologies cause great firms to fail*. Harvard Business Review Press: Massachusetts.
- Christensen, C., Raynor, M. and R. McDonald (2015), What is Disruptive Innovation? *Harvard Business Review*, 93(12), pp. 44-53.
- Dane-Nielsen, H., & Nielsen, C. (2017). Value creation in business models is based on intellectual capital – and only intellectual capital! I J. Guthrie, J. Dumay, F. Ricceri, & C. Nielsen (red.), *The Routledge Companion to Intellectual Capital*, Routledge, London.
- Foss, N.J. and T. Saebi (2017). Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go? *Journal of Management*, Vol. 43 No. 1, pp. 200–227
- Gassmann, H., Frankenberger, K., and Csik, M. (2014). *The Business Model Navigator: 55 Models That Will Revolutionise Your Business*. FT Press.
- Gelles, G.M.; Mitchell, D.W. (1996). "Returns to scale and economies of scale: Further observations". *Journal of Economic Education*, 27 (3): 259–261.
- Groth, P. & C. Nielsen (2015), Business Model Taxonomies: Using statistical tools to generate valid and reliable business model taxonomies, *Journal of Business Models*, Vol. 3, No. 1, pp. 4-21.
- Günzel, F., & Holm, A. B. (2013). One Size Does Not Fit All—Understanding The Front-End And Back-End Of Business Model Innovation. *International Journal of Innovation Management*, Vol. 17, No. 1, pp. 1-34.
- Hedman, J., & Kalling, T. (2003). The business model concept: theoretical underpinnings and empirical illustrations. *European journal of information systems*, 12(1), 49-59.

- Ismail, S., Malone, M. S., & Van Geest, Y. (2014). *Exponential organizations. Why New Organizations Are Ten Times Better, Faster, and Cheaper Than Yours (and What to Do About It)*. Singularity University Book.
- Johnson, M.W. (2010). *Seizing the white space: Business model innovation for growth and renewal*, Boston: Harvard Business Press.
- Lambert, C. (2015). The importance of classification to business model research, *Journal of Business Models*, Vol. 3, No. 1, pp. 49-61.
- Linder, J. and Cantrell, S. (2000). *Changing business models: Surfing the landscape*, Accenture Institute for Strategic Change, Canada.
- Lukka, K. (2005). Approaches to case research in management accounting: the nature of empirical intervention and theory linkage. *Accounting in Scandinavia—The Northern Lights*, Liber & Copenhagen Business School Press, Kristianstad, SW, 375-99.
- Lund, M. and Nielsen, C. (2014), “The evolution of network-based business models illustrated through the case study of an entrepreneurship project”, *Journal of Business Models*, Vol. 2 No. 1, pp. 105-21.
- Massa, L and Tucci, C.L. (2014). Business model innovation. In M. Dodgson, D.M. Gann, and N. Phillips (Eds.), *The Oxford handbook of innovation management*, Oxford University Press, UK.
- Montemari, M. and Nielsen, C. (2013), “The role of causal maps in intellectual capital measurement and management”, *Journal of Intellectual Capital*, Vol. 14 No. 4, pp. 522-46.
- Morris, M., Schindehutte, M. and Allen, J. (2005), “The entrepreneur's business model: toward a unified perspective”, *Journal of Business Research*, Vol. 58 No. 6, pp. 726-35.
- Nielsen, C., & R. Roslender, (2015). Enhancing financial reporting: the contribution of business models, *British Accounting Review*, Vol. 47, No. 3, pp. 262-274.
- Nielsen, C., M. Lund & P. Thomsen (2017), Killing the balanced scorecard to improve internal disclosure, *Journal of Intellectual Capital*, Vol. 18, No. 1, pp. 45-62.
- Nielsen, C. and Lund, M. (2015), The Concept of Business Model Scalability (March 9, 2015). Available at SSRN: <http://dx.doi.org/10.2139/ssrn.2575962>
- Nielsen, C., & Dane-Nielsen, H. (2010). The emergent properties of intellectual capital: a conceptual offering. *Journal of Human Resource Costing & Accounting*, 14(1), 6-27.
- Osterwalder, A., Pigneur, Y., and Tucci, L.C. (2004). Clarifying business models: Origins, present, and future of the concept, *Communications of AIS*, Vol. 6, pp. 1-25.
- Osterwalder, A., and Pigneur, Y. (2010). *Business model generation. A handbook for visionaries, game changers and challengers*, Hoboken: John Wiley and Sons.
- Osterwalder, A., Y. Pigneur, G. Bernarda & A. Smith. (2014). *Value Proposition Design*. New York: John Wiley & Sons
- Porter, M.E. 2001, Strategy and the Internet, *Harvard Business Review*, Vol. 79, No. 3, pp 62-78.
- Rappa, M. (2001). Managing the digital enterprise - business models on the web, North Carolina State University. <http://digitalenterprise.org/models/models.html> [accessed June 2004].
- Stampfl, G., Prügl, R. and Osterloh, V. (2013) ‘An explorative model of business model scalability’, *International Journal of Product Development*, Vol. 18, No's. 3/4, pp. 226–248.

Taran, Y., Nielsen, C., Thomsen, P., Montemari, M., and Paolone, F. (2016), “Business model configurations: a five-V framework to map out potential innovation routes”, *European Journal of Innovation Management*, Vol. 19. No. 4, pp. 492-527.

Teece, D.J. (2010), “Business models, business strategy and innovation”, *Long Range Planning*, Vol. 43 No. 2, pp. 172-94.

Timmers, P. (1998). Business models for electronic markets, *Journal on Electronic Markets*, 8(2), 3-8.

Weill, P. and Vitale, M.R. (2001). *Place to Space*, Boston: Harvard Business School Press.

Yin, R. K. (2013). *Case study research: Design and methods*. Sage publications.