

Towards a Dynamic Process for Business Model Innovation: A Review of the State-of-the-Art

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Abstract--Business models are not only necessary for entrepreneurs starting a company but also for established companies wishing to sustain a competitive advantage. Knowing when or how to change a model is difficult and implementation is risky. Business model innovation takes art and skill and implementation requires an iterative process. Despite the often experimental nature of creating a successful business model, there are few dynamic methods for business model generation. The most frequently referenced method - The Business Model Canvas (BMC) - maps business models into a framework but is static and leaves entrepreneurs and managers to struggle with ad-hoc trial and error experimentation. This paper lays the groundwork for improved approaches to business model innovation by outlining directions for future process and tool developments.

I. INTRODUCTION

Since the advent of the internet, the management literature increasingly uses the term "business model" [1] to describe how companies create and deliver value to their customers. Business models, rather than factors like technology superiority or market attractiveness, have been linked to the success and failure of companies. Successful business model innovations (BMIs) have "reshaped entire industries and redistributed billions of dollars of value" [2, p. 59]. Inadequate business models, on the other hand, make it impossible for a company to fully exploit business opportunities [3], result in reduced competitiveness [3], and yield less value to the firm than the firm expected [4].

Many different business models exist in today's rapidly changing business environments because established corporations, wary of disruption [5], rethink their approaches, while entrepreneurs become more adept at leveraging new and rapidly changing technologies through novel approaches [6]. As a consequence, research on business model innovation has significantly increased [1]. In general this research leans towards either the description and taxonomy of business models [7], [6], [8], [9] or their strategic importance [5], [10], [11]. Increasingly, however, it also attempts to support managers in identifying and implementing a business model that provides unique value to the market. This is not easy [12] because understanding the nuances of the business strategy enough to articulate it into a business model takes art and skill [10]. Even when a manager can ideate and articulate a business model, few get it right the first time. Christensen et al. found that it is typical for entrepreneurs to revise their business models multiple times before they earn a profit [2]. Accordingly, entrepreneurship research is examining how start-up companies are developing business models through a series of trial and error experimentation [13], [18] that

requires patience, capital, creativity and commitment and lets those companies succeed that implement the right business model before running out of time or resources. However, despite the often experimental nature of creating a successful business model, there are few dynamic methods for business model generation [14]. The most frequently referenced method - The Business Model Canvas (BMC) - maps business models into a framework but is static and leaves entrepreneurs and managers to struggle with ad-hoc trial and error experimentation [15].

The following paper lays the groundwork for improved approaches to business model innovation by outlining directions for future process and tool developments. Including this introduction, it is organized in 6 sections. Section 2 reviews the academic literature on business models and business model innovation and discusses the concepts, definitions, and their relevance for practice. Section 3 introduces a framework for business model innovation that consists of three main steps: (1) Search and Learn, (2) Articulate and Clarify, and (3) Analyze and Test. The state-of-the-art and existing approaches for each step are discussed. Section 4 summarizes the research gaps identified in section 3 and identifies the need for a dynamic process for business model innovation. Section 5 outlines directions of future research that can lead to such a process. Section 6 summarizes the discussion and concludes the paper.

II. BUSINESS MODELS IN ACADEMIC RESEARCH

Though the term "business model" is a relative recent addition to management research, business models have been investigated for several decades and a key word search in the Compendex and EBSCO databases identifies hundreds of articles related to the business model concepts. The vast literature can be differentiated by its main focus: publications that discuss the business model concept and publications that focus on how business model innovation occurs. Both are briefly described in the subsequent section to highlight the change in research focus over time and to provide a working definition for this paper.

A. Concepts

Business model literature began to increase in the 1940's and 1950's as researchers started to explore the value in different models. For example, McDonald's was often used to study the franchise model [16], Wal-Mart is well-known for the retail and distribution model and Gillette for the razor and blade business model [17]. Technology began to drive business model generation in the late 1970's. Utterback and

Abernathy were empirically researching product innovation models as early as 1975. Companies such as Dell, Xerox and Intel began to create innovative business models exploiting advantages with new technology. For example, Dell's business model, designed to leverage technology that eliminates intermediaries in a build-to-order model, can respond quickly and efficiently to customers [18]. Results from a Xerox case study conducted by Chesbrough and Rosenbloom [4] show how a business model can capture value from innovation. While PARK Laboratories at XEROX was responsible for many innovative technologies, commercialization of those technologies required business model innovation. For example, Steve Jobs of Apple was able to introduce personal computer technology to the marketplace after he adapted it from information he gained on a tour of XEROX PARC labs [19]. Today, the amount of published research that studies business model innovation is increasing rapidly [20], [21].

In the 1980's research began to appear that discussed using business model innovation as a business strategy [22]. Researchers used the concept of business model generation as a differentiator to study small business owners and start-up entrepreneurs [23]. By the end of the 1980's, business model research began to emerge to study types of new business models that leveraged emerging technologies were being used in the management practice [3], [11], [24]. The 1990's the internet enabled the creation of new sets of e-business models that previously did not exist [9], [25]. Chesbrough and Rosenbloom began to study how business model innovation was necessary not only to capture value but also for sustainable profits [4]. The next year a book publication led to wide acceptance of the open innovation business models [26]. In 2005, the explosive growth in types of business models led researchers to conclude that business model innovation varies depending upon the industry [18]. This created research focus on classification of business models by strategic value creation [1], [16], [27]. Recently, researchers appear to be shifting from a focus of what business models are to understanding how to use them for sustainable and strategic advantage [28], [29].

B. Definitions

Wirtz [30] and other researchers argue that there is no universally accepted definition for business models and there is a lack of consensus [1], [24], [31], [32]. Researchers have noted that strategy and business model constructs get confused and applied inconsistently [3], [33], [34]. One group of researchers use a business model to describe the value being delivered to the market [1], [9], [35]. Others use the business model as a way to describe the organizational structure that delivers the value. One reason for lack of consensus is because business model research integrates a variety of academic and functional disciplines [5], [32]. While several researchers have analyzed a wide variety of definitions of business models in an attempt to understand why consensus was not being reached and lend more clarity

to the problem [1], [18], [30], most agree that increased value is a component in the definition. Analysis of selected definitions shows that communication and creation of value is a common element [1], [10], [36], [34], [37]. For the purpose of this paper a working definition is clarified from a synthesis of the selected definitions.

A business model communicates how a business creates and delivers value to customers through the exploitation of business opportunities.

Similar logic applies to problem of definitional consensus for business model innovation. While the concept isn't new, the Internet enabled entrepreneurs the ability to innovate business models at a rate that was not previously possible. Xerox innovated their business model when they changed from photo copier sales, to leasing, to the pay per copy service as early as 1959 [17]. However, the term "business model innovation" first appeared in the practitioner literature. For example, Mitchell published an article in 1999 that called for CEO's to expand their roles to include business model innovation as a way to change their business model to provide value to customers in totally different and improved ways. The following year, during a keynote conference presentation held at MIT, Clark announced how business model competition was creating an era of business model innovation [38]. Suddenly books and journal articles appeared with "business model innovation" in their title [39]. Today, researchers have defined business model innovation as a "powerful tool" [14] that can be used to for competitive advantage [4], [16]. There is also the problem of the "buzzword" [14] as researchers use the term without providing a definition, or studies that only use the term in the title [40]. While there are a variety of definitions and consensus is still lacking, researchers generally agree that the business model changes in a way that results in an increase to the value proposition. Thus researchers have identified that the concept and terminology requires more examination [13], [41], [42], [43]. Literature has also called for additional research to clarify the amount of change as researchers have used significant, measurable or appropriate value [1], [42]. Thus, a current limitation to this definition is that "measureable" has not been quantitatively described in the literature and is an area for future research. This study will use the following definition that was developed as a synthesis of selected definitions from the literature:

Business model innovation changes the business model in a way that results in a measureable increase in the value proposition.

Often the first generation of a business model, or idea, leads to further business model innovations.

C. Relevance

Why does academic research consider business model innovation a relevant topic? It is widely accepted that every company needs a least one clearly defined business model

because without it, the company is unable to understand how it creates, yet alone extracts, value. Rapidly changing technology is causing increased disruption to the marketplace [44], which may render existing business models ineffective. This puts business model innovation at the forefront of the debate which some researchers consider to be the key to competing in the digital economy [2], [10], [45]. Moreover, for larger organizations, it is common to have multiple business units and business models. Business model innovation may therefore be frequent and also necessary at many levels of the organization and not just at the top.

Much of the disruptive changes that force companies to innovate their business models are a result of business model innovation themselves: Entrepreneurs and established companies are leveraging the new set of internet enabled e-business models to compete in different ways [46]. FedEx effectively used the internet to innovate a new package tracking system integrated into their hub and spoke model [47]. Amazon.com demonstrated a unique business model to dis-intermediate the supply chain taking Barnes & Nobel by surprise [31]. Today, social networks can be used effectively to create a network effect that wasn't possible before the Web 2.0 architecture. Some successful, recent examples include Facebook, Google, and Twitter. Web 2.0 enabled tools and applications are also creating disruption to the higher education industry as open education business models are generating new online learning opportunities [48].

When is the right time to change a business model? For a start-up it's clear that a business model is necessary at the beginning; but, what about an established organization with a successful business model? Start-up entrepreneurs can disrupt these leading larger organizations by leveraging technology with no warning. With the turbulence in the marketplace, disruption can come quickly and unexpectedly. CEO's are no longer questioning whether they will need to change their business model at some point; but mostly agree that it is just a matter of time [49]. Therefore, business model innovation should not be thought of as an event; but rather a continuous process. According to Blank, corporations require new skills to meet the challenge of continuously inventing new business models [50]. What skills are required to and what tools and processes are available for business model innovation? Researchers have identified literature is disjointed, primarily conceptual and empirical studies are lacking [51]. What they have found are barriers and uncertainty that increases the risk of success. Implementation of the wrong business model has been verified as a cause of failure for a new venture [12]. "New business models rarely work the first time around, since decision makers face difficulties at both exploratory and implementation stages" [13 p. 384]. Empirical research has tied firms with a capacity of business model innovation to success [1]. Christensen warns that failure to innovate can lead to "dire consequences" [52]. Despite the necessity for business model innovation tools and processes, they are lacking [1], [53]. Subsequently, understanding how to change

or generate a business model before running out of time or resources is critical [54].

III. THE BUSINESS MODEL INNOVATION PROCESS

The business model innovation process occurs in three distinct stages, as the framework in Figure 1 indicates. The first step investigates the current situation and assesses future opportunities and threats that warrant business model innovation. The second step creates ideas for innovative business models and articulates them. The third step analyzes and tests business model alternatives, resulting in pivots and adaptations until a successful business model is identified. Business model innovators must be patient and approach the process as a learning exercise that comes with failures that highlight required changes to the model and improve its value. However, learning has to occur quickly and in a way that preserves resources. The following section discusses the main activities and approaches in each step of the process.

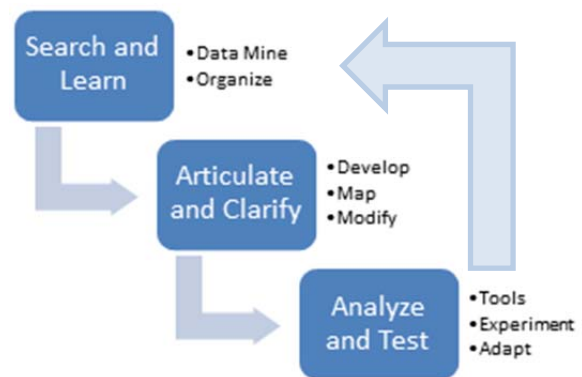


Figure 1: Business Model Generation Process

A. Search and Learn

A good understanding of business models is critical to successful business innovation [5]. It is typically the responsibility of a small number of highly skilled managers within an organization. Changing a business model can be disruptive to an existing organization which requires clear commitment and support from the executive board [55]. It is important for managers to stay abreast of how competitors are leveraging technologies through new business models. Some industries are changing more rapidly than others requiring different rates of business model innovation. Often, learning can be gained by understanding what others have done. A good first step for the modeler is to data mine existing literature for innovative business models and frameworks. Data mining can lead to a business model that can be replicated [56]. Social network analysis tools can be a powerful aid to efficiently find leaders within an industry [57]. For example, the biotechnology industry is an example where researchers have used business model types to classify studies by industry [11]. Another industry that has a unique

set of business models is the information, media and telecommunications industry. Today, researchers are using new business model classifications to study management practices of managers in these rapidly changing industries. It is especially important for managers within these industries to build business model innovation capacity. Literature can also be classified by business model type: revenue generation models that change the value proposition, enterprise models that drive operational efficiencies or industry models that change organizational boundaries and external relationships [18], [30], [36], [49], [58].

It is critical that a business recognized when to change a business model to sustain profitability [2]. So, what does the literature say about when to make a change to a business model? Research is split between responding in reaction to environmental changes or as a proactive strategy to disrupt the competition to gain market share. Some business conditions indicating a change may be a need to respond to new competition attempting to disrupt the low-end [2] or responding to marketing intelligence data about the competition. A proactive change could also be warranted to take advantage of a new opportunity or technical innovation [59], [56]. Christensen [2] provides other timing indicators as reasons to change a business model. Several researchers have conducted studies that show the strength of the balanced score card (BSC) to be an effective tool to monitor environmental changes [60], [61]. Environmental changes are another indicator of the need to examine a current business model [18]. While the BSC uses data from internal measurement systems, it can help reduce some uncertainty in the decision to implement a risky change. For example, indicators that show a dramatic loss in customer sales may support the need for a business model change. When it comes to selling the need for a change of a business model that will disrupt the organization, it could be persuasive to come armed with data. Indicators of business objectives may help a manager to know when a business model needs to be changed, but the process of how to do it is not as clear. IBM's 2008 global CEO report concluded that timing and design is strategic for successful execution of a change to the business model [49]. So once a manager has recognized the need for business model innovation, the next step is to engage in a design process.

B. Articulate and Clarify

Whether internal measurements indicate that an existing organization must change their business model or an entrepreneur is attempting to commercialize a technological innovation, it is important the business model can be clearly articulated to others. Business model changes can be highly disruptive to existing organizations. Start-ups are typically resource limited and may need to obtain funding from outside sources. Whatever the situation, clear communication of the business model can help to gain buy-in from others. Through extensive research and case studies, George and Bock [3]

found that businesses tended to fail when their narrative and documentation for a business model was unclear, incomplete or misaligned. Therefore, it is not only important for the modeler to understand their heuristic logic, but it is also important that others can understand the logic.

One popular and promising approach the literature suggests is to construct maps [12]. Mapping the business model components into a framework is a cognitive process. "The cognitive aspects also relate to the way in which actors perceive the functioning of the business model" [59, p. 791]. It requires the modeler to critically think about the interdependencies and relationships between the components and activities. A manager must be aware of the heuristic aspects of business modeling. Several researchers acknowledge and caution that static models based on heuristics have decision biases [62]. Researchers suggest that entrepreneurs use a set of rule based thinking to evaluate the opportunity of this first business model logic [63]. Others have actively been experimenting with different structured modeling techniques and tool kits [64]. One structured and popular approach is the Business Model Canvas (BMC) [17].

The BMC is a useful framework for mapping a business model. It can be used like a blueprint for an implementation strategy [36]. It is gaining popularity in the literature and in industry applications since its introduction in 2004. One reason the BMC has been gaining popularity in the literature is because the nine building block structure is clear enough to reduce some of the complexity in the cognitive mapping process [35]. Figure 2 shows an example of how the template was used to map components of the Nespresso business model. This map can then be used to facilitate conversations with other key stakeholders. By using this framework, modelers gain a more comprehensive understanding of their business model through the articulation process. The strength in this tool is the simple format that helps clarify an abstract concept to foster communication with others

The map facilitates communication where collaborative innovation can take place by allowing key stakeholders to help identify gaps and problem areas in the model. From the firm's perspective, even if the modeler was not interested in creating a map, other stakeholders in the firm may require this document for business model sustainability. Having an articulated business model allows more people to understand the strategy. Multiple studies have modified the BMC for specific applications showing the flexibility of the tool [12], [65], [66]. These studies have helped to legitimize the framework by showing it is adaptable to other industries and models. The process to map the business model into a nine block framework creates a static blueprint for analysis [17]. The problem is that the tool is static and changes are hard to document. While the framework and vocabulary for the building blocks in the BMC have been well defined allowing for consistent application, researchers have found the tool lacks dynamic capabilities as changes are made.

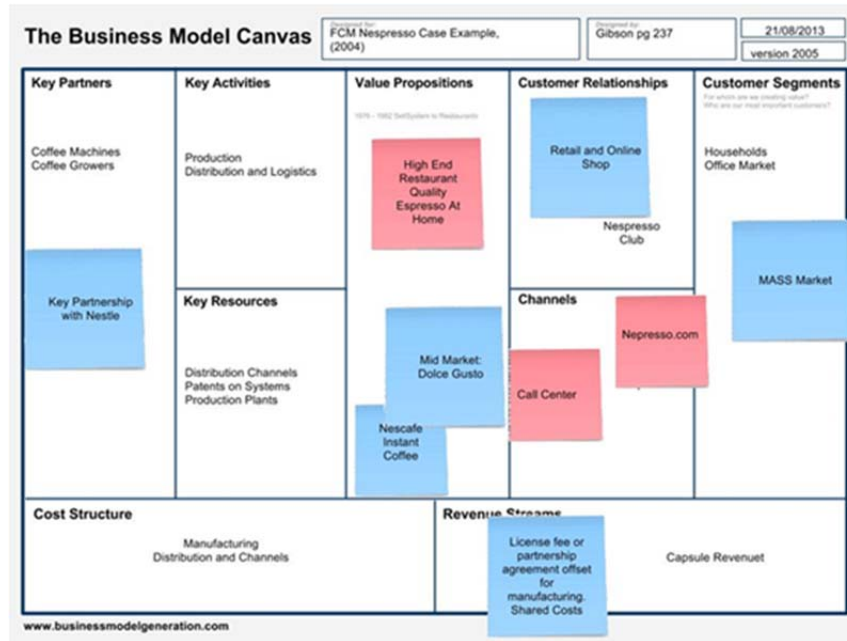


Figure 2: Business model canvas example using Nespresso
 Template used and reproduced with permission. www.businessmodelgeneration.com.

C. Analyze and Test

In the context of business model innovation, experimentation is focused on receiving quick and meaningful feedback from the market. Accordingly, the literature is pointing to the creation of a minimal viable product (MVP) and to using agile or lean product development or start-up processes [67], [68], [69]. The MVP implements only the core features that are necessary for the product to solve the fundamental problem it is aiming to solve. It is deployed for the purpose of demonstrating the value of the future full product and for soliciting customer feedback [67]. MVPs support the "lean" principles of avoiding waste, such as undesired features, and of emphasizing "build-measure-learn" loops as a principle strategy. Frequent market feedback, enabled through MVP experiments, is used to create a successful business model. This may involve multiple trials and so-called "pivots", which are considered a normal and desirable part of business model innovation. Accordingly, Maurya states that 66% of those start-ups that succeed significantly change their business model along the way [70]. For the approach to be successful, modelers have to "craft their experiments" so pivots are "grounded in learning" [71]. Without a systematic learning process, progress cannot be measured and business model innovators run the risk of making ineffective or redundant changes and getting stuck without any progress.

However, the literature is generally dissatisfied with the currently existing tools for designing experiments, tracking learning, and supporting decisions to pivot. Researchers exploring business model generation agree on the need to explore better tools and methods [72] and highlight specific problems such as purpose, agility, or process gaps [73], [74].

This cumulates in the assessment of inadequate methodologies [8]. To fill gap between a static map of the business model to a dynamic process, practitioners develop checklists and similar applications [75]. Some researchers have studied mapping techniques to evaluate the potential of this method for change analysis [8], [76], [77]. Other research that examines extension of the BMC through application of algorithms for pattern detection [78] and hypothesis testing [79], found that integration of an analysis process with the BMC framework was possible to perform hypothesis testing by converting a heuristic into an algorithm through BMC mapping.

Currently, the best candidate for an improved methodological approach to business model innovation is an expansion of the BMC. The popularity of the canvas as a tool for articulating business models also carries over to the analysis and test stage. Accordingly, Osterwalder [67] updated the purpose of the BMC to include systematic generation thus emphasizing experimentation over simple description. However the BMC in its current form is inherently static and lacks the ability to track changes and update model elements in response to occurring changes. Even Osterwalder, therefore, argues that an extension of the process is needed and seeks collaboration with researchers in the IT community [15].

IV. RESEARCH GAPS

The discussion of the state-of-the-art of business model innovation above has highlighted what researchers were saying about the gaps in the literature and future research needs. Table 1 shows what the literature identifies as areas of

interest for future research as it relates to the process steps (figure 2). One recurring theme is the need for more understanding, analysis and experimentation with business models and tools. Recent studies have led to general consensus about definitions and concepts of the business model [42], [65], [80]. In general, researchers appear to agree that creating a map is an effective way to articulate and clarify a business model. While facilitating clear communication is important, it is not enough. Despite the popularity and applied research with the BMC, consistently mentioned is the static limitation of the tool. Therefore, several have noted a dynamic extension for the tool as a future area for research.

Research clearly states that the linkage is not present in the current way business models are generated [72] because there is a gap between mapping and modeling [56], [64]. Some believe the problem lies with the cognitive aspects involved with business model innovation [56], [59], [85]. Companies may not understand their existing business models well enough to be able to change them effectively [12]. So, what modeling management system exists that can help entrepreneurs grapple with “what-if” business model scenarios? The literature has revealed that there are many pieces but the interconnections are weak. The BMC and Balanced Scorecards are popular starting points, but, what comes next? There is limited and “fragmented” [3] research related to business models that help analyze opportunities [59].

Content analysis of the case study literature search shows research is actively searching for a solution to this problem.

Information systems research has been identified as a possible resource to help identify new techniques [15]. Some of the analysis tools proposed in the case study literature are checklists that could be useful to look for inconsistencies or problems with the heuristic logic of the model. For example, an analysis tool such as the design, needs, aspiration (DNA) that was applied in one case study [86] could be effective. TRIZ was also used as a vehicle to help with the BMI process as demonstrated in another study [87] encouraging a systematic discovery process. However, only the fuzzy cognitive map (FCM) has attributes that support a dynamical approach [85].

V. TOWARDS A DYNAMIC BUSINESS MODEL INNOVATION PROCESS

The discussion above has identified a clear need for tools that support the *dynamic* process of business model generation. Specifically, a process that dynamically tests hypotheses and documents the change in the business model would benefit the industry in the quest of a systematic business model generation process [88]. Therefore two questions remain. What are building blocks for such a future method for business model generation? And what is the process for dynamic hypothesis testing? In section 3, this paper has identified research, tools and methods for different steps in the process to generate a business model. Table 2 summarizes the steps and activities and maps currently existing building blocks against them.

TABLE 1: LITERATURE IDENTIFIED AREAS OF FUTURE RESEARCH

Process Step	Future Research Needed
Search and Learn	Dimensions of the business model [3], [41], [80] e-business model archetypes [1], [24] Consensus about business models [32] Appraising model fit and selection [18], [81], [82]
Articulate and Clarify	Understanding and sharing [24], [83] Formalized means of representations [27]
Experiment and Adapt	Modelling tools for analysis [24], [65], [84] Dynamic hypothesis testing [18], [72] BM components regarding interdependencies within and between them [27] Classification framework of modelling techniques [84] Tools that translate the BMC into a computable model or algorithm [79]
Management system	Managing and patenting [24] Systematic approach [18] BM criteria and metrics for an appropriate evaluation [27], [81] Development of a detailed guide for analyzing business model change [72] BMI for competitive sustainability [28], [29], [34]

TABLE 2: BUILDING BLOCKS FOR A DYNAMIC BUSINESS MODEL INNOVATION PROCESS

Process Step	Activity	Building Blocks/Tools	Result
Search and Learn	Research Organize	Data Mining/SNA/Analogies Rule Based Thinking	Select BM Analogy Identify Critical elements
Articulate and Communicate	Map Clarify	Business Model Canvas (BMC) Scenario Analysis	Baseline Map of BM Hypotheses Generated
Analyze and Test	Scenarios Experiment Adapt	Fuzzy Cognitive Map (FCM) Minimum Viable Product (MVP) Continuous Management Process (BSC)	Model Customer Feedback Sensitivity Analysis

In the context of business model innovation, managers and entrepreneurs can save time and resources by researching the business models used by competitors as well as models used to deliver similar value propositions in other industries. Rule based thinking and an understanding of the theory of constraints (TOC) paradigm can help to remove bias. The ability to identify critical elements that create unique value and are your weakest element are necessary before attempting to articulate the business model through a mapping process into a framework [89]. However, time is a value resource for every entrepreneur; so, a timely decision needs to be made. This becomes difficult because decisions under uncertainty are risky [90].

The second step, focused at articulation and communication, relies on mapping the business model logic into the BMC. Its main function is the communication with others so the modeler can gain additional insights. A fuzzy cognitive map (FCM) has behavioral properties that could be a candidate to help bridge the gap. Previous published experiments and case studies show that the FCM could be a viable building block in the business model innovation process [91], [92]. A FCM is an inference network used to represent knowledge. The FCM “ties facts and things and processes to values and policies and objectives [93]”. FCM’s were used to explore business process re-engineering in several studies in the late 1990s. FCM’s have been used to map the business environment to create causal diagrams [93]. Research generally agrees that companies need to become more sophisticated and “embed strategic agility” into their business models [73]. However, literature discussing experimentation with business models simulations is sparse and difficult to find. Current literature suggests testing the hypotheses in the market and pivoting through a trial-and-error approach. Thus, more applied research exploring tools such as the FCM would add value to the field of business model innovation research.

VI. CONCLUSION

The concept of business model generation is interesting for many reasons. First, successful implementation of the right business model can mean billions of dollars in profits and executing the wrong one can mean corporate failure. Additionally, successful management of business model innovation can provide a firm stability. The business landscape is complex and filled with uncertainty with a large range of business models. The concepts and tools to simplify and understand this environment are missing in the literature. Implementing a new business model can be expensive and risky. Business model generation includes a varying amount of heuristic aspect from the modeler. Methods to quantify and qualify this bias have not been explored. Yet, business model generation or innovation is necessary under a variety of conditions. Disruptive technology often requires a new business model. A new model may be required to fend off low-end disruptors in the market. On the other hand, changes

to existing models could provide opportunities to capitalize on new technologies or process improvements. The way new models are generated and innovated are not clear. It starts with the heuristic logic of the modeler being mapped into a business model framework. Then, the process gets a bit fuzzy. While there is some consensus that mapping a business model into a framework is a good 1st step, tools are not sufficient to test the viability of the hypothesis and the process is static.

A dynamical approach to business model generation was proposed. Tools and methods must be developed to support this process. Identifying the building blocks in a holistic model adds value to the field. A limitation in the study could be the domain and reach of the literature review. It also lacks application of the proposed process. While this process model was developed from a study of the gaps in the literature, more research is required to validate the model with the market. Only by considering the business model innovation process from a holistic perspective can organizations sustain their competitive advantage. As commercialization of technological innovations continues to disrupt the marketplace, companies must understand that it is only a matter of time until it becomes necessary to change their business model. Understanding that there is no substitution for market testing, the lean start-up process requires multiple pivots. Grounding learning from these experiments through the creation of an innovative business model generation process will add value to the field saving management practitioners time and money.

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