A dynamic business modelling approach to design and experiment new business venture strategies

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ABSTRACT

Business Modelling has evolved as a key activity to reflect new business venture strategy by framing the way a firm will operate and how it will function in achieving its goals (e.g., profitability, growth, innovation, social impact). However, scholars and practitioners have criticized the adoption of a too static perspective in the design and use of conventional Business Model representations. Such a static perspective prevents nascent entrepreneurs experimenting with their Business Models and, as a result, identifying the most effective strategies, especially in terms of business sustainability and profitability. In this paper, we argue that combining conventional Business Model schemas with System Dynamics modelling results in a strategy design tool that may overcome several limitations related to a static view of Business Model representation. Mapping the different key elements underlying value creation processes into a system of causal interdependencies — through the use of simulation — allows strategy analysts and entrepreneurs to experiment and learn how the business reacts to strategic and organizational changes in terms of performance, innovation and value creation. As such, Dynamic Business Models provide useful insights to strategy formulation and business venturing by capturing how critical Business Model elements interact to produce enduring competitive advantages over time.

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Introduction

The Business Model (BM) concept has gained increasing interest by strategy and entrepreneurship scholars since the late 1990 as its representation helps start-up entrepreneurs to create a shared understanding of how their business venture will generate value, as well as to communicate it among internal and external stakeholders (Massa et al., 2016; Morris et al., 2005; Zott et al., 2011; Fiet and Patel, 2008). In particular, the diffusion of its use in describing new business ideas has strongly increased during the boom of the new economy (Reymen et al., 2015; Andries et al., 2013; Perkmann and Spicer, 2010).

In this paper, we illustrate and discuss a strategy design tool based on the combination between conventional BM representation schemas and System Dynamics (SD) modelling which aims at providing a methodological support to entrepreneurs in turning their business ideas into formal conceptual representations of how these businesses will function. As many research and practices in the strategic management field prove, the methodological support provided by SD is particularly recommended to model and analyse social systems characterized by dynamic complexity and uncertainty, as well as to experiment with the models to design and simulate strategies for management and change (Forrester, 1961; Sterman, 2000;

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Davis et al., 2007; Morecroft, 2007; Cosenz and Noto, 2016; Torres et al., 2017). The emerging strategy simulation tool — rooted in the strategy-as-practice field — is here named *Dynamic Business Model* (DBM).

The strategic management field abounds in strategy tools (e.g., Business Model Canvas, SWOT analysis, Balanced Scorecards, Boston Consulting Group matrix) conceived as part of a wider strategizing activity, rather than as the strategy itself (Spee and Jarzabkowski, 2009). They include "techniques, tools, methods, models, frameworks, approaches and methodologies which are available to support decision-making within strategic management" (Clark, 1997: 417). In the strategy process, strategy tools — such as DBMs — are conceptualized as *boundary objects*, i.e., flexible epistemic artefacts that enable and constrain knowledge sharing and interaction about strategy across intra-organizational boundaries and groups (Chesley and Wenger, 1999; Carlile, 2004; Spee and Jarzabkowski, 2009). As such, the use of DBMs aims at facilitating both shared understandings and social interactions between strategy-making participants around the formal conceptualization of a business idea into action. Together with a flexible design perspective, social interaction enables integration of strategic ideas from multiple actors (Spee and Jarzabkowski, 2009), such as potential investors and funders, consultants, collaborators, and business partners.

In order to define DBMs as strategy tools, it is worth emphasizing how to interpret the BM concept in this context. In fact, there is not a fully accepted definition of BM in the literature on BMs. Many scholars generally agree on conceiving it as a description of an organization and how it functions in achieving its goals, e.g., profitability, growth, innovation, social impact, value creation. Beyond this general agreement, divergences among scholars arise when attempting to define a BM on a more operational level (Zott et al., 2011; Klang et al., 2014; Wirtz et al., 2016). On this concern, in a critical review of the prevailing literature on BM research, Massa et al. (2016) have recently suggested a classification of basic BM interpretations. In particular, they found that BMs have been intended as: (1) attributes of real firms, (2) cognitive or linguistic schemas, and (3) formal conceptual representations/descriptions of how an organization operates.

Defining BMs as real firm attributes leads to empirically — as opposed to conceptually — classifying real world manifestations of organizations as a function of their measured similarity/distinction on relevant strategic variables — e.g., activities, resources, capabilities, stakeholder network, and related outcomes which form the value created/captured by the organization — that allows strategy analysts to identify BM archetypes — e.g., subscription, freemium, crowdsourcing, pay-as-you-go, razor-and-blade, barter (Casadesus-Masanell and Zhu, 2013; McGrath, 2010; Casadesus-Masanell and Ricart, 2010; Markides and Sosa, 2013; Zott and Amit, 2010).

The interpretation of BMs as cognitive/linguistic schemas assumes that they form implicit cognitive structures emerging from current thinking patterns or mental models held by managers in organizations (Massa et al., 2016; Chesbrough and Rosenbloom, 2002; Amit and Zott, 2015). As such, they aim at solving challenges related to making sense of, as well as explore, opportunities for value creation and capture (Baden-Fuller and Haefliger, 2013; Baden-Fuller and Mangematin, 2013; Loock and Hacklin, 2015). Far from a formal conceptualization anchored to real firm BM archetypes, Martins et al., (2015: 105) defines them as "cognitive structures that consists of concepts and relations among them that organize managerial understanding about the design of activities and exchanges that reflect the critical interdependencies and value creation relations in their firms' exchange networks". In social interactions, these models act as BM narratives or linguistic schemas which induce expectations among interested actors about how a business's future might play out (Perkmann and Spicer, 2010; Magretta, 2002). Thereby, they are used by entrepreneurs not only to simplify cognition, but also as a verbal communication device to pursue several goals, such as persuading external audiences, creating a sense of legitimacy around the venture, or guiding social action (Massa et al., 2016).

A third interpretation views BMs as formal conceptual representations of how an organization functions. Likewise to cognitive or linguistic schemas, these representations aim at simplifying the entrepreneurial cognition of a business system. However, while the former are implicit, unformal, and not detailed, the latter are explicit, formalized in graphic, mathematical, or symbolic framework (Massa et al., 2016). The adoption of formal conceptual representations is particularly valuable for understanding and framing the complexity of BMs by highlighting the critical components for use by entrepreneurs (Burton and Obel, 1995; Sterman, 2000). These representations can be used to articulate, challenge, transfer, and recombine the tacit knowledge at the background of implicitly understood cognitive schema, heuristics, narratives and other organizationally embedded manifestations of BMs (Chesbrough, 2010; Massa et al., 2016). The most popular BM representation which adopts this interpretive lens is the Business Model Canvas by Osterwalder and Pigneur (2010). Its design includes different sections corresponding to the critical elements which help to characterize a BM (e.g., key partners, key resources, value proposition, customer relationships, etc.) and, thus, it is assumed to be valid for describing many organizations. Likewise, other authors have suggested additional BM representations based on the identification of those elements they assume to be critical in describing how a business operates (Afuah and Tucci, 2000; Afuah, 2004; Johnson et al., 2008; Gassmann et al., 2014).

Basing its premises on these extant formal BM representations, the DBM is interpreted as a strategy tool aimed at outlining formal conceptual representations of how an organization operates and creates value. Here, the term *dynamic* is used to highlight the adoption of SD as a methodological support to overcome a too static perspective of conventional BM representations (e.g., the Business Model Canvas). Though drawn up with attractive insights, conventional BM representations basically list and organize into specific sectors the main BM elements (e.g., key resources, customer segments, cost structure, revenue streams, and so on). As such, they are designed to offer a *static* perspective of how the firm functions and creates value, that prevents start-up entrepreneurs from framing the complexity, uncertainty and unpredictability of business