Comparing how entrepreneurs and managers represent the elements of the business model canvas☆

Seán F. Keane[a],[*], Kathryn T. Cormican[a], Jerome N. Sheahan[b]

[a] College of Engineering and Informatics, National University of Ireland Galway, Galway, Ireland
[b] School of Mathematics, Statistics and Applied Mathematics, National University of Ireland Galway, Galway, Ireland

A B S T R A C T

This paper uses self-efficacy to compare how entrepreneurs and managers represent the nine elements of the business model canvas (BMC; Osterwalder, 2004). A six-item efficacy scale was developed to measure each element. Principal components analysis was conducted on the total scale scores of 108 Irish entrepreneurs and 63 Irish managers separately; two components emerged for entrepreneurs, and a different two components surfaced for managers. The self-efficacy data suggest that mental representations of the BMC may be two-dimensional and that they may differ between entrepreneurs and managers. This study extends the reach of the BMC to the individual level and also extends previous research on self-efficacy differences between entrepreneurs and managers.

1. Introduction

Osterwalder's (2004) business model canvas (BMC) is popular among entrepreneurs because it helps them to make sense of "doing business" (Blank, 2013; Massa and Tucci, 2013; Trimi and Berbegal-Mirabent, 2012). The BMC contains nine structured elements of knowledge that represent the content ("what") of doing business. Cognitive science tells us that such sense-making tools (cognitive maps) can help reveal differences in the mental representations of entrepreneurs and managers (e.g., Gregoire et al., 2010). But the BMC has hitherto not been used in this way. It is important to address this gap because an understanding of cognitive differences is key to understanding what, when, how, and why entrepreneurs do (Brannback and Carsrud, 2017). To begin the process of addressing this gap, this paper uses the self-efficacy construct because Bandura (e.g., 2006) outlines how it can help reveal the patterning of people's mental representations of domain knowledge, such as that contained in the BMC.

First, consistent with the idea that self-efficacy builds on a dual system of knowledge and cognitive skills (e.g., Bandura, 1997), each of the nine BMC elements was represented as a function of six cognitive processes, and this two-dimensional tabular framework (see Fig. 2) as well as relevant literature were used to generate a set of activities for each element. Next, to measure perceived capabilities concerning these activity sets, nine self-efficacy scales were developed. Then when conducting principal components analysis (PCA) on the total scale scores of 108 Irish entrepreneurs and 63 Irish managers separately, it transpired that these nine variables could be represented by a much smaller number of dimensions without much loss of information. But the content of these mental representations differed between entrepreneurs and managers. These results are compared with those of the existing literature in terms of both the number and the interpretation of the components obtained.

By using self-efficacy to investigate how entrepreneurs and managers represent the nine business model elements, this study

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Table 1
The BMC elements and their descriptions (adapted from Osterwalder and colleagues).

Elements	Descriptions
Customer segments	A firm serves its value proposition(s) to one or more customer segments
Value propositions	A firm offers a mix of products/services to create value for each customer segment
Channels	A firm communicates and delivers its value proposition to each customer segment via various channels
Customer relationships	A firm establishes and maintains relationships with each customer segment
Revenue streams	A firm generates revenue streams from the delivery of value to each customer segment
Key resources	A firm requires resources (e.g., people) to create and deliver the business model elements
Key activities	A firm performs a set of activities to create and deliver the business model elements
Key partners	A firm may outsource some activities to its network of suppliers/partners
Cost structure	Each element of a firm's business model has a cost component

provides an empirical foundation for extending the reach of the BMC to the individual level, and it also extends the empirical evidence on self-efficacy differences between entrepreneurs and managers

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature and positions our study among comparable work. Section 3 describes the method. Section 4 presents and interprets the results of the statistical analysis. And finally, Section 5 discusses implications, limitations and ideas for future research.

2. Business model canvas and self-efficacy

The business model canvas (BMC) is a firm-level concept of business model (see, e.g., Osterwalder, 2004; Osterwalder et al., 2005; Osterwalder and Pigneur, 2009). It involves nine related elements of knowledge, which represent the content ("what") of "doing business". Table 1 below describes these elements. Before turning to how they are conceptually related, we acknowledge that such elements are difficult to operationalise and measure because they do not consider the process ("how") of doing business (Zott et al., 2011). But for the purposes of operationalisation and measurement, one could take an activity-system perspective on the BMC, since activity sets support each of its elements (for related comments, see Morris et al., 2005). Such a perspective will require the addition of a cognitive process dimension to the BMC, because statements of activities generally contain knowledge regarding what to do and how to do it.

Regarding the relationships among the nine elements, Osterwalder (2004) was influenced by Kaplan and Norton (1992) in that the BMC was proposed as a four-dimensional concept of business model. In other words the nine elements can be represented by four factors. Incidentally, not all business model concepts are four-dimensional. For instance, Magretta posits that all business models have two parts: "*Part one includes all the activities associated with making something: designing it, purchasing raw materials, manufacturing, and so on. Part two includes all the activities associated with selling something: finding and reaching customers, transacting a sale, distributing the product or delivering the service*" (2002: 88). Indeed, there continues to be debate in the literature about the dimensionality of the business model concept (see, e.g., Morris et al., 2005).

Notwithstanding the above debate, the factors of the BMC are shown in Fig. 1 below where they are labelled 1–4 and enclosed by heavy lines. Osterwalder (2004), however, stated that these are not the core of the BMC, but are a "rough" categorisation of the nine elements. This then raises the question regarding the number of dimensions represented by the elements and the relative importance of each element to the dimensions. Simply put, a more precise representation is required; after all, dimensionality is a basic issue in empirical research. Solutions to this problem can be obtained using dimensionality reduction techniques, such as principal components analysis, which can help represent the nine elements by a smaller number of underlying dimensions and estimate how well each element represents the dimensions.

The dimensionality of the BMC is a key issue for both entrepreneurship and management research on the business model (Amit and Zott, 2001; Magretta, 2002; Morris et al., 2005; Tikkanen et al., 2005). This is because while there is no one best business model for everyone, some type of business model is surfacing as a mechanism used by entrepreneurs and by managers (George and Bock,
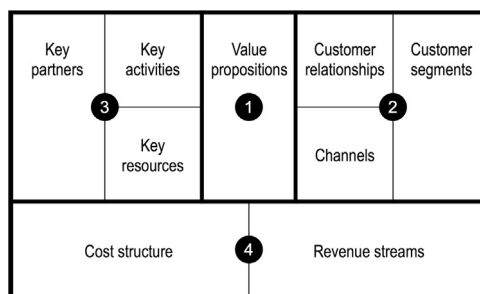
Note: 1 = Product; 2 = Customer interface; 3 = Infrastructure management; and 4 = Financial aspects.

Fig. 1. Conceptual representation of the BMC (adapted from Osterwalder, 2004).