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Outcome-based contracts as new business model: The role of partnership and value-driven relational assets

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ABSTRACT

This paper investigates the new business model of outcome-based contracts where the firm is tasked to achieve *outcomes* of equipment as a service contract instead of the traditional maintenance, repair and overhaul activities (e.g., power-by-the-hour® engine service contract). Through a qualitative study of two outcome-based contracts between BAE Systems, MBDA and the UK Ministry of Defence, we derive three value drivers of information, material and people transformation. Mapping it with transaction cost literature we propose five relational assets based on the value drivers; three value-driven alignments and two partnership inputs. We then study the relationships between the relational assets and contract performance through a quantitative survey by applying the partial least square (PLS) method. Our study shows that behavioral and information alignments are important to achieve outcomes. However, material and equipment alignment (i.e., joint supply chain) does not have a significant effect on contract performance. In addition, perceived control and empowerment mediated the relationship between partnership inputs and value-driven alignments. Our study provides a more integrated view of how various theoretical management domains overlap in the understanding of business models, and contribute to the understanding of value drivers and partnership factors in achieving performance in outcome-based contracts.

1. Introduction

The concept of business models has been increasingly discussed in academic literature since the advent of the internet and the proliferation of e-businesses in the 1990s (Morris, Schindehutte, & Allen, 2005). To attract funding, the early "dot.com" companies used the idea of business models to pitch the attractiveness of their proposed business ventures (Shafer, Smith, & Linder, 2005). The literature encompasses several themes contributing to key concepts of a business model. First, value drivers are important elements for businesses and new business models are often a consequence of changes in these value drivers. These are defined as value-creating activities or transformations that generate revenue for the firm (Chesbrough, 2007). Second, the performance of a company, through the change in such value drivers, is an essential element in a business model. Literature has described the performance of business models as that which requires a joined-up, systems-focused and holistic understanding across the firm's existing resources and capabilities, to retain or achieve a competitive advantage in the industry it sits within as environmental conditions change (Wirtz, Schilke, & Ullrich, 2010).

Third, the formation of successful partnerships is a feature of new business models. This is echoed in strategy literature where the ability to establish strong partnerships as capabilities is recognized as core-competencies (Johnson, Christensen, & Kagermann, 2008). According to Demil and Lecocq (2010), the firm's "value chain of activities" should include the fostering of partnerships as part of the building blocks of a business model. Clearly, business models exhibit a need to be value-driven, partnership-focused, and with the unit of analysis centered on the value-creating system that transcend traditional boundaries (Zott & Amit, 2010). There is also the need to understand the inter- or intra-organizational activities that contribute to that system, of which revenues are derived from its performance.

Despite the proliferation of the term, we argue that there are three major gaps in business model literature. First, new business models emerge across different industries in different ways and there may be greater heterogeneity in both their theoretical conceptualization and their empirical and practice characterization. This is evidenced by the number and the inconsistency of "key concepts" that seem to emerge from the literature, as well as by the different definitions of a business model ranging from "*an underlying core logic*" (Shafer et al., 2005) to "*system manifested in the components*" (Tikkanen, Lamberg, Parvinen, & Kallunki, 2005).

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Second, it is also important not only to understand the key concepts, but also to appreciate how these concepts – such as value drivers, partnerships, customer-centricity – relate to one another both theoretically and empirically, and how they manifest themselves in practice for different types of business models. Finally, since business model investigations require a holistic approach, there should be a concerted attempt to bring together extant approaches of the various disciplines of marketing, strategy, operations and OBHRM in a trans-disciplinary manner and into an empirical context, to understand the characterization of new business models so as to both critique and draw insights into intra-disciplinary assumptions. Only when the new knowledge is reconciled with the existing, can we build on its scholarship and transfer the knowledge of business models across other new contexts.

Our study examines a particular new business model of outcome-based contracts (OBC) in equipment service, and empirically investigates the firm's capability to achieve the expected performance. Equipment-based services have traditionally been contracted on the basis of revenue-generating activities, materials and time required to maintain, repair or overhaul equipment such as engines and elevators. This often results in provider opportunism since the very activities that disrupt the customer's use of the equipment are those that generate revenue for the firm, and the firm has less incentive to ensure the long-term care of the customer's equipment.

Recently, OBC for equipment-based service have come into prominence in marketing practice and theory (Ng, Maull, & Yip, 2009; Ng & Nudurupati, 2010). With outcome-based contracts such as Rolls-Royce's "Power-by-the-hour®", the firm is paid not according to its service activities such as material and repairs, but based on the outcome of such activities in continual use situations i.e., the number of hours of engine in the air. This is analogous to the well-known story in marketing of being paid for holes-in-walls, rather than for the maintenance, repair and upkeep of the drill (Levitt, 1960). This new business model is challenging for marketing theory because continual use of equipment sits within the customer's space and requires the customer's resources to achieve their own goals. From the delivery standpoint, OBC is unlike traditional service contracts where there is a sequential process (call comes in, processes triggered, equipment repaired, activities invoiced). In OBC, there is usually no sequential 'value chain' to speak of; effective equipment use is a consequence of collaborative processes and practices with the customer in a value-creating system to achieve positive outcomes. Achieving the performance of an 'outcome' is therefore dependent on the nexus of logistics, relationships, operations and management within the system and how they come together effectively so that engines continue to generate power and planes continue to fly. Such a system requires a complete rethink of the firm's business model and its capability, in particular its capability to cooperate reciprocally with the customer. We argue that such a business model capability would require all stakeholders to invest in relational assets that are both value-driven and partnership-focused.

Our investigation begins with a qualitative study within which we found three value drivers that are part of the value-creating transformations of the system. These are material transformation, information transformation and behavioral transformation. Based on a comprehensive review of a diverse set of theoretical literature in operations, OBHRM, strategy and marketing, we integrate the literature with our qualitative findings and propose five value-driven and partnership constructs we consider to be relational specific assets (cf. Madhok & Tallman, 1998) for OBC. We hypothesize the relationships between the constructs and contract performance, with two intervening variables from OBHRM literature. We subsequently operationalize the variables and quantitatively investigate their interactions and impact on contract performance through a survey. We then analyze the resultant two partnership input constructs, three value-driven alignments, and the intervening variables with partial least square (PLS) analysis. Our analysis reveals that, counter-intuitively, OBC performance is dependent on the relational assets of behavioral and information alignments rather than on material/equipment process alignment (i.e., the joint supply chain). This suggests that the new business model of OBC has to completely re-think how the supply chain towards equipment performance should be designed and configured for consistent use outcomes, since the system of material and equipment use interacts with other value drivers and is no longer linear. Our results also show that all three alignments are driven by partnership inputs of complementary competencies and congruence of expectations, and the relationships are further mediated by HR constructs of perceived control and empowerment of individuals. This means that the complex value-creating system in OBC includes multiple management interactions to achieve contract performance and it is a challenge to understand where management begins and operations end. These cross-function interactions suggest that more research is needed on how firms could be better organized to achieve outcomes with their customers in this new business model, but also to consider how disciplinary knowledge can stay relevant when boundaries between them collapse.

This paper is organized as follows. We first review relevant literature to set the foundation for this study. We then introduce the research context and the qualitative study. Based on the findings from the qualitative study, we further propose several hypotheses to be tested in a quantitative study. The result of the quantitative study is then reported, followed by discussion and conclusion.

2. Literature review and research context

2.1. Business models

The concept of business models has been increasingly discussed in academic literature since the advent of the internet and the proliferation of e-businesses in the 1990s. Academic use of terms such as "internet business models", "e-business models" and "new business models" appeared to compare and demonstrate how firms successfully or unsuccessfully conducted their businesses (Osterwalter, Pigneur, & Tucci, 2005). For example, Johnson et al. (2008) discussed how Apple's new business model combining "hardware, software and service" elements were more effective in revolutionizing digital and portable entertainment compared to earlier pioneering firms such as Diamond Multimedia in the 1990s. Conversely, Pisano (2006) examined how biotech companies suffer from a flawed business model.

In management studies, its research appears to have grown independently with little cross-disciplinary understanding (Zott, Amit, & Massa, 2011). However, despite different views, most marketing researchers seem to agree that business models include concepts relating to the 'firms value offering', 'economic model', 'customer interface and relationships', 'partner network and roles', 'internal infrastructure/connected activities' and 'target markets' (Morris et al., 2005). Nonetheless, the precise definition of a business model has been elusive. For instance, Shafer et al. (2005, p202) define business models as "*a representation of a firm's underlying core logic and strategic choices for creating and capturing value within a value network*", while Zott and Amit (2007, p181) consider it as "*the structure, content, and governance of transactions between the focal firm and its exchange partners, and represents a conceptualization of the pattern of transactional links between the firm and its exchange partners.*"

Other notable definitions include "*system manifested in the components and related material and cognitive aspects comprising key components including the company's network of relationships, operations and resource base*" (Tikkanen et al., 2005, p792) and "*configurations of interrelated capabilities, governing the content, process and management of the interaction and exchange in dyadic value co-creation*" (Nenonen & Storbacka, 2010, P9).

Notwithstanding, common themes have arisen from its substantial body of research. Shafer et al. (2005) and Osterwalder and

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