The Evolution of Business Models in University Spinouts: Routes to Sustainability and Scalability

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Summary:
Most previous studies of university spinouts have focused on analysing what determines their formation and emergence, with few studies address whether and how university spinouts actually grow and reach operational and financial sustainability. Even fewer studies explored how, and whether it is possible, to scale up the operations in national and global markets. Moreover, the heterogeneity of research-based spinouts originated from different types of research institutions adds further complexity to the issue. This paper explores key issues which influence the sustainability and scalability of university spinouts. We mainly draw on business models and entrepreneurship literatures to inform understanding of USOs and their development. In this paper we first describe the notion of USOs development and then focus on the role of business models in value creation, sustainability and scalability of USOs. These notions will be empirically examined and evaluated through several case studies.

Keywords: University Spinout, Business Model, Sustainability, Scalability

Track: e-Business and e-Government

Word Count: 1,989

Disclaimer
This publication presents independent research commissioned by the Health Innovation Challenge Fund (095938/Z/11/Z, HICF-1010-020) a parallel funding partnership between the Wellcome Trust and the Department of Health. The views expressed in this publication are those of the author(s) and not necessarily those of the Wellcome Trust or the Department of Health.
1. Background to the Research Area
In recent decades there has been growing interest among policymakers and academics to generate economic value from publicly funded research projects conducted in university environment. University Spinouts (USOs) have shown to be crucial vehicles to commercialise university generated intellectual property (Sørheim et al. 2011). USOs are categorised as a subset of entrepreneurial companies, which according to Wright et al. (Wright et al. 2006) their formation is dependent on (a) formal transfer of intellectual property rights from the university, and (b) an equity investment made by the university and/or private investors. The Lambert Review (Lambert 2003), which was commissioned by the UK Government illustrated that many of USOs do not usually succeed in the long term. Based on a more recent review on the UK’s spinouts (PraxisUnico 2012), it is clear that despite the continuing economic crisis the population of the USOs has remained constant and around 80% of them are surviving longer. Nevertheless, compared to the spinouts formed prior to 2002, it is now taking longer for spinouts to reach a point at which their founders and shareholders can realise a return.

Existing research on USOs is focused on three main perspectives. Some scholars have focused on the resource configuration of USOs, drawing on the resource-based theory, which examine the links between the firm performance and its tangible and intangible assets attached to it (Barney et al. 2001, Heirman Clarysse 2004). Another perspective is based on the institutional arrangement of USOs and those studies focus on this perspective tend to address how institutional context shape the development of such firms (Clarysse et al. 2005, Lockett et al. 2005). Other researchers have focused on the business models of USOs, which according to Mustar et al. (Mustar et al. 2006) this stream finds its roots in the management literature. Within this perspective, the scholars have mainly examined the activities carried out by USOs, their product or service market choice and the ways they transform knowledge into value stream (Mustar et al. 2006, Druilhe and Garnsey 2004, Chiesa and Piccaluga 2002).

Those studies that look into USOs based on their business models have focused either on the activities performed by the spinout or on the characteristics of the market. In this regard, it can be argued that some important aspects have been largely under-researched (Mustar et al. 2006). On the one hand many of the previous research took a snapshot view and describe the development process of the USOs at a single epoch. On the other hand, they failed to examine the evolution of the business models throughout the USOs growth and development. Vohora et al. (2004) clarified that as the USOs evolve, their internal and external resources, their relationship with the parent firm and connection with the outside will change in intensity and nature. As a result, they may go through re-orientation phases in which the firm re-generate its business models.

There has been little direct and systematic empirical analysis of the role of business model in enhancing the success of USOs and the ways in which business model evolvement leads to sustainability and scalability. This paper, therefore, looks at the evolution of business models within different stages of development, and through empirical evidences gathered from recent case studies aims to shed light on routes to sustainability and scalability. In this developmental paper, the objectives of the
research i.e. (a) investigating the development phases of USOs and (b) examining the way in which change in business models may enable USOs to reach sustainability and scalability will be briefly explained. The extended description of the objectives, findings, discussion and contribution will be reported in the full paper.

2. University Spinouts Development Process

One way of explaining the development of USOs is to rely on literature on new venture development stages, which builds on life-cycle perspective on organisation. Smith et al. (1985) argued that organisation development may follow some unique stages, in which as those stages progresses, so does the organisational characteristics such as structure and strategies. Drawing upon this perspective, we have adapted the USO Development Process Framework initially proposed by Vohora et al. (2004). It can be noted that that USOs develop over six distinct stages (depicted in Figure 1) in a non-linear manner, in which the firms should overcome several “critical junctures” to pass from one stage of development to another.

![Figure 1. Development of University Spinouts (Adapted from Vohora et al. 2004)](image)

The research phase can also be referred as “idea phase” (Clarysse and Moray 2004), where the Academic Entrepreneurs (AEs) started to realise that the knowledge crated in the university has potential opportunity for commercialisation. Subsequently, the transition between the recognised opportunity and forming the USO is taking place in which the entrepreneur scientists focus on outlining initial business model (Mosey and Wright, 2007). It is in this stage that the AEs begin to examine the potential markets, the applications to be developed to satisfy those markets and the best way to approach the customers (Vohora et al. 2004). Academic engagement and commitment should be taken into consideration prior to pass to the pre-organisation phase. Bjørnåli and Gulbrandsen (2010) pointed out that during this transition, AEs evolve into the management team and the board. The commitment of the board is vital for a potential USO to be taken forward from a recognised idea that has been created academically, to creating of a firm that is operational in business environment (Vohora et al. 2004).

In the pre-organisation phase, the USO’s board and management team start to develop and adopt strategic business plans with a key objective of acquiring required resources (Vohora et al. 2004). During this phase, the management team make decisions regarding whom they can obtain available external resources and
knowledge as well as existing internal resources provided by the parent organisation i.e. the university (Lockett et al. 2005, Hewitt-Dundas 2012). The firm’s initial business model plays a significant role in this stage. In order to receive the first round of finance, the management team must demonstrate to the investors that they have the entrepreneurial capabilities to create value, and this has to be done by demonstrating a sustainable business model. This is an issue in USOs mainly because the founding team has no or little knowledge and experience in product development, sustainable supply chain, distribution channel and target market.

After the USOs had gained sufficient venture credibility, for instance through presenting their initial sustainable business model (Vohora et al. 2004), it is the time to offer something of value to potential customers and generate returns. During this stage, the AEs and their partners require to constantly revise the orchestration of the resources within the business model, which assist the USO increases the level of credibility (Wright et al. 2012). Ambos and Birkinshaw (2010) discussed the necessity of re-configuration of the resources within the development life-cycle as it brings significant competitive advantage to the firms.

Nevertheless, reaching this point (i.e. Sustainability phase) should not be interpreted that the USO has the capability of scaling up its operations in national and global markets. Scalability can be defined as the extent to which the firm has the potential to serve larger numbers of customers and decrease costs through the use of technologies, equipment, and centralised facilities (Zhao et al. 2012). Scalability enables the USO to deliver the service offering at a lower cost and to exploit the potential to serve a larger number of customers than its competitors. In order to reach to this point, the business model should be in a constant re-orientation mode to ensure first, the integration among the resources is in place so the USO has the capability to develop products to meet the commercial needs (Sirmon et al. 2011) and second, it is flexible in terms of three main factors: the market, the customers and the competition. The phase by phase transitions are needed to be effectively exceeded and the critical junctures should be successfully addressed to position the USO in a sustainable structure to become a long term standalone firm (Wright et al. 2012) or one that can be able to scale up its operations in national and global markets.

3. The Empirical Work

Given the nature of the research objectives, a multiple case study approach is more appropriate to be adopted. Through conducting multiple case studies, the researchers aim to uncover the evolution of business models within the development stages and the routes to sustainability and scalability. Therefore, we will conduct detailed case studies of five USOs (three already have been conducted) from one of the leading Universities in the UK, with more than 35 established spinouts. In order to provide more robust investigation of causes and effects of the unit of analysis (i.e. the USOs) all of the case organisations are specialised in healthcare and medical services. Semi-structured interviews with the founder(s) and director(s) of the USOs are utilised as the main data collection technique.
4. Business Model Evolvement of USOs: Preliminary Findings

The empirical findings demonstrate that although the USOs we studied involve various objectives and adopt different organisational support structures, they were not certain about their business model in the first two phases of development. In the pre-organisation phase, when they realised that they should gain sufficient venture credibility, they started with a business model that is more university acceptance oriented and moved towards more customer acceptance oriented later on. In fact, they started with a business model that is mainly focused on research contract and consultation since this model fits with the founders skills and previous experience. As they moved forward, their strategies and operations shifted towards product and service development as well. The key reason for this shift was the external pressure mainly from the private investment firms as they believed that money and value cannot be quickly generated only through consulting projects.

Particularly in the re-orientation phase, the academic founders realised that the business model design must have the potential to deliver sustainability and subsequently scalability. However, based on the interviews with the founders, three main determinants were identified that influence the routes to sustainability and scalability of the firm, namely organisational determinants, intra-organisational determinantes an regulations determinants. For instance, the university technology transfer officers typically ignore the fact that it may take longer than usual for the USOs that initially did not get involved in formal transfer of technology to become a high-growth firms in a short period of time. In this case, the university show very little support for researchers who intent to expand their company and the founder(s) has to revise their business outlook. Extended analysis of other determinants and how they influence the development of USOs will be presented in the full paper.

5. Conclusion, Expected Contributions and Future Research

This research aims at examining the role of business model that may lead to sustainability and scalability of USOs. In order to achieve this aim, the researchers identified and scrutinised the phases in which each USO may go through to reach the sustainability and scalability stages. We have also examined how USO’s business models are evolved throughout the development path to sustainability and scalability. This work will add to existing research on the development of USOs in several ways. For instance, it extends the conceptual framework proposed by Vohora et al. (2004) by identifying and explaining how USO’s business models are evolved throughout the development phases to reach scalability.

Different types of USO in different disciplines may employ different business models. Moreover, university enterprise and research teams follow different models for supporting the academics in the formation, growth, sustainability and scalability of the spinouts. Therefore, future studies should invetigate how different models employed by the University’s Technology Transfer Offices may or may not support the USOs in reaching sustainability and scalability. Another possible direction is to examine how business model evolvement may put the USO in a critical stage where the founder(s) considers implementing an exit strategy.
6. Reference