

Designing better performance measurement systems in universities using the business model canvas

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Summary Abstract

This paper starts by critically reviewing the way in which universities design their measures of performance. We argue that the “one size fits all” performance measurement approach adopted by so many universities is not appropriate when departments have very different operating models. The paper proposes using “business model design” to enable university departments and centres to design and develop their own “sustainability model”, which in turn may help them develop more appropriate performance measurement systems. Using the lens of business model design may help universities to recognise their diversity and allow them to use performance measures more strategically.

Keywords: performance measurement, business model canvas, universities

Introduction

The use of performance metrics is increasingly common in universities worldwide (Ter Bogt and Scapens 2012; Kallio and Kallio 2012; Modell 2003). Teaching units, number of publications in top journals, research income generation, students’ satisfaction, citizenship or patents among many other metrics have become part of the day-to-day lexicon of academia. Performance metrics are used at all levels, that is, at individual, department, faculty, institution, national and/or international level (Burrows 2012)). In the mid-eighties, Universities started to adopt performance metrics in an attempt to assess the results of their work according to agreed standards and comply with the accountability demands of critical stakeholders (Townley 1997). Since then, the use of performance metrics has rocketed to a point that some argue “it would be quite easy to generate a list of over 100 different measures [...] to which each individual academic in the UK is now (potentially) subject” (Burrows 2012, p. 359).

Disregarding basic principles of design that put strategy at the heart of any organisational performance measurement system (Kaplan and Norton 1996), most universities adopt the performance metrics encouraged by government audits, ranking organisations, and other powerful external stakeholders (Modell 2003; Nelson Espeland and Sauder 2007). There is evidence suggesting that this approach is generating one-size-fits-all performance measurement systems that do not appear to take into consideration universities’ distinctive mission and, more importantly, the particular priorities and direction of their particular schools or departments (Franco-Santos,

Rivera, and Bourne 2014). For instance, the departments of most UK universities are assessed and compared on a regular basis in terms of performance metrics such as student numbers, research grants, or ‘top-quality’ publications. But, to what extent is it fair to judge, let’s say, a Management Department in the same manner as a Department of History, English Literature, Mechanical Engineering or Politics? Is it valid to assume that these departments function in similar ways so as to assert that equal measurement criteria can be used to evaluate their performance and assess their value? Classic higher education research would undermine this assumption (Becher 1987; Clark 1987).

Departments, which represent academic disciplines, are the basic organizational elements in universities and they are the major force affecting faculty values, behaviours and priorities (Austin 1990). Each discipline has its own culture, priorities, politics and ways of working. Identification with the discipline starts with the socialization experience of graduate school in which young scholars “learn the language, style, symbols, traditions and folklore of their respective disciplines as well as the appropriate professional activities” (Austin 1990, p. 63). University departments affect “assumptions of what is to be known and how, assumptions about the tasks to be performed and standards for effective performance, and assumptions about patterns of publication, patterns of professional interaction and social and political status” (Kuh and Whim 1988, p. 77-78). Each department appears to have its own *organising model*. Hence, how appropriate is to evaluate all university departments with identical performance measures? To what extent is this approach fair and not misleading or even harmful in the long-term (e.g., Holmwood 2010)? How can universities revisit the way in which they measure performance to address their stakeholder expectations without overlooking the *modus operandi* of their diverse departments?

In this paper, we attempt to address these questions. To do so, we build our ideas on current research on business modelling (Osterwalder and Pigneur 2005); in particular, on research on sustainable business models (Upward and Jones 2015). We draw on this literature arguing that business models provide an underpinning rationale, vocabulary and a method for addressing the need of universities to balance the demands of powerful stakeholders at the institutional level as well as attend to the idiosyncrasies of their departments for delivering their specific goals and long-term mission.

The paper is structured as follows: First, we review performance measurement research undertaken in the context of universities to depict a clearer picture of how universities are experiencing the use of performance metrics and the issues they are encountering; second, we critically review the literature on business models and consider their application to higher education; third, we outline a framework for improving the measurement of performance in higher education; outline plans for testing this approach; and finally, we discuss its implications and potential limitations.

Performance measurement in universities

Universities around the world are under pressure to perform mainly due to increased competition, higher accountability demands and reduced public funding (Diamond 2015). One way to address this performance pressure has been to intensify control mechanisms, introducing, among other management tools, performance goals and metrics (Franco-Santos et al. 2014). For example, the UK Government makes most of its research funding contingent on the ‘research excellence’ of universities assessed in terms of performance criteria such as research outputs, research context and impact. As a result, UK universities have begun to internally set research outputs and impact goals and metrics to increase their probabilities of receiving government research funding (McNay 2015).

Some authors argue that the ‘over-proliferation’ of performance goals and metrics in higher education is not necessarily associated to any intended mission or strategy. Rather, it has been a natural response to the need to comply and provide information to a broad range of stakeholders with conflicting and often vaguely defined expectations (Brignall and Modell 2000; Modell 2003). From this perspective, universities are often described as merely reacting to the multiple demands of powerful stakeholders (mainly Government) and not proactively attempting to manage their own performance. This was probably the case on the early stages of what has been portrayed as the “metricization of the UK academy” (Burrows 2012, p. 357). However, in recent years, there is evidence to suggest that university leaders are actively intervening in the management of their institutions, creating structures and performance measurement systems to deliberately affect the outcomes of their institutions (Agyemang and Broadbent 2015; Ter Bogt and Scapens 2012; Franco-Santos et al. 2014).

To actively intervene in the performance of their institutions, some university leaders are experimenting with different performance measurement and management practices more commonly used in the for-profit sector. For instance, some universities are developing strategy plans with their related success or strategy maps (e.g., Cugini, Michelon, and Pilonato 2011). Others are developing balanced scorecards (e.g., Taylor and Baines 2012), beyond budgeting techniques (e.g., Purcell 2014) or staff performance appraisals (Decramer et al. 2012; Kallio and Kallio 2012; Kallio et al. 2015; Townley 1997). Surprisingly, little empirical research exists looking at the effects of these attempts to monitor and control university performance. But, whilst these approaches follow traditional methodologies to cascade down strategy, most researchers believe that this might not be the most appropriate approach for UK universities. There are two main reasons for suggesting this: firstly, the lack of real strategies with substance at university level (with so many universities pursuing fairly generic strategies driven by external metrics); and secondly, the diversity that exists within universities and their departments (e.g., Sulej 2015, Clark 1987, Austin 1990).

Researchers have pointed out the tensions and conflicts that emerge when university leaders promote generic institutional strategies that do not reflect the particularities of its faculties or departments (Shattock 2010). There have been a number of papers suggesting that most universities seem to be following a “me-too” strategy of world-leading research, which leads to sector homogeneity and a fixed focus on league tables (e.g., Nelson Espeland and Sauder 2007; Sulej 2015). This approach is likely to be deceptive for many universities as not all of them would be playing the world-leading research game under similar conditions. As suggested by Shattock (2010), a reduced number of universities obtain more than fifty per cent of their total income from government research funded sources, whilst others get less than six per cent. With these diverse research resources profiles, knowing which universities will be at the top of the research league table is highly predictable. Hence, for the less successful (less research intensive) universities, any time or costs incurred in the development of the management practices to support a performance measurement system geared towards research excellence could be considered a rather futile endeavour. It seems to make much more sense for universities to define success in their own terms, focusing on what makes them unique and distinct in their context and develop a performance measurement system accordingly.

It is for this reason that we are proposing a different approach, one which allows departments to design and develop their own “operating model”. We recognise that this would be a fairly major departure for most universities. However, this is the approach that the management literature argues is essential for driving organizational success in a

highly competitive environment with multiple stakeholders (Miller, McAdam, and McAdam 2014). When competition is high and an organization has multiple stakeholders with conflicting interests and various degrees of power, sustainable competitive advantage is said to emerge from the co-creation of a business model among stakeholders and the organisation (Teece 2010).

Over the last two decades business models have received increased attention from business practitioners and strategy academics (for a review see Klang, Wallnofer, and Hacklin 2014). In the last few years, their application has expanded beyond business boundaries due to their perceived usefulness. Kimberly & Bouchikhi (2016) observe that business schools have celebrated and promoted successful business model innovation in industries including newspapers, financial services, music and automotive – whilst themselves staying stuck in a high cost business model that isn't suited to the current environment. Notably, Miller et al. (2014) stress that the application of business modelling to higher education deserves further attention.

The remainder of this paper explores how business model thinking might be used by universities to understand the diversity within their organisations, develop more focused strategies, and in turn design more appropriate performance measurement systems.

Business models: origins, roles and tools

Talk of business models blossomed in the 1990s (Amit and Zott, 2001), and the concept has continued to gain popularity ever since (Ghaziani and Ventresca, 2005; Zott et al., 2011). The purpose of a business model is to describe the general logic of the business including business value, the customer segment, organisation and financing (Bouwmann et al. 2008). Business models describe what kind of value a business is delivering and how this is generated and communicated to customers. Teece (2010, p. 191) suggests that “a business model reflects management’s hypothesis about what customers want, how they want it, what they will pay, and how an enterprise can organise to meet customer needs and get paid well for doing so”. There are a number of definitions discussed in the literature but in essence business models are about how a business works and how it fits together, based on an activity perspective (Casadesus-Masanell & Ricart 2010, Mason & Spring 2011). As Teece (2010, p.173) says, a business model is, “nothing less than the organisational and financial architecture of the business”.

Zott et al (2011, p10) came up with 4 important parameters of a business model based on an extensive literature review: “notion of value (e.g., value stream, customer value, value proposition), financial aspects (e.g., revenue streams, cost structures) and aspects related to the architecture of the network between the firm and its exchange partners (e.g., delivery channels, network relationships, logistical streams, infrastructure)”.

It is worth noting here that the origins of business modelling came from the need to redesign operations and value creation given new technology opportunities (particularly online retailing in the 1990s). The new digital economy made companies think about new ways of value creation with new partners and networks. The business model creating process is a process of shaping and reshaping to create opportunities to capture and deliver value. Chesbrough and Rosenbloom (2002) talk about business model as mediator, because technology and economic value is mediated by the construct business model. One of the benefits of building a model is that with a model you can play around with different combinations.

More recently people have started to talk about business models as a unit of analysis. Zott, Amit & Massa (2010) conclude that “there is a widespread acknowledgement – implicit and explicit – that the business model is a new unit of analysis in addition to the

product, firm industry or network levels.” Scholars contend, for example, that a business model can be a source of competitive advantage that is distinct from the firm’s product-market position (Christensen 2001). Firms that address the same customer need and pursue similar product-market strategies can do so with very different business models. Business model design and product-market strategy are understood as complements, rather than substitutes. Zott, Amit & Massa (2010) say “consensus is growing that the business model and product-market strategy are indeed conceptually different.

We believe that business models could be useful in helping universities to design better “organising models” (we use these words as some would argue the universities are not “businesses”) and performance measures.

The Business Model Canvas

The Business Model Canvas (Osterwalder, 2004, Osterwalder & Pigneur, 2010) is the most widely adopted tool for business model design. Osterwalder and Pigneur (2010) talk about “designing” rather than developing a model. One of their key aims is to make sure that the business can be easily communicated, understood and visualised. As such, they present their business modelling framework in the form of a “canvas” consisting of nine components: Customer Segments, Value Propositions, Customer Channels, Customer Relationships, Revenue Streams, Key Activities, Key Resources, Key Partners and Cost Structure. In so doing, The Business Model Canvas becomes “a shared language for describing, visualizing, assessing and changing business models” Osterwalder, Pigneur and Smith (2010, p.12).

Tracing the origins of the business model canvas back to Osterwalder’s (2004) doctoral research we find that his work was originally inspired by the Balanced Scorecard (Kaplan and Norton, 1992). He describes the business model's place in the firm as the blueprint of how a company does business. “It is the translation of strategic issues, such as strategic positioning and strategic goals into a conceptual model that explicitly states how the business functions. The business model serves as a building plan that allows designing and realizing the business structure and systems that constitute the company’s operational and physical form” (Osterwalder et al. 2005).

In Osterwalder and Pigneur (2010) the Business Model Canvas not only helps design a business model but makes a visual representation of it – making it easier to “tell the story behind the business model”. The Business Model Canvas allows management teams to be involved in shaping and reshaping different elements of the business model.

Coes (2014) when critically assessing the strengths and weaknesses of the canvas (through interviews with those that use it, a review of the literature and use of social media) makes the following observations in terms of its strengths: The Business Model Canvas deals with both value creation and value capture; it includes simultaneous consideration of value proposition and process – so it helps to give a holistic, systems view of operationalising strategy. A strong point recognised by many was its visual impact. As Rytönen & Nenonen (2014, p. 147) put it, “it is a useful future-oriented visualisation and simplification tool that creates a baseline for discussing the most fundamental ideas related to a business model”. In terms of weaknesses, Coes (2014) points to criticisms that the canvas is not capable of visualising an entire enterprise; whilst others say it was not designed with not-for profit organisations in mind (although this has since been addressed by other researchers (e.g., Schaltegger, Hansen, and Lüdeke-Freund 2015; Seelos 2014)). A further criticism is the absence of strategy in terms of competition (Coes 2014).

Whilst recognising these strengths and weaknesses, we believe that as a simple, visual device, the Business Model Canvas offers a promising tool for helping universities to understand their operating models within departments. And whilst the link between the canvas and performance measurement has been largely forgotten and under-developed, we see business model design using the canvas as providing a possible way forward for universities to develop more effective performance measurement and management systems taking into account the diversity of university departments and centres. The use of the canvas would help university departments to identify and visualise their particular organising models, which would assist them on defining the key areas in which they need to excel and, in turn, facilitate the selection of a relevant set of fit-for-purpose performance measures.

Business Modelling in the context of Universities: Sustainability Model Canvas

We propose that, using a modelling approach, universities may be able to develop a clearer understanding about how their organization works and how it fits together, based on an activity perspective. In the context of universities, the term ‘business’ may be questionable as the overall mission of most universities is not to make a profit (although some embrace very profitable enterprises...). We believe that in the context of universities the use of a term such as ‘sustainability’ (e.g., Schaltegger et al. 2015; Seelos 2014) might be more suitable to refer to the purpose of the modelling exercise. We argue that each department within the university will have its own ‘Sustainability Model Canvas’. We suggest that using the Business Model Canvas design as a lens can help universities to develop more strategic performance measures.

Taking the nine dimensions of the Business Model Canvas and thinking about two very different departments within a “typical” university as an illustration - if we compare a business school to a department of English Literature we can start to see that their “business models” are very different. On one level they both have students as one of their “customer segments” – but with very different profiles and requiring very different value propositions. But students are in no way the only customer segments – research “buyers”, industry, in-work executives etc. are all as much customers of the modern day business school as students. In a business school it may be that triple accreditation plays a part in the value proposition or access to employment while in the history department customers are more attracted by research output and rankings in university league tables. Whilst in the department of English Literature other “customer groups” may be perceived to be research funders, the media, the general public etc. The channels through which they communicate with their customers are also very different as are the relationships they form with their customers. There are huge differences in revenue streams – with a typical UK business school bringing a large percentage of its revenue from taught postgraduate courses often overseas customers and many with large revenue streams from MBAs and executive programmes. Whereas a department of English Literature might not even teach students at all, its revenue may come predominantly from research grants. When thinking about channels and relationships the way these two departments interact with the world may also be very different. Whilst the business school may be opening satellite campuses in new countries and finding agents to sell their programmes to new audiences, the history department may be placing more emphasis on scholarly journals and academic conferences. How they interact may also vary – you might find that Twitter, LinkedIn and Facebook are all important to the business school, as are alumni organisations and media officers; whilst the English Literature department may be more focused on traditional channel such as academic journals. Cost structure and resources may also vary – with the business

school needing to invest in state of the art buildings to attract corporate clients and invest in new administrators to handle large student numbers, the English department may be spending a larger amount on staff costs.

Whilst this short example is just for illustration, the next phase of this research will be to build sustainability models in multiple departments in a range of UK universities to check if our propositions hold true. There has been very little written about business modelling applied to universities and even less on using business modelling to develop effective performance measures. In one of the few papers found, Miller et al (2014) examine the changing university business model through a stakeholder perspective. Conducting multiple interviews combined with stakeholder theory they show how conflicting objectives between each of the stakeholder groups (academics, industry liaison staff, university management and government) have meant that the business model evolves not through co-creation, but rather through individual power struggles.

Framework for Designing Performance Measurement Systems using the Canvas

It has been suggested that business model design could be a bridge between high-level organisational strategy and business process design. We concur with this view and go further to suggest that in a university setting understanding the business models of individual departments (which we believe will be different and individual) will help in designing performance measures that will actually drive performance.

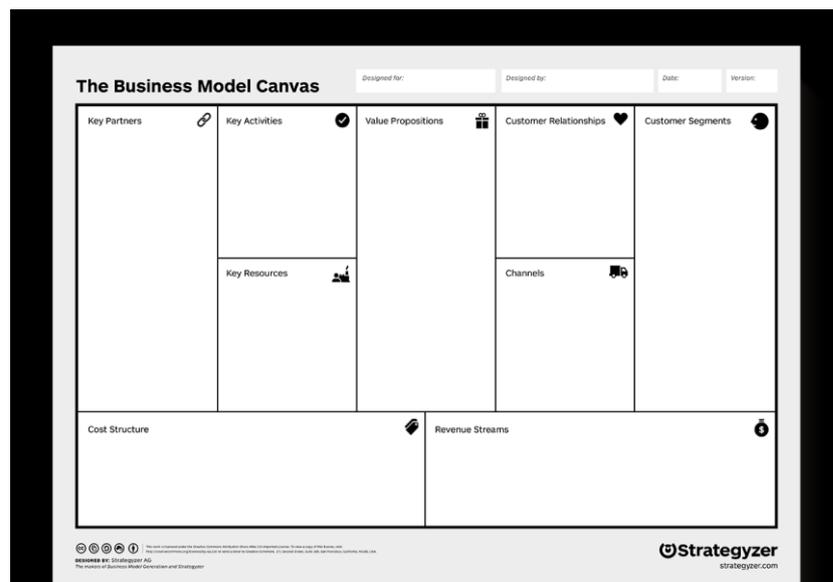


Figure 1: The Business Model Canvas

Examples of ‘principles’ for models to work:

- Models should be developed by diverse groups including different degrees of knowledge regarding the history, values and functioning of the different departments, hierarchical positions and representatives from both admin and faculty
- The information should be transparent
- Models and measurement are owned by everyone and everyone is responsible for their update
- The purpose of models and measurement is knowledge generation/learning
- Models and measures should be periodically updated to better reflect ‘reality’

Approach Going Forward

The next phase of this research will use the Business Model Canvas within the university setting. The research team will work with management teams in 5 universities (York, Cranfield, Cambridge, Queens Belfast, Strathclyde). In each university the team will use Osterwalder's Business Model Canvas to build models within a business and management department and one other department (to be agreed with the senior management of the university).

Propositions

From studying the literature, and based on experience, the researchers have a number of propositions they wish to test in the next phase of this research.

P1. The development of organising models, using the Business Model Canvas as a tool, can facilitate a shared understanding of performance (and its drivers) within departments

P2. The creation of organising models for different university departments can facilitate the development of more relevant, accurate and precise performance measures

P3. The use of organising models can enhance the understanding of the particular characteristics of departments

P4. The use of organising models can improve activity choices, resource allocation and decision making.

Conclusions and contribution

This paper argues that by taking a business model approach to looking at our universities we can start to see that we need a new approach to performance measurement and management. Whilst the research is ongoing, the researchers believe there are a number of gaps in understanding where this work can make a contribution:

- Wadstrom and Angelis (2015) suggests that our understanding of “strategy making in multi-business firms is scarcely researched (eg. Paroutis and Pettigrew 2007)”. This research can start to make a contribution to addressing this challenge by looking at universities from the perspective of departments being different “businesses” with different operating models.
- Franco-Santos et al (2012) in their literature review of performance measurement conclude that the fit between organisational setting and PMM is important for performance. However Melnyk et al (2014) observe that the literature doesn't give guidance on the tools to help managers with this. They suggest “a more nuanced approach to the co-creation of strategy and PMM” particularly in turbulent environments. Again by looking at departments as entities with different operating environments, this research has potential to contribute to this gap in knowledge.
- Whilst Osterwalder's (2010) business model canvas originally took inspiration from the Balanced Scorecard (Kaplan and Norton 1992), the link to performance measurement and management has been largely under-developed. We see business model design using the canvas as providing a possible way for universities to develop more effective performance measurement and management systems which take into account the diversity of university departments and centres.

While this paper focuses on universities, we suggest that using business model design may also offer other complex organisations a way of designing better performance measures.

Finally, the paper also contributes to business model design tools, potentially highlighting critical aspects of the business model canvas that could be missing eg. employees (their attitudes and motivations – as suggested by Miller et al. these are key enablers of universities missions more so than other model dimensions).

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