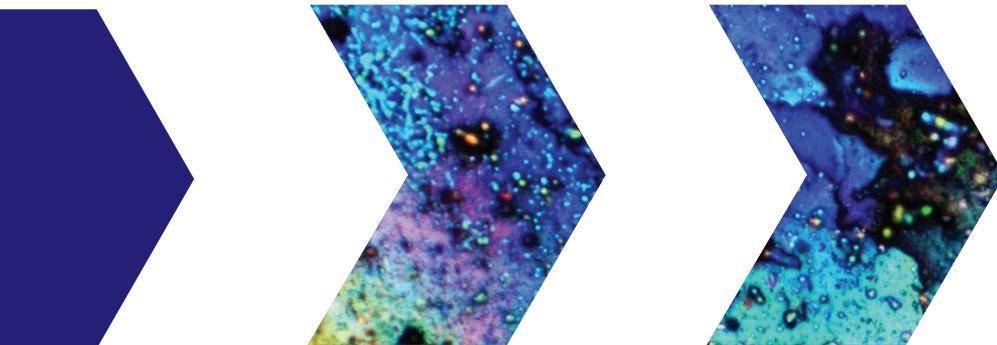


The Imperative for Business Model Innovation

A RESEARCH AND PRACTICE PERSPECTIVE



This White Paper provides the opportunity for consultation and debate regarding the challenges and opportunities presented by the unifying concept of the ‘business model’. The information presented has been synthesised from academic research and the perspectives of practitioners. Specifically, the paper draws together salient issues raised at the Business Model Innovation Workshop held at the Institute for Manufacturing (IfM), University of Cambridge, 1–2 June 2015. The workshop was co-hosted by IfM and the Centre for Innovation and Service Research (ISR) at the University of Exeter Business School and forms part of the Economic and Social Research Council (ESRC) Seminar Series on Business Models involving the following: University of the West of England, University of Exeter, Aston University, Lancaster University, Warwick University, Strathclyde University, and Reading University (Henley). The series has also received support from the British Academy of Management, The British Library and NEMODE.

While the antecedents of the business model concept originated in established academic disciplines, its rise to prominence took place relatively recently. This prominence as a concept was fuelled by digital innovation and the Internet, and its potential as a unifying mechanism presents significant opportunities for competitive development in both research and practice. To realise the innovation potential from a focus on business models and business modelling, significant challenges, such as entrenched organisational and behavioural norms, need to be addressed. This White Paper surfaces these opportunities and challenges and provides a point of departure for intellectual debate. Specifically, it identifies these opportunities and challenges from multiple perspectives and offers a set of recommendations for academia, business, funding councils, and government.

The synopsis of these is presented in this executive summary and discussed in more depth in the course of the paper.

Definition:

While the business model is a prominent, powerful concept, in common parlance there is a lack of paradigmatic neatness, which constrains intellectual advancement and restricts the benefits for business and society.

- A business model is a holistic, contextualised pattern of attributes (and activities) representing value proposition, value creation, and value capture.
- Business model innovation seeks to identify unique configurations of business model attributes to compete with the dominant model and new entrant models.
- Disruption is the extent to which a new business model acquires the customers and beneficiaries of the dominant model or creates new markets.

Opportunities:

- The articulation of a business model provides a mechanism through which the benefits of scientific endeavour can be realised.
- In addition to ‘new’ discoveries, business models provide opportunities to frame how value can be realised from existing assets, and can also provide conceptualisations of new applications (for example, part replacement in military contexts) from developing technologies such as 3D printing (Additive Layer Manufacturing – ALM) and the emergence of the Internet of Things (IoT).

- Business models provide the opportunity to explore the impact and value of applying technologies from one domain to another (for example, ‘gamification’ in education).
- Digitisation provides significant opportunities for organisations to innovate their traditional business models and to achieve transformative change.
- The survival and competitive longevity of the firm can be achieved by developing an ability to anticipate, respond to, and change a business model. Anticipation requires the comprehension of a business model within its broader ecosystem context. Change requires business model agility in order to avoid ‘lock-in’.
- Innovative business models challenge the established economics related to pricing. Giving away traditional products and providing services of higher value can achieve the displacement of competitors within an ecosystem.
- As firms have multiple business models, the business model construct provides a more informative way to determine the conditions (domain) of a proposed theory. Business models provide a better context for applied research and theory development.

Challenges:

- The impact of business model thinking, particularly business model innovation (BMI), goes beyond the traditional concepts of business change. The combined impact of globalisation, digitisation, and new industry-spanning ecosystems present greater challenges (and opportunities) for organisations.
- Business modelling is an activity or process designed to strategise the use of business models. Hence, business model innovation, as a result of business modelling, is an activity – the management of the creation or change of the business model.
- Changes in the technological landscape necessitate competitive relationships within the broader ecosystem to be formed to achieve BMI. Innovation within a single firm is increasingly difficult.
- Business model innovation can blur traditional industry boundaries. In fact the concept of an industry as a unit of analysis is questionable with the advent of new forms of business model. Standard Industrial Classifications (SIC), for example, are outdated.
- Using a business model as a ‘domain of theory’ provides significant opportunities for identifying generalisable theory (unconstrained by traditional industry classification). The challenge is to identify the ‘new’ classification scheme.
- The funding environment for research is typically structured by discipline – the innovation of business models requires a multidisciplinary effort. The mechanisms required to build multidisciplinary clusters to extend current research and development present a major challenge.
- Business model evolution/innovation is a dynamic phenomenon. Longitudinal research is required to capture these dynamics. This challenge requires close academic–practitioner relationships over prolonged periods of time.
- BMI requires a ‘bimodal’ capability – the ability to innovate a new business model while simultaneously executing the existing business model logic.

Specific Challenges for Stakeholders

Academia (Research):

- To encourage multidisciplinary business model research to address collectively the challenges of business and society (e.g., energy, climate change, food security, health).
- To establish a multi-disciplinary-based community of scholars, under a common business model theme, who work across disciplines for the exchange of ideas and the pursuit of intellectual progression.
- To explore the broader ecosystem context to establish business model compatibility and competition: the concept of the connected enterprise.
- To embrace a 'systems perspective' on business model research to avoid the oversimplification of linear cause-effect.
- To develop data sets that permit intellectual enquiry beyond the traditional industry-centred data.
- To undertake longitudinal analyses to determine the dynamics of business model innovation/evolution.

Academia (Education):

- To pursue the appropriate mechanisms for business model education that integrate multiple disciplinary perspectives, methods, and approaches.
- To establish a common national repository of innovative business model cases that capture the entrepreneurial activity of micro and small firms.
- To contribute to a national business model case repository; capturing and articulating research experience and providing innovative pedagogical approaches.
- To develop and co-produce tools and courses with practitioners that directly support business model innovation and entrepreneurial activity.

Research Councils and Funding Bodies:

- To bridge the gap between the hard sciences (and engineering) and the social sciences to foster applied research that impacts business and society.
- To promote collaborative research and development, through the appropriate funding mechanisms, at the early stages of technology innovation: to explore new opportunities for technology commercialisation, to guide commercial requirement without encumbering 'blue sky' scientific research, and to explore generative opportunities of multiple business models capitalising on scientific discovery.
- To support research underpinning new-entrant business models and incumbent firms transitioning to mainstream propositions underpinned by technology innovation.
- To promote and support thematic research on business models that informs novel approaches to productivity: to explore ecosystem configurations, to develop generalisable theory beyond the traditional sectorial and industry boundaries, to explore innovative mechanisms for financing business model innovation that complements other forms of innovation, and to support enquiry into business-model-based accounting and reporting.
- To establish publicly accessible business model data sets for longitudinal research.

Business:

- To focus on business model configurations that capitalise on technological innovations – not the technology in isolation – and to develop flexible organisational structures and agile leadership to embrace BMI.
- To develop capabilities for business model innovation that compliment and extend product, process, and service innovation.
- To develop business model ambidexterity to become resilient to ecosystem and commercial changes.
- To invest in business model experimentation.
- To embrace collaborative academic–practitioner initiatives to inform and support business model innovation over sustained periods of time: to engage in laboratory, sand pit, and ‘living lab’ initiatives, to test the opinions, acceptability, and viability of BMI, and to explore the impact of business model theory.

Government:

- To emphasise the role of business models in technology commercialisation, and to encourage new and established firms to develop and commercialise new technologies effectively.
- To provide the appropriate infrastructure and subsidies to encourage the development of new business models.
- To facilitate public sector education on business model thinking to drive new innovative services and economic development.
- To link science and technology with the wider population to create, deliver, and capture value in more efficient ways.
- To encourage closer cooperation between the private and public sectors to develop innovative business models.
- To facilitate economic development through entrepreneurship and the innovation potential of small and medium-sized firms, thereby making business model education and the supporting tools accessible to firms; to equip for innovation potential.
- To enable access to the appropriate forms of funding in support of business model innovation.
- To re-evaluate the industrial classification system and encourage a focus on a typology of value-creating activity.

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1. Introduction

This White Paper draws together the current thinking on ‘business models’. It draws on extant research, expert national and international opinion, and insights gained from the Economic and Social Sciences Research Council (ESRC) Seminar Series and the Business Model Workshop Series held at the Institute for Manufacturing (IfM), University of Cambridge. The aim of the paper is to present both the opportunities and challenges associated with business model research and to structure these for key stakeholders: academia (research and education), business, funding councils, and government. Reflecting on the work achieved to date, and recognising both the ‘reach’ of the business model concept across society and its inherent lack of paradigmatic neatness, we present key propositions as an intellectual platform to assist future research and practice.

1.1 What are the imperatives for business model innovation?

While the antecedents of the business model concept originated in established academic disciplines, its rise to prominence has been fairly recent. Recognition of the importance of business models (BM) was largely driven by the changes in organisational activities of ‘e-businesses’ in the late 1990s and early 2000s (Amit and Zott 2001). The evolution of e-enabled business and digitisation has continued to change the way business is done, and is becoming increasingly pervasive across industries ranging from retailing (e.g., Amazon), trading (e.g., eBay), music (e.g., Apple or Spotify), to transportation (e.g., Uber), and accommodation (e.g., Airbnb). Business models have emerged as a popular concept for discussions about economic activity, technological change, dominant design, and business configurations. Indeed the term ‘business model’ has permeated common vocabulary. The popular press, media, as well as academic disciplines, research councils, and government agencies all allude to the term. Given this societal ‘reach’ it is important for business, education, and public policy to capitalise on the potential benefits that this new conceptualisation brings. While the term ‘business model’ is found in common parlance, it is evident that a multiplicity of perspectives exist across different societal groups and agencies. On the one hand, this diversity may provide novel insights and opportunities for future innovation. On the other hand, the lack of paradigmatic neatness may constrain intellectual advancement and restrict realisation of the benefits for research, business, and society. Despite growing research interest in the phenomenon, for example, in the academic articles disseminated through focused special issues and in dedicated seminar series promoted by the UK research councils, discussion is often reduced to a simple question: ‘What is a business model?’

2. Clarifying the rationale and defining the domain

2.1 What is a business model?

There is still work to do on defining what we mean by ‘business models’. Business models can be perceived as descriptions, boundary objects, models, strategies, or practice. They can be an idea, a replica, or an activity (business modelling). Teece’s definition suggests that the business model is the relation between top management and their customers (Teece 2010). However, in most firms, there is not just one business model, but many, offering products and services (with associated value propositions), with different mechanisms for delivering these propositions and for capturing the resultant value. However, in all contexts the primary role of the business model is to provide links to market and customers through value creation and capture.

Drawing on multiple sources of academic work, it would appear that consensus at a high level of abstraction has been reached (albeit not always in open discussion). A business model comprises three broad categories: value proposition, value creation, and value capture. The value proposition component identifies what markets and customer groups (or other beneficiaries) will be targeted, and what products and services will be provided to meet the requirements of the customer group. For example, in the emerging domain of ‘mobile payment services’ a value proposition may target small merchants and provide access to market (such as the ability to receive debit/credit card payments in remote locations). Some researchers have extended the conceptualisation of value creation beyond the customer to include other stakeholders such as employees and broader society.

Value creation focuses on how products and services will be created/provided. A popular perspective on this business model component is the ‘activity system’. This may include technical and non-technical systems and can also include characteristics of the specific organisation of the system (e.g., partnerships). Continuing the example, an essential element of payment processing is the compatibility of the merchant mechanism and the customer mechanism. In this instance a remote device that plugs into the merchant’s mobile phone (together with a downloaded application) provides compatibility with the customer credit/debit card, which permits card-based payments to be made.

Finally, value capture relates to the benefits that are realised. This may take the form of broad societal value in not-for-profit and social enterprise situations but is more commonly conceptualised as the monetisation realised by the provider. In our example, the value to the merchant is monetised (by the provider) by charging a transaction fee.

2.2 What do we mean by business model innovation?

As can be seen in the following example, the conceptualisation of a business model at a level of granularity (below the broad categories) is highly contextual (Morris, Schindehutte, and Allen 2005). Value propositions could include different target customers (i.e., consumers, large merchants, or small merchants) and different products/services (customer convenience and security, enhanced payments functionality, etc.). Value creation attributes could address: types of organisational configuration; core operating system (e.g., interchange); different customer mechanisms (such as customer card, downloaded application, customer phone number); different merchant mechanisms (such as Near Field Communication (NFC), QR Codes, POS terminals). The mechanisms for realising revenue (value capture) could include transaction fees, data sales and advertising, device sales, or margins. These attributes are highlighted to make a fundamental point: business models should be considered holistically. It is not a particular technology or proposition that determines a business model; rather, it is the pattern of attributes across all categories that give a business model its identity.

This conception allows further exposition concerning business model innovation (BMI). We acknowledge the intellectual achievements concerning research on innovation and disruption. An innovative business model, from our perspective, is the identification of important attributes and the configuration of these attributes that enable competition with the dominant model (and new entrant alternatives). Like other innovations, business model innovation may be radical or incremental: radical involves significantly changing the configuration of business model attributes, while incremental focuses on marginally changing the existing configuration of the business model attributes. Disruption can be conceived of as the extent to which the new configuration impacts the dominant model and acquires its customers. This provides three clear propositions:

1. A business model is a holistic, contextualised pattern of attributes (and activities) representing value proposition, value creation, and value capture.
2. Business model innovation seeks to identify unique configurations of business model attributes to compete with the dominant model and new entrant models.
3. Disruption is the extent to which a new business model acquires the customers and beneficiaries of the dominant model or creates new markets.

Innovations in science and technology, and in entrepreneurial activity in the business domain, are increasing apace. This is particularly true given the rise in computing power and the opportunities afforded through digitisation. The articulation of business models provides a mechanism through which the benefits of scientific endeavour can be realised. It presents opportunities to realise both economic and societal value. Consequently, organisations need to innovate their traditional business models by acknowledging the ability of digitisation to bring transformative change to businesses. Business model innovation is a key determinant of firm survival (Velu 2015).

Scientific discoveries in genomics provide opportunities for enhancing medical treatment, discoveries in materials science provide opportunities for product innovation in complex engineering applications, and discoveries in data science provide predictive capabilities that are applicable to a plethora of areas. In each case, the realisation of 'value' from the discovery is subject to the identification of innovative business models that specify who the beneficiaries are, how the benefits will be delivered, and what reciprocal benefit (economic or societal) will be realised. In addition to 'new' discoveries, business models provide opportunities to help frame how value can be realised from existing assets (for example, Airbnb and Uber). They also provide conceptualisations of new applications (for example, part replacement in military contexts) from developing technologies such as 3D printing (Additive Layer Manufacturing – ALM) and the emergence of the Internet of Things (IoT), whereby there is increasing connectivity of spatially distributed devices with embedded identification, sensing and/or actuation capabilities. They offer the opportunity to explore the potential value of applying technologies from one domain to the next (for example, the use of 'gamification' in education).

Like products and services, business models are not static. Business modelling is an activity or process used to strategise the use of business models (Baden-Fuller and Mangematin 2015). Hence, business model innovation, as a result of business modelling, is an activity – the management of the creation or change of the business model. It may be linked to technological innovation (as exemplified by 3D printing) or may be enacted by integrating existing technologies and applying new systems and value propositions (e.g., Uber). In line with thinking on strategy, product/service innovation and organisational structure, there is a notion of adaption (versus rigidity) in business models. Business models, like technologies and products, go through a lifecycle. The ability to anticipate, respond to, and change a business model is (like strategy and product/service offerings, and organisational performance) fundamental to the survival of a business or organisation, whether it is a start-up, small/medium-sized enterprise or large incumbent organisation.

Firms may identify a business model that fits particularly well in an environment, but if that becomes too rigid, there is a potential lock-in and the risk of finding that the model is no longer relevant when the environment or ecosystem changes. Consider as an example Nokia, which had always been at the forefront of technological development in mobile handsets, but ultimately failed to remain a leader in the mobile phone business as a result of a combination of structural rigidity and leadership challenges, leading to an inability to identify new ways of creating, delivering, and capturing value through its technologies.

The demands of contemporary changes in the technological landscape make it difficult for a single firm to have all the capabilities to be sufficiently agile to develop and adapt to new propositions. Therefore, firms are increasingly collaborating with customers, suppliers, and even competitors to form an ecosystem to drive innovation and growth. An ecosystem exists when firms are interdependent on one another to achieve a common goal; ecosystems often display both cooperation and competition (e.g., co-opetition) among partner firms. Therefore, the business model is increasingly seen as a mechanism that spans the boundary of the firm and includes other stakeholders.

Hence, changing the business model can change the enterprise, the competitors, and the industry. Business model innovation may result in improved operations and engagement, and new revenue streams from products or services, or enable a response to new competitors or ultimately create a new hybrid industry or ecosystem that spans traditional industries. The dynamics of business model evolution are complex: the ecosystem and its stakeholders influence business models; technology influences business models; and internal organisational capabilities, structure, and culture also influence business model evolution. Business model evolution can bring about an evolution in the ecosystem itself: a contagion effect. However, a business model also has the potential to influence each of these, resulting in a complex systemic model (see Figure 1).

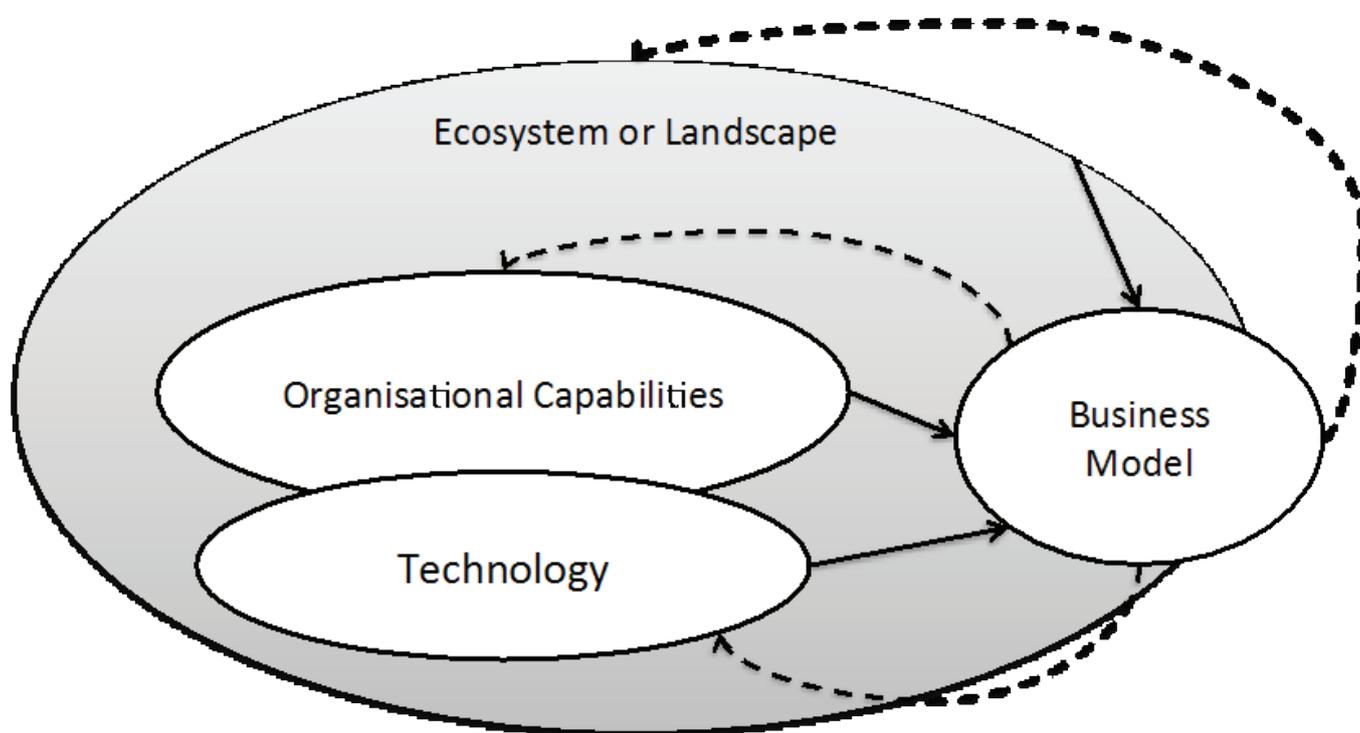


Figure 1 – The influence of ecosystem, organisation, and technology on business models as a systemic model

2.3 Why is business model innovation an emerging field, and why now?

The impact of business model thinking, particularly business model innovation, goes beyond the traditional concepts of business change. The combined impact of globalisation, digitisation, and new industry-spanning ecosystems presents greater challenges (and opportunities) for organisations. An industry no longer defines who you compete with. The emergence of the Internet of Things, big data and analytics, and the digitisation of manufacturing add further impetus to these challenges. Ecosystem and business model innovation provide boundary-spanning approaches to address the challenges. Table 1 summarises some of the changing perspectives identified in the workshop; these topics are discussed in the White Paper.

Business model thinking became prominent with the advent of e-business in the late 1990s, gained momentum, and now provides a means to address the new boundary- and industry-spanning transformations that are taking place. Addressing these challenges is important to maintaining the relevance of the organisation (to stakeholders, customers, and investors).

Table 1: Changing perspectives in the ‘industrial’ agenda

Traditional perspective	Contemporary perspective	Exemplified by
Industries	Ecosystems	Firms are increasingly collaborating with customers, suppliers, and even competitors to form an ecosystem to drive innovation and growth. In doing so they transcend traditional industry boundaries.
Products	Product and services (solutions)	The evolution to businesses where there is greater value in the provision of a solution or service than just a product.
Physical offerings	Digitised offerings	An increasingly digitalised world where man-made objects become generative whereby they evolve and generate in unexpected ways as the digital artefacts are designed (e.g., Uber using a digitised service (App) to provide transportation and delivery).
Firms	Business models	Firms may have many business models; the impact of each business model in terms of value to customers, the offering, and required capabilities may be very different, requiring a business-model-level perspective to aid understanding.
Contracts based on exchange value	Contracts based on use value or outcomes	A move from the traditional product offering with an exchange value (price) to one where the value is based on the customers’ perceived use value or a valuable outcome (for example, moving from selling a medicine as a product to reimbursement based upon therapeutic success or patient outcome).

2.4 What is the vision for research and practice for business model innovation?

In order to realise the benefits of business model innovation afforded by developments in science and technology, there is a need to consider and address some of the constraints on research and practice. This includes challenging well-established frames of reference, which guide (and constrain) thinking. Business model innovation can blur traditional industry boundaries, as has been well documented with Apple and iTunes, together with its ecosystem of partners. In fact the concept of an industry as a unit of analysis is questionable with the advent of new forms of business model. Standard Industrial Classifications (SIC), for example, are outmoded and outdated – Apple may be reasonably placed in ‘Electronic Computer Manufacturing’ (NAICS 334111), software ‘retail’, ‘Software Publishers’ (NAICS 51121), and ‘Software Reproducing’ (NAICS 334611). It is arguable, however, that these classifications do not address the subtleties of digital music distribution, or the business of payment services (e.g., Apple Pay). Recognising that firms may have multiple business models, research is perhaps better placed utilising the business model as the unit of analysis and, hence, the domain of theory – the context in which research enquiry is conducted. Intellectual enquiry within, and across, business model contexts provides opportunities for closing the theory–practice gap and potentially allows for theoretical progression. The funding environment for research is also traditionally structured by discipline. Here we identify the focus on ‘engineering and physical’, ‘economic and social’, and ‘arts and humanities’. As innovation does not necessarily follow a linear process, it may be more fruitful to emphasise collaborative research council agendas for future thematic research. While the establishment of networks (for example, the New Economic Models of the Digital Economy in the UK – NEMODE network plus), which draw on multiple disciplines, goes some way to addressing this issue, more activity of this kind would help to build clusters of multidisciplinary expertise. The historic structuring of academic groups (by discipline) also provides a constraint. Business model research requires these traditional boundaries to be crossed – science, technology, engineering, humanities, and social science all have a role to play.

3. The Research and practice gap

3.1 Progress in research

There has been considerable progress on business model research in recent years. This is partly driven by some excellent special issues in journals, which have stimulated interest in this area. The research so far can be broadly classified into three main themes:

1. Conceptual papers that are developing the theoretical foundations of the business model and business model innovation;
2. Single or multiple case-study-based papers that extend the conceptual foundations of a business model; or
3. Papers that provide a classification of the typology of business models.

These papers have laid an excellent foundation on which to build further research on business model innovation. However, there remain significant gaps in our knowledge and understanding of business model innovation. First, much of the research is still discipline based, whereas a proper understanding of business model innovation requires an interdisciplinary focus. The opportunities afforded by new technologies for business model innovation cannot be fully understood without an interdisciplinary focus. Admittedly, scientists and engineers are focused on understanding the science behind the technologies, whereas social scientists such as economists and management scholars emphasise the organisational and people dimensions of technologies. Business models that often act as the bridge between technology and the market require a multi-disciplinary team of social scientists and scientists to work together in order to make progress.

Second, the theoretical foundation for business models remains fragmented. Scholars have recently argued for a more foundational approach to understanding business model innovation (Baden-Fuller and Mangematin 2013). The work on classifying and developing a typology for business model innovation remains at describing the functional form of the business model and not at the underlying building blocks that give rise to such functional form (Yoo 2013). This is problematic, especially in an increasingly digitalised world where man-made objects become generative, whereby they evolve and generate in unexpected ways as the digital artefacts are designed. Therefore, many possibilities for business models might emerge, which cannot be understood from analysing their form but instead need a deeper understanding based upon the fundamental building blocks such as the 'genes' or DNA of the business model. This approach is akin to understanding how biological systems evolve. Third, there is an increasing appreciation that business models exist within an ecosystem. The theoretical understanding of how business models evolve within such an ecosystem, and its connection to strategy formulation, remains a major gap in our understanding of business model innovation. Furthermore, a business model lens provides the opportunity to articulate patterns in the broader ecosystem, offering insights into potential business model compatibilities and conflicts. Finally, the research so far has been somewhat limited in longitudinal empirical analysis. Recent research in the mobile payments context, for example, identified a company (LevelUp) that initially offered, and subsequently dropped, zero interchange rates to merchants. Furthermore, following its launch, this company formed strategic partnerships (e.g., Heartland – merchant acquirer) to gain access to the merchant market. Observing the company's activity over time provides interesting insights into the establishment of its business model – insights that cross-sectional studies would not identify. In order to make progress on the gaps in the theory of business model innovation, a deeper empirical analysis that tracks the evolution of business models over time, and the underpinning processes and capabilities needed, is urgently required.

3.2 Progress in practice

The need for leadership and management of transformations is not new per se – but in the context of business models it is important to understand the macro-level drivers, and how these impact the required change in corporate culture and structures. Business model change can result in more than just organisational or product changes; it can go right to the heart of the organisation and its value propositions. As a consequence, it can fundamentally challenge the purpose, offerings, structure, and culture of an organisation. Traditionally, most mature businesses will have moved from achieving ‘effectiveness’ to driving ‘efficiency’, aiming to leverage their capabilities, but changing business models need to be able to return to ‘effectiveness’ and create good customer experiences. Such a return to entrepreneurship-type skills, and the ability to identify and negotiate new positions, are likely to require increased collaboration. It is therefore critical to be able to break away from old managerial paradigms and cognition, and to overcome internal politics and path dependencies in order to enable business model innovation (Velu and Stiles 2013).

First, tools and methods for practical use are emerging to address these issues. Considerable progress has been made in developing frameworks for business model development among practitioners. However, further work is needed to provide a more comprehensive theoretical foundation for these frameworks. Second, organisations are increasingly recognising and appointing individuals to be responsible for business model innovation in their respective organisations. Business model innovation, by its very nature, requires systemic change across the organisation and hence requires a comprehensive understanding across functions, as well as hierarchies, in order to identify, develop, and implement business model innovation fully while running the existing business model – requiring a bimodal capability. Moreover, there is an increasing need to understand how firms need to operate within ecosystems, and new ways that actors can create and capture value within them. Similarly, there is a need to understand the economic dynamics of pricing, as new business models are ‘giving away’ traditional products (undermining those existing businesses) in order to offer new services (with higher value). This gap needs to be filled urgently by providing a fuller appreciation of business model innovation and the skills required among managers in the private and public sectors in order to reap the benefits from business model innovation to address some of the key societal challenges.

Next we propose a series of recommendations for academia, research funding, business, and government in order to address these gaps.

4. The role of the business model concept for academia, research councils, business, and government

The business model concept is inherently multidisciplinary and thus requires effort and input from a variety of stakeholders in order to understand all of its benefits and challenges. Drawing upon the expertise and experience of leading academics and senior practitioners, this section discusses some of the current issues related to the business model concept from four perspectives – academia, research funding, business, and government – and offers preliminary recommendations to initiate a more inclusive or holistic discussion across the different domains.

4.1 Recommendation for academia

FOR RESEARCH

1. Building bridges to integrate business model research across disciplines

Business model research is increasingly being acknowledged as important by researchers in strategy, marketing, organisational behaviour, information technology, and finance. However, extant research on business models has primarily been conducted within disciplinary silos. Addressing some of the major issues of the world such as energy, climate change, food security, and health care require a more holistic interdisciplinary research effort. The concept of the business model provides an integrating unit of analysis in order to do so. Moreover, special issues on business models within some journals have already begun to address the need for interdisciplinary research on business models and this needs to be further encouraged.

2. Creating a community of scholars on business model research

Currently many researchers across various disciplines and geographies are becoming increasingly interested in business model research. However, researchers remain fragmented, with no common umbrella to build a community of scholars to share and exchange ideas. Some conferences have organised special sessions on business models and research councils, such as the ESRC in the UK funding the business model seminar series. However, more could be done to build a community of scholars in the business model innovation research stream.

3. Further theorising on business models

Digital technologies facilitate business model innovations that are disrupting many traditional businesses and creating new industry structures. The boundary of the firm is being reconfigured, with increasing interconnectivity among firms, as well as with customers, resulting in the ‘connected enterprise’. Such interconnectivity is contributing to increased generativity of new business models as complex combinations of existing business models in ‘connected economies’. An ecosystem perspective to the business model will help identify the possible stakeholders involved in value creation, delivery, and capture, as well as their potential development paths and constraints. In order to do so, the existing paradigm based on industrial and information economics needs further reevaluation and refinement using generative economics. Moreover, the mean-variance dominant framework of traditional economic analysis needs to be complemented with a more systems-based view in order to understand the principles of generativity better. Specifically, further theorisation is required on the following questions: What is the role of modularity? How is strategy connected to business model innovation? How are business models replicated? And how is a portfolio of business models managed? Such further theorising of the concept of the business model will enhance existing theory, as well as provide a new theoretical lens within disciplines (e.g., strategy) and across disciplines (e.g., between strategy and operations).

4. Complementing theory building with longitudinal data on business models

Data availability is still a major issue in terms of conducting empirical analysis on business model innovation. The concept of ecosystems transcends traditional industry boundaries; however, nearly all quantitative data is rooted in industry-based coding. The key phenomena and trends operating in new cross-industry ecosystems are difficult to research quantitatively, as the existing data sets do not readily enable such comparisons. As a consequence, much of the recent research on business models has been limited to conceptual or qualitative studies, or relied on individual cases as exemplars of a particular practice. A more holistic effort needs to be in place to build data sets for business model research that can address longitudinal business model dynamics and evolution in order to progress the testing of extant theories and encourage the development of new theories on business models.

FOR EDUCATION

1. Creating multi-disciplinary integrative courses for undergraduate and graduate programmes

The business model as a unit of analysis is an integrative mechanism that can enhance other disciplines. Therefore, given the multidisciplinary nature of the business model concept, it is important to establish a collaborative, holistic approach to business model teaching, which takes into account all the potentially relevant domains (including strategy, marketing, operations, finance, etc.). Consequently, a business model lens is useful for integrating a variety of subjects taught within university courses, such as engineering, management, accounting, marketing, or economics. Delivering business model education, for example, could be achieved through a dedicated business model module, where concepts learnt in other modules such as finance, operations management, and marketing could be consolidated to develop a better understanding of the overall value proposition created for a customer, which would not otherwise be possible if those concepts were taught separately. Alternatively, separate discipline-based courses could contain consistent elements that were business model related in order to build an understanding of their relevance to each discipline and how it all fits together.

2. Extending the case material to cover emerging and disruptive business models to complement the understanding of established incumbents

Many business and engineering schools use business cases as a key element of their curriculum. One of the drawbacks of this approach is that often these cases are based on issues previously encountered by large and well-known organisations and they rarely address business model issues. However, the reality indicates that many new, innovative business models are emerging through smaller firms, often enabled by modern digital technologies. For example, consider the disruptive business models of Uber or Airbnb – companies that utilised IT and only a handful of people in their conception. Thus, it is considered critical to develop and teach business cases based on the commercial journeys of small and medium-sized enterprises, and to start doing so at an earlier educational stage, rather than, typically today, at postgraduate level. Creating such case studies (for example, as part of a UK case repository) could also help in providing the basis for building data sets that are currently missing and urgently required for further business model research. For example, such data sets could expose disruptions driven by actual novel business models rather than new technological developments, or could identify or track disruptions that span traditional industry boundaries.

Creating courses and tools for practitioners

Managers within firms are increasingly appointing executives to consider business model innovation as a means to creating long-term competitive advantage. Moreover, entrepreneurs are looking to a more systematic understanding of business models to enhance the development of start-up businesses. However, there is a lack of tools and courses related to business model innovation for the managerial and entrepreneurial community. Academics should be encouraged to develop such course material on business model innovation in collaboration with managers and entrepreneurs.

FOR EDUCATION

4.2 Recommendation for research councils and funding bodies

1. Bridging the gap between technology and commercialisation

One of the challenges for research and research funding on business models is bridging the gap between the hard sciences (and engineering) and the social sciences. For example, in the UK, the Engineering and Physical Sciences Research Council (EPSRC) predominantly focuses its funding on the development of technologies, while the Economic and Social Research Council (ESRC) concentrates on supporting studies that address the effects of these technologies in economic and social terms. Consequently, obtaining funding for studies tackling the implementation and commercialisation of these technologies, for example, having an impact on a country's economy or a firm's business performance, or addressing wider ecosystem perspectives, is challenging. New business model development is often a non-linear process with much 'back and forth' experimentation; therefore, there is a need for collaborative funding at the embryonic stage of the technology or innovation in order to identify opportunities between technology development and commercialisation. Technologies can often influence the design of business models. However, business models, in turn, can also influence the development of technologies. Therefore, as technologies evolve at an ever-increasing speed, the opportunities for new business models are abundant. However, scientists and engineers tend to focus on improving the efficiency of technologies to perform tasks faster, cheaper and better, while social scientists such as management scholars tend to focus on how to translate the technology into benefits for society. In addition, often a particular technology can enable multiple business models and, hence, add a level of complexity to translate the benefits in terms of products and services to customers. Therefore, more collaborative research between scientists/engineers and management scholars would enable such a process of technology development to be more focused and perhaps lead to less failure in terms of products and services with advanced technological underpinnings, due to the lack of suitable business models. Such a collaborative approach would also help address the 'scale-up' and replication challenges that are often faced by start-up firms needing to grow, and incumbent firms leveraging a new technology to make it a mainstream proposition. Exploring the effectiveness of established business models within different geographies is also required.

Collaborative efforts internationally can facilitate replication studies to inform geographic contingencies. The business model lies at the intersection of understanding technologies and how they could be linked with an ecosystem of customers and stakeholders, through various value creation, delivery, and capture mechanisms (Phillips 2015; Smart 2015). Research councils need to provide a more integrated funding model that allows scientists and social scientists to work together in order to encourage research that enables technologies to be brought to market for the benefit of societies. In this context, it is important to ensure that a broad series of technologies addressing small to large firms, and covering nascent and emerging ecosystems, are covered and there are no major 'valleys of funding gaps'.

2. Understanding ecosystems and networks

Recent research has shown the importance of ecosystems in stimulating innovation and maintaining the competitiveness of a country or region, for example, through the development and maintenance of the manufacturing sector (Berger 2013). Moreover, the increasing connectivity of firms through digital technologies has enabled firms to operate as networks within ecosystems. Further research funding is required to understand better how these ecosystems enable business model innovation and what types of capabilities would be required for firms to create and maintain their competitive advantage.

3. Financing and business model innovation

Recent research has also shown the importance of financing for the development of business models (Lazonick 2010). In particular, the approach to financing could alter business models dramatically, as shown via the highly leveraged business models of the investment banks with some fatal consequences. Moreover, financing could affect the long-term versus short-term nature of innovation projects among firms, which in turn could influence business model innovation. In addition, the method of financing could either be an enabler or a constraint on the ability of start-up firms to develop suitable business models. Therefore, the financing of business model innovation needs further research funding and investigation.

4. Funding for data creation

The publicly available data sets on firms today are not appropriate for research on business models, as they have not been gathered and reported for that purpose. There is an increasing move among financial reporting and accountancy bodies (such as the European Financial Reporting Advisory Group (EFRAG), the French Autorité des Normes Comptables (ANC) and the UK Financial Reporting Council (FRC)) to encourage firms to report on their business models. The argument put forward is that investors examine financial reports collectively with other information such as the strategy of the firm. In this sense, the business model construct helps inform how assets and liabilities are used in the value creation process and needs to be reflected more explicitly in the way that financial reporting is conducted. Although there is progress along these lines, such initiatives to enhance financial reporting to include the business model as a core component are still at a nascent stage. The research councils could encourage the development of large data sets for business model research that has a longitudinal scope. They should also encourage the development of publicly accessible data sets for business model research in order to stimulate interest in the empirical investigation of the phenomenon.

4.3 Recommendation for business

1. Review processes and responsibilities for business model innovation

Businesses need to embrace the fact that, although rapid technological innovations can disrupt whole industries, most of the time they cannot guarantee commercial success if they are not matched by an appropriate business model. In order for a business to benefit from a novel technology, it must be supported by a combination of flexible organisational structures, agile leadership, and suitable business models. Embracing business model thinking can help firms to identify new ways to create value and grow through a more integrated view of their business and its relevant stakeholders. Firms, large and small, have developed capabilities for product and process innovation that includes frameworks (Smart, Maddern, and Maull 2009), routines, and organisational responsibilities. Such capabilities are also important to enable business model innovation, but the know-how and tools to do so are still at a nascent stage. However, it is imperative for firms to review and develop capabilities for business model innovation to complement those needed for product and process innovation. Such clearly defined processes and responsibilities will ensure that firms develop business model ambidexterity (i.e., the ability to run parallel business models (Velu and Stiles 2013)) in order to become more resilient to ecosystem and commercial changes.

2. Working closely with academic researchers to refine and develop business model innovation methodology

Fundamentally, business models are not one-off events, but rather an evolving perspective on the firm, its ecosystem, and ways to create and capture value. Much of the current education and resources focus on business modelling as an 'event' or 'design' in contrast to the developing understanding of business modelling as a process or capability. Despite much progress in recent years, surprisingly little is known about how new business models emerge and what is the process of experimenting with them. Firms could benefit from access to knowledge bases and ways to experiment (via a laboratory, sand pit, or

‘living laboratory’ in the field) for business model innovation. There could be potential to develop such a capability with firms both on-site and off-site using approaches to test opinion, acceptability, and viability via behavioural approaches. In return, businesses should be more open to research to observe, test, and develop theories related to the process of business model innovation as they unfold. The vision for such a laboratory should include a repository of cases on business model innovation from various industries, the ability to conduct war gaming among stakeholders for firms intending to experiment with new business models, and the capability to test value propositions with potential customers.

4.4 Recommendation for government

1. Emphasising further the role of business models in technology commercialisation initiatives

One of the key challenges for governments is to encourage the translation of new and emerging technologies into commercially viable propositions that could benefit society (e.g., 3D printing). The design of appropriate business models is a key enabler of such a process of technology commercialisation. National or regional government bodies and agencies (e.g., Innovate UK) need to embrace the business model construct at a deeper level in order to encourage new and established firms to develop and commercialise new technologies effectively. Such a deep understanding of business models would help governments to decide when to provide infrastructure (such as catapult centres) or subsidies to encourage the development of new business models (e.g., clean energy technologies). The theme of business innovation also provides the opportunity to encourage collaborative working with Innovate UK, and with the catapults.

2. Emphasising a wider conception of value and promoting the public–private partnerships in business model development

‘Value’ in the business model context, particularly for government bodies, goes beyond financial and monetisation aspects and could also include social and environmental factors. Facilitating public sector education on business model thinking could help to drive new service offerings and overall economic development by linking science and technology with the wider population. Such an approach sources innovation from the wider population: to create, deliver, and capture value in new or more efficient ways. Moreover, there is an increasing emphasis on the sustainability agenda, where the wider conceptualisation of value across stakeholders is becoming important. Such an approach to value creation and capture requires closer partnership between the private and public sectors respectively to develop and deliver on the innovative business models.

3. Facilitating economic development through entrepreneurship and growth of small and medium-sized firms

To facilitate vibrant innovative ecosystems, government and agencies should make business-model-oriented education and practice tools accessible to local businesses and start-ups so that they can benefit from a better understanding of how to create and deliver value propositions in the most effective ways for their customers. For example, innovators seeking to attract funding from venture capitalists, business angels, crowdfunding, or through business loans need to be able to develop meaningful value propositions and business models. This involves identifying potential customers and the growth potential of how value will be captured and delivered.

4. Revaluating the industrial classification system

A more rigorous, yet flexible substitute for the rather outdated Standard Industry Classification (SIC) codes could be developed using the business model lens. This is critical to identifying and classifying firms more effectively, as the lines between various firms’ economic activities in today’s business environment and ecosystems are becoming blurred. One possible approach is to create a new ‘activity-based’ approach,

whereby an organisation's value creation activities are codified using a new ontology. For example, it is possible to identify the primary 'task' and 'type' of value creation activities in a business model¹. The effectiveness of any operations system is informed by the way its primary task provides corresponding value to its customer: the task the system is created to perform (Rice 1958). These characteristics may be conceptualised as: change location (move), change possession, change properties, and accommodate/store. This context can be further elaborated by focusing on the primary 'type' of transformed resource. This may be conceptualised as information-, material-, or people-centric. Articulating the value creation system from this vantage point provides a significant opportunity for theorising across the inhibiting boundaries of the product–service dichotomy and the established sectorial classifications. For example, it is possible to explore operational systems of a similar type to identify contingencies: material type (such as parcel delivery, car repair, and dry cleaning); information type (retail banking, insurance, and telecommunications); and customer type (hospitals and airlines). Furthermore, it is possible to undertake a comparison of operational systems that have the same primary task (e.g., change location) to identify similarities and differences in design and configuration. For example, if we looked at airlines, parcel delivery, and telecommunications, we would note a similar primary task but a different primary type in each case.

Similarly, we can identify emerging information-centric (type) business models in the digital economy that can also be classified by this scheme. For example, voice-over-IP (VoIP) companies such as Skype change the location of digitised voice information; iTunes and Amazon Kindle change the possession of digital products; Streetline changes the properties of sensor data into information on street parking; and Dropbox facilitates the cloud-based storage of information. Each example has a common primary type (information), but a different primary task. Moreover, there are some ongoing initiatives within the Department of Business Innovation and Skills (BIS) in the UK to explore possibilities for an alternative industrial classification system, especially related to the measurement of manufacturing that includes a wider perspective of all the value-adding activities from R&D, production, marketing, service, and sustainability issues. The BIS work and other relevant initiatives around the world need to be reviewed and built upon in order to make progress in this direction.

5 Next steps and the way forward

The phenomenon of business innovation is not new, although the imperative to focus our attention on the concept has increased considerably, given the pace of technological progress and societal challenges that we face. The business model is a new unit of analysis that provides a better understanding of the link between customer value proposition, how the value is created, and how such value is distributed among stakeholders. Addressing many of the so-called grand challenges of mankind, such as energy, climate change, sustainability, and health care, requires new business models. In order to make progress in this regard, we need a more interdisciplinary approach that brings scientists and social scientists together to work on issues. The concept of the business model provides a promising avenue to achieve progress on such an interdisciplinary research approach.

We see this White Paper as an initial step to opening a dialogue with the various stakeholders in academia, government, funding bodies, businesses, and others in order to develop a more refined agenda for both research and practice on business model innovation. We welcome your thoughts and comments on this document and hope you will follow us on this journey.

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Cambridge Workshop, 1-2 June 2015

Cambridge Workshop presentations

- Shifting from a multi-product business model to an integrated platform: Case of Nokia – Yves Doz (INSEAD).
- De Beers and the diamond business model – Faried Sallie (Chief Technology Officer, De Beers).
- Bit-by-Bit – Capturing value from the digital fabrication revolution – Tim Minshall (University of Cambridge).
- Futures, anticipation and business models – Ted Fuller (Lincoln Business School).
- Business Model innovation: A small company perspective – John James (Managing Director – SeeData).
- Business models and platforms – Vincent Mangematin (Grenoble Ecole de Management).
- Retail/Consumer Goods EMEA – Digital transformation – Saptarshi Routh (Director – EMEA Digital Business Practice Leader for Manufacturing and Retail) and Nino Moscardini (Senior Managing Partner – Gartner).
- Digitalization and designing new business model – Youngjin Yoo (Fox School of Business, Temple University).

Panel Discussion on key emerging research themes on business models

- Charles Baden-Fuller (Cass Business School)
- Vincent Mangematin (Grenoble Ecole de Management)
- Yves Doz (INSEAD)
- Youngjin Yoo (Fox School of Business, Temple University)

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