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INNOVATION MANAGEMENT CHALLENGES: FROM FADS TO FUNDAMENTALS

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Innovation management is inherently inter-disciplinary, but it is much more than simply applying business and management disciplines to innovation, and over time the field has developed a distinct body of knowledge. However, in this paper, we argue that the field of innovation management has failed to fully benefit from the proliferation of relevant research because much of this work has not been sufficiently coherent and cumulative. One reason for this, we propose, is the propensity to follow and fit research and publications into contemporary fads rather than to ground work in more fundamental themes and challenges. We present two examples of such fads, open innovation and business model innovation, to illustrate the trend. Finally, we suggest some more fundamental integrating themes and management challenges, drawing upon the latest edition of *Managing Innovation* (Tidd, J and J Bessant (2018). *Managing Innovation: Integrating Technological, Market and Organizational Change*, Sixth Edition. New York: Wiley).[1]

Keywords: Business model innovation; open innovation; services; social innovation; sustainability.

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[1]The views expressed in this paper are those of the authors, but these are influenced by our interactions with numerous academics and practitioners at our many workshops for ISPIM and Wiley, including events in London, Manchester, Rotterdam, Berlin, Barcelona, Helsinki, Budapest, Melbourne, and Kuala Lumpur.

Innovation Management Themes

We know that those organisations that are consistently successful at managing innovation outperform their peers in terms of growth, financial performance, and employment, and that the broader social benefits of innovation are even greater (Tidd, 2012; Tidd and Thuriaux-Alemán, 2016). However, managing innovation is not easy or automatic. It requires skills and knowledge which are significantly different from the standard management toolkit and experience because most management training and advice are aimed at maintaining stability, hence the term *Business Administration*. Moreover, managing innovation is not simply the application of business and management disciplines to innovation, it has developed a distinct and growing body of knowledge, experience and practice (Fagerberg *et al.*, 2012; Rafols *et al.*, 2012).

The 21st birthday of this journal presents an opportune time to review and reflect upon the development of the filed over the past two decades or so. Since the first edition of *Managing Innovation* was published in 1997, we have argued consistently that successful innovation management is much more than managing a single aspect, such as creativity, entrepreneurship, research and development or product development, and we maintain that position in the most recent edition (Tidd and Bessant, 2018). Our understanding of innovation continues to develop through systematic research, experimentation and the ultimate test of management practice and experience. It is a growing challenge for all of us interested in innovation to keep abreast of this fast-developing and interdisciplinary field. In the general field of business research, the 200 or so active research centers worldwide produce some 5,000 papers each year, many relevant to managing innovation (Mangematin and Baden-Fuller, 2008). In the more specialist fields of technology and innovation management, the 120 research centers worldwide publish several hundreds of papers each year (Bhupatiraju *et al.*, 2012).

Unfortunately, much of this work has not provided cumulative additions to our knowledge, nor necessarily resulted in a more coherent and bounded field of enquiry. One reason, common to other interdisciplinary subjects, is the tendency to move through fashion cycles or bandwagons, such as open innovation and business model innovation (BMI). This can result in the recycling or repackaging of earlier research and existing knowledge, often without the acknowledgments of such prior work. So, one of the challenges for current management scholars in the field is to better ground their work in the established knowledge bases rather than simply frame it within contemporary fads and fashions. Here, we identify some potential core challenges for innovation scholars and practitioners.

Fad One: Open Innovation

The concept of open innovation remains popular in the management literature. It emphasises that firms should acquire valuable resources from external firms and share internal resources for new product/service development, but the question of when and how a firm sources external knowledge and shares internal knowledge is less clear.

The proponents of open innovation tend to offer universal, and often universally positive, solutions whereas research suggests that the specific mechanisms and outcomes of open innovation models are very sensitive to context and contingency. This is not surprising because the open or closed nature of innovation is historically contingent and does not entail a simple shift from closed to open as often suggested in the literature.

The original idea of open innovation was that firms should (also) exploit external sources and resources to innovate, a notion that is difficult to contest (Chesbrough, 2003; Chesbrough *et al.*, 2006; Gassmann *et al.*, 2010), and this is not a new argument, simply a repackaging of existing research and practice (Trott and Hartmann, 2009; Mowery, 2009; Groen and Linton, 2010; Knudsen and Mortensen, 2011). However, wider dissemination of the concept shows that it is difficult to research and implement to the point it has now become 'all things to all people', lacking explanatory or predictive power. There have been numerous studies of open innovation, but still the empirical evidence on the utility of open innovation is limited and practical prescriptions overly general. Research ranges from individual case studies, which are difficult to generalise, to simple survey-based counts of external sources and partners, which reveal little about the conditions, mechanisms or limitations of open innovation (Tidd, 2013).

So, the notion of Open Innovation, despite the breadth of the concept, has constrained innovation research to focus on narrow in-bound and out-bound strategies to better appropriate the gains from innovation. In contrast, a focus on the more fundamental innovation management benefits and challenges reveals a richer research agenda. Table 1 identifies some of the main challenges of innovation management and provides examples of each.

Fad 2: BMI

More recently, scholars have devoted increasing attention on innovation at the business model level (e.g., Casadesus-Masanell and Ricart, 2012; Gambardella and McGahan, 2010; Najmaei, 2013; Sanchez and Ricart, 2010; Zott *et al.*, 2011). There is no single consensus definition of a business model, but Teece (2010)

Table 1. Examples of core challenges in innovation management.

Innovation challenge	Examples
Identifying or creating opportunities	Innovation includes the ability to see connections, to spot opportunities and to take advantage of them. Sometimes, this is about completely new possibilities, for example, by exploiting radical breakthroughs in technology.
New ways of serving existing markets	Innovation is not just about opening up new markets, it can also offer new ways of serving established and mature ones. Low cost airlines are still about transportation — but the innovations which firms like Southwest Airlines, Easyjet and Ryanair introduced have revolutionised air travel and grown the market in the process. Despite a global shift in textile and clothing manufacture towards developing countries, the Spanish company, Inditex (through its retail outlets under various names including Zara) have pioneered a highly flexible, fast turnaround clothing operation with over 2,000 outlets in 52 countries.
Improving processes and operations	Returns to process innovation are far greater than from product innovation, and yet it is underresearched and practiced. For example, leading companies such as Amazon have developed process capabilities over time, which have resulted in a strong strategic position. Incremental improvements over time can cumulatively create significant performance advantages. Also, process innovation tends to be more difficult to observe and imitate.
Creating new markets	Similar to the concept of a Blue Ocean strategy, the goal is to create new markets rather than compete in existing ones. Equally important is the ability to identify where and how new markets can be created and grown. For example, eBay justifies its multi-billion dollar price tag not because of the technology behind its on-line auction idea, but because it created and grew the market.
Rethinking services	Too much innovation research focuses on manufacturing, or high technology, but in most advanced economies, the service sector accounts for the majority of activity and value creation, public and private. For example, mobile banking and insurance have become commonplace, but they have radically transformed the efficiencies with which those sectors work and the range of services they can provide. New entrants riding the internet wave have rewritten the rule book for a wide range of industrial games — for example, Google in advertising, Skype in telephony, Uber in transportation, and Air BnB in accommodation.
Meeting social needs	Innovation offers huge challenges, and opportunities, for the public sector. Pressure to deliver more and better services without increasing the tax burden is a common tension. For example, in healthcare, the Karolinska Hospital in Stockholm, Sweden have managed to make radical improvements in the speed, quality, and effectiveness of their care services, through innovation.

Source: Tidd and Bessant (2018). *Managing Innovation: Integrating Technological, Market and Organisational Change*. Sixth edition. Wiley. Reproduced with Permission.

suggests at the core is the: "design or architecture of the value creation, delivery, and capture mechanisms" (p.127). Thus, a business model should be able to link two dimensions of firm activity — value creation and value capture. Value creation and capture are linked by what is sometimes called value delivery (Casadesus-Masanell and Ricart, 2010). According to David and Teece (2010), the 'business model' defines the way the company creates and delivers value to customers and then captures a portion of this value to make profit and grow. Organisations which pursue this type of innovation develop novel value creation architectures and original revenue models, more than focus just on new products or new services. BMI involves the integration and adaptation of capabilities, and the exploitation of these novel combinations to create and capture value in new ways (Gambardella and McGahan, 2010). However, studies focusing on the relationships between capabilities, BMI and firm performance are rare (Schneider and Spieth, 2013).

Schneider and Spieth (2013) argue that BMI "is simultaneously about the (re) deployment and usage of existing resources and capabilities to develop new value offerings or forms of value creation. . . the question of 'how' to use resources has been less considered" (pp. 4–15). Despite the increasing number of investigations in the field, much remains to say. First, most of studies on BMI are conceptual (e.g., Koen *et al.*, 2011) or case-based (e.g., Casadesus-Masanell and Ricart, 2010; Desyllas and Sako, 2013), while quantitative investigations are limited. Second, and most important, these contributions have primarily addressed the capture and the monetisation stage, rather than its value creation architecture (e.g., Baden-Fuller and Haefliger, 2013; Desyllas and Sako, 2013; Witell and Logren, 2013). These contributions highlight the relevance of the issue, but often then they emphasise the client side, whilst they do not deepen under which conditions an innovative 'back-end' architecture may foster the competitive advantage and lead to a superior performance. In other words, literature has focused too much on the downstream options, but studies of the upstream or 'back-end' of BMI are less common.

O'Mahony and Vecchi (2009) found the relationship between intangible assets and productivity to be higher in R&D- and skill-intensive contexts. Similarly, Bueno *et al.* (2010) found that organisations require a diversified portfolio of resources, including both tangible and intangibles, to combine technological assets with other resources and capabilities, to create value. Demil and Lecocq (2010) investigated the dynamic created by the interactions of the different building blocks of business models. Sustained value creation instead relies on successfully shaping, adapting and renewing the underlying business model of the company on a continuous basis, which comprises the rationale of how an organisation creates, delivers, and captures value (Osterwalder and Pigneur, 2010). Denicolai *et al.*

(2014, 2016) revealed the exploitation of tangible and intangible assets as complementary building blocks which compose the business model. Such complementary assets are central to the delivery of value, by leveraging monetizing opportunities, for example: "Systems integrators, platforms, and multi-sided markets share what is sometimes referred to as a business ecosystem. For managers, the ecosystems perspective holds the promise of opening up the wider entrepreneurial and collaborative space that a new technology affords, and provides room for novel business models to succeed." (Baden-Fuller and Haefliger, 2013, p. 424)

Such a systems perspective of BMI is needed which comprises the rationale for how organisations create, deliver, and capture value. Exploiting a diversified portfolio of resources, both tangible goods and intangible services, boosts value creation opportunities. Many business models entail the exploitation of tangible and intangible assets as complementary building blocks. Combination of complementary assets is central to the delivery of value by leveraging monetizing opportunities by system integration found the relationship between intangible assets and productivity to be higher in R&D and skill-intensive contexts. Such studies underscore the importance of intangible knowledge as well tangible assets for creating highly valued outputs.

For example, one systems model draws upon components of quality management and concurrent engineering to develop a composite model for co-developing products and services (Hull and Storey, 2016). This model consists of three groups of practices, early cross-functional collaborative *organisation*, flexible but disciplined *processes*, and enabling *tools/technologies* (OPT), which individually and through interaction are associated with superior performance. It builds on earlier work which separately examined the development of product and services (Hull and Tidd, 2003; Tidd and Hull, 2006). This focus on the specific capabilities and practices which create options for BMI, independently and in combination, by better integrating product and service development and delivery, may offer an alternative and deeper agenda than conventional BMI research (Tidd, 2012; Tidd and Thuriaux-Alemán, 2016).

So perhaps too much of the current BMI research adopts a narrow goal on how best to capture value, often downstream in the process, and typically in a business environment. Consequently, there have been a proliferation of typologies and case studies, but fewer significant insights into how innovation can create and capture value in different contexts. In contrast, innovation research and practice might benefit from a deeper focus on the capabilities and mechanisms which create value in a broader range of commercial and social contexts. Table 2 suggests some key mechanisms which contribute to how innovation can create value.

Table 2. Fundamental mechanisms for creating value through innovation.

Innovation mechanism	Value created by	Examples
Novelty in product or service offering	Offering something no one else can	Introducing the first . . . mobile phone, fountain pen, camera, dishwasher, telephone bank, online retailer, etc. . . . to the world
Novelty in process	Offering it in ways others cannot match — faster, lower cost, more customised, etc.	Pilkington's float glass process, Bessemer's steel process, Internet banking, on-line bookselling, etc.
Complexity	Offering something which others find it difficult to master	Rolls-Royce and aircraft engines, only a handful of competitors can master the complex machining and metallurgy involved.
Legal protection of intellectual property	Offering something which others cannot do unless they pay a licence or other fee	Blockbuster drugs like Zantac, Prozac, Viagra, etc.
Add/extend range of competitive factors	Move basis of competition — e.g., from price of product to price and quality, or price, quality, choice, etc.	Japanese car manufacturing, which systematically moved the competitive agenda from price to quality, to flexibility and choice, to shorter times between launch of new models, and so on — each time not trading these off against each other but offering them all.
Timing	First-mover advantage — being first can be worth significant market share in new product fields	Amazon, Google — others can follow, but the advantage 'sticks' to the early movers.
	Fast follower advantage — sometimes being first means you encounter many unexpected teething problems, and it makes better sense to watch someone else make the early mistakes and move fast into a follow-up product.	Personal digital assistants (PDAs) which captured a huge and growing share of the market and then found their functionality absorbed into mobile phones and tablet devices. In fact, the concept and design were articulated in Apple's ill-fated Newton product some five years earlier. Equally, their i-Pod was not the first mp3 player, but the lessons they learned from earlier product failures from other companies helped them focus on making the design a success and built the platform for the i-Phone.

Table 2. (*Continued*)

Innovation mechanism	Value created by	Examples
Robust/platform design	Offering something which provides the platform on which other variations and generations can be built	Boeing 737 — over 50 years old, the design is still being adapted and configured to suit different users, one of the most successful aircraft in the world in terms of sales. Intel and AMD with different variants of their microprocessor families.
Rewriting the rules	Offering something which represents a completely new product or process concept — a different way of doing things — and makes the old ones redundant	Typewriters versus computer word processing, ice versus refrigerators, electric versus gas or oil lamps.
Reconfiguring the parts of the process	Rethinking the way in which bits of the system work together — e.g., building more effective networks, outsourcing and co-ordination of a virtual company, etc.	Zara, Benetton in clothing, Dell in computers, Toyota in its supply chain management, Cisco in providing the digital infrastructure underpinning the Web.
Transferring across different application contexts	Recombining established elements for different markets	Polycarbonate wheels transferred from application market like rolling luggage into children's lightweight micro-scooters.

Source: Tidd and Bessant (2018). *Managing Innovation: Integrating Technological, Market and Organisational Change*. Sixth edition. Wiley. Reproduced with Permission.

Table 3. Changing context for innovation.

Context change	Indicative examples
Acceleration of knowledge production	OECD estimates that around $1500 bn is spent each year (public and private sector) in creating new knowledge — and hence extending the frontier along which 'breakthrough' technological developments may happen
Global distribution of knowledge production	Knowledge production is increasingly involving new players especially in emerging market fields like the BRIC (Brazil, Russia, India, China) nations — so the need to search for innovation opportunities across a much wider space. One consequence of this is that 'knowledge workers' are now much more widely distributed and concentrated in new locations — for example, Microsoft's 3rd largest R&D Centre employing thousands of scientists and engineers is now in Shanghai.
Market expansion	Traditionally, much of the world of business has focused on the needs of around 1 billion people since they represent wealthy enough consumers. But the world's population has just passed the 7bn mark and population — and by extension market — growth is increasingly concentrated in non-traditional areas like rural Asia, Latin America and Africa. Understanding the needs and constraints of this 'new' population represents a significant challenge in terms of market knowledge.
Market fragmentation	Globalisation has massively increased the range of markets and segments so that these are now widely dispersed and locally varied — putting pressure on innovation search activity to cover much more territory, often far from 'traditional' experiences — such as the 'bottom of the pyramid' conditions in many emerging markets, or along the so-called long tail — the large number of individuals or small target markets with highly differentiated needs and expectations.
Market virtualisation	The emergence of large-scale social networks in cyberspace pose challenges in market research approaches — for example, Facebook with over 1 bn members is technically the 3rd largest country in the world by population. Further challenges arise in the emergence of parallel world communities — for example, Second Life now has over 1 million 'residents', whilst World of Warcraft has over 10 million players.
Rise of active users	Although users have long been recognised as a source of innovation there has been an acceleration in the ways in which this is now taking place — for example, the growth of Linux has been a user-led open community development. In sectors like media the line between consumers and creators is increasingly blurred — for example, You Tube has around 100 million videos viewed each day but also has over 70,000 new videos uploaded every day from its user base.

Table 3. (*Continued*)

Context change	Indicative examples
Growing concern with sustainability	Major shifts in resource and energy availability prompting search for new alternatives and reduced consumption. Increasing awareness of impact of pollution and other negative consequences of high and unsustainable growth. Concern over climate change. Major population growth and worries over ability to sustain living standards and manage expectations. Increasing regulation on areas like emissions, carbon footprint.
Development of technological and social infrastructure	Increasing linkages enabled by information and communications technologies around the internet and broadband have enabled and reinforced alternative social networking possibilities. At the same time, the increasing availability of simulation and prototyping tools have reduced the separation between users and producers.

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What Next: Same Challenges, New Contexts?

'*Constant revolutionising of production, uninterrupted disturbance of all social conditions, everlasting uncertainty. . . . all old-established national industries have been destroyed or are daily being destroyed. They are dislodged by new industries. . . . whose products are consumed not only at home but in every quarter of the globe. In place of old wants satisfied by the production of the country, we find new wants. . . . the intellectual creativity of individual nations become common property*'

This quote does not come from a contemporary journalist or politician, but from the *Communist Manifesto*, published by Karl Marx and Friedrich Engels in 1848. But it serves to remind us that most of the innovation challenges are not new, but that the context is ever-changing. Current challenges around sustainability, development, energy, health, and automation can be better understood and met by returning to the more fundamental innovation management themes rather than by reinventing fads and frameworks. Table 3 summarises some of the key changes in the context within which the current innovation management challenges will be framed.

Summary and Implications

In this paper, we have argued that the field of innovation management has failed to fully benefit from the proliferation of relevant research because much of this work

has not been sufficiently coherent and cumulative. One reason for this, we propose, is the propensity to follow and fit research and publications into contemporary fads rather than to ground work in more fundamental themes and challenges. We present two examples of such fads, open innovation and BMI, to illustrate the trend. Finally, we suggest some more fundamental integrating themes and management challenges, drawing upon the latest edition of *Managing Innovation* (Tidd and Bessant, 2018).

We believe that too much innovation management research has narrowly focused on how firms can better capture the benefits of innovation, whether in the guise of Open Innovation or BMI, but "management" is not simply "business". Arguably, the management of innovation can have an even more profound influence on fundamental economic and social development. Therefore, a return to the more fundamental innovation knowledge bases and themes may better serve the needs of these changing management and policy contexts, and contribute to the challenges faced by commercial firms, social services, emerging economies, and sustainability goals (Bessant and Tidd, 2018).

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