

JOURNAL OF BUSINESS MODELS

FOREWORD TO THE JOURNAL OF BUSINESS MODELS SPECIAL ISSUE

The Future of Business Model Innovation: Core Themes and Pivotal Technologies

By Christian Nielsen

It is a pleasure for me to present this special issue to you. After over five years in university management, I stepped back into a Professorship a few months ago. In doing so, I needed to reconcile myself with the field of business model innovation, where it was in terms of research status and where it was heading. There are several ways to do this. The last time I was in this situation, I conducted a structured literature review on the business model field with a team of great friends and colleagues of mine. This time, I decided to reach out to a broad consortium of my colleagues to ask them what they believed would form the future of business model innovation. Some had papers lying on their desks that were ready to be published, and others had ideas and thoughts inside their heads. For the latter category, we did a quick, short interview, transcribed and reworked it together.

What you will read in this issue is, therefore, a state-of-the-art of what is kicking in the field of business model innovation from some of the brightest scholars around. The issue includes a line-up of some very well-known academics and a series of younger talents, which are just a fraction of the many rising stars. This mix is very purposeful and ensures just the right balance of newness, foresight and provocative insights.

I learned a lot in this process, and I am certain so will you in reading these excellent contributions. In fact, I would recommend a process like this one to anyone who wants to really get to grips with a field or discipline. So, from myself and the rest of the crew at the Journal of Business Models, enjoy!

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Business Model Innovation in the Era of Digital Technologies and Societal Challenges

Abstract

This article proposes a conceptual framework for analysing future business model innovation scenarios. It also introduces the special issue "The Future of Business Model Innovation: Core Themes and Pivotal Technologies." Drawing on existing knowledge, the article identifies two key dimensions that will shape the boundaries and directions of business model innovation in the near to mid-term future. Thus, this article frames the contributions of the special issue to provide a starting point for academics and practitioners seeking to engage in the field.

Setting the Scene

This article offers a conceptual framework for analysing future business model innovation scenarios. At the same time, it comprises an introduction to the special issue "The future of business model innovation: core themes and pivotal technologies." Based on existing knowledge, it identifies two key dimensions that will influence the boundaries and directions of business model innovation in the near to mid-term future. Hence, this article frames the contributions of the special issue to provide a point of departure for academics and practitioners looking to get engaged in the field.

Dumay (2016) argues that it is necessary to move away from a wealth creation perspective to value creation; in doing so, it defines value in four ways: monetary, utility, social and sustainable value. This

definition challenges contemporary definitions of business models because they generally need to pay more attention to the aspect of sustainable value. However, in recognising the fact that today's business models are substantially interwoven with the business models of the value chain and society in which they operate, sustainable value is a question of how the value creation and value destruction of the business model is dispersed among relevant stakeholders (Nielsen, 2023a). A proposition is, therefore, to adjust the definition of business models provided by Osterwalder and Pigneur (2010) to include value dispersion. It could, therefore, be:

A business model describes how an organisation creates value, delivers value, captures value, and disperses both value creation and value destruction among its stakeholders.

Key words: Digital technology, societal challenges, business model innovation, research strategy, foresight

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Future perspectives, foresight and transformative insights are not new to the Journal of Business Models, which houses many a discussion of the developments in business model research over the years. However, the business model field has always been associated with technology development and the fact that new technologies disrupt existing industry-based ways of doing business. Much like when Drucker (2008) articulated that culture eats strategy for breakfast, business models seem to eat industry-based thinking for breakfast, including strategy, culture and existing ways of organising and governing businesses.

The field of business models came to fame with the Internet in the late 1990s (Nielsen et al., 2018). The Internet changed the way we as people could communicate. It created ease and reach and lowered communication costs, to name a few of the value propositions of www. The same was the case for companies. All of a sudden, companies that were used to just selling their products to those who could commute to their physical location or were able to receive advertisements in their letterbox could sell worldwide.

On the business side of the Internet came the e-business model revolution, sparking the initial interest in the field. For some, e-business became synonymous with business models, and as the dot.com bubble burst in March 2002, discussing business models became bad excuses for not making money, not having a viable economic model, or even ways to cheat ordinary hard-working people with the honest money they earned. At least, that was the perception.

Interestingly, many good examples of companies that boomed in e-business are not stories of companies inventing whole new value-creation mechanisms or “unique ways of doing business”. They digitalised existing business models, thereby making them globally accessible. Take Amazon as a well-known example. A part of Amazon’s early success, in addition to entering the global market for books, DVDs and other goods, came with referrals and recommendations from other customers. Remember, for example: “Other customer also bought...”; “If you liked X, then you might also want to look at Y”; and “Clarissa liked X and also recommended Y because...”. Recommendations and referrals were not

new at all. This was what good salespeople in bookstores did every day. However, digitalisation created an enormous reach and disrupted the retail industry forever.

Apple’s business model in the early 2000s was also extremely strong, but it was not new either. Apple succeeded in creating customer lock-in to their products by offering access to the world’s biggest APP market. They used the massive customer base to position themselves so that companies wanting access to the customer base paid up to 30% of their revenues to get onto the iTunes platform. However, selling access to customers is merely an age-old retail model tweak. Supermarkets use their data about how many customers enter their stores and their buying behaviour to lure consumer product companies to pay to be in their advertisements.

During the years following the dot.com bubble (Nielsen & Lund, 2014), business model researchers explored the links between business models and strategy and what it meant to be innovating business models. While Porter (2001) didn’t quite understand what business models were in a competitive strategy context, Magretta (2002) argued that business models did not factor in strategy. In this light, the strategy was the execution of the mechanisms set out by the business model. Nielsen et al. (2018a) argue that in the first phase of business model research, authors focussed on the relations between the business model and their own fields of interest and used this to define the concept through similarities and differences. Magretta’s (2002) account of the relationship between business models and strategy is a good example of this. The second phase of business model research concerned business model innovation, and here, technology and sustainability were significant levers for such change. For example, O’Reilly (2007) conceptualised several business model innovation patterns, while Seelos and Mair (2007) studied the potential of creating profitable business models in a deep-poverty setting.

With the technology and sustainability themes taking prominence, but maybe positioning the field as a specialist subject, Osterwalder and Pigneur (2010) once and for all transposed the field of business models to

a game-changing mainstream popularity field within business and entrepreneurship with their book *Business Model Generation*, in which they pitched their open access tool, the Business Model Canvas.

The Business Model Canvas quickly became, and still is, a favourite tool for many business developers, consultants and entrepreneurs (cf. Brix & Jakobsen, 2015). A good example of the latter is Lund & Nielsen's (2014) account of a company's development using the Business Model Canvas to illustrate changes in the business model or Sort & Nielsen's (2018) depiction of how the Business Model Canvas was used in investment processes in start-ups. Even for university professors teaching the basics of business economics, it provides an invaluable overview of what you need to know to create a viable business. As the field of business models matures, several recent contributions have tracked its developments (Zott et al. 2011; Wirtz et al. 2016, LRP; Nielsen et al. 2018b) while other contributions have posed foresight into the future developments of the field, depicting a performative stage (Nielsen et al. 2018b), and a fifth stage discussing the role of business models in times of uncertainty (Aagaard & Nielsen, 2021).

Alongside these contributions, a rich body of literature has examined past and present forms of engagement specifically related to business model innovation. While some of the earlier works were aired above, recent notable contributions include Foss and Saebi (2017) and Massa et al. (2017). This journal featured an excellent piece by Wirtz & Daiser (2017), which confirmed business model innovation as a mature area of research and argued that future research into this topic should aim at empirically consolidating and confirming existing frameworks.

According to Snihur and Eisenhardt (2022), business models as a concept have now taken over the role that strategy used to have a role that for many companies is about execution and implementation (Nielsen et al. 2020). Today, the field encompasses many different tools and methodologies based on service design and design thinking. Still, it lacks tools that link more directly to companies' financial systems, business intelligence and decision-support tools. One recent attempt at designing a holistic

methodology for mature companies is provided by Taran et al. (2022). In the future, mature companies will need data that can help them calculate the consequences of new business models, including potential cannibalisation from existing modes of doing business.

Peeking Into the Future

Digital technologies and societal challenges are the two cornerstones for the development of the field of business model innovation. Therefore, this conceptual article aims to provide a platform from which anyone interested in business model innovation can better assess what she/he needs to understand to increase the probability of creating stronger and more resilient organisations. A Delphi method was used to screen for relevant digital technologies and societal challenges, mobilising short interviews at the most recent gatherings of the Business Model Conference¹. Most of the "who's who" in business models research regularly attend this event. A few of these notable experts provide insights in the first part of this special issue, while several more give us their wisdom on specific themes you need to understand to be successful at doing business model innovation in the future.

Who would possibly be interested in understanding how to succeed at business model innovation in the future – you might ask? From the business side, managers, business developers, owners, investors, creditors and board members are naturally interested in understanding an organisation's future prospects, potentials and profitability outlook. However, many more stakeholders also have an interest in this theme. In addition to university academics, authorities, government agencies and regulators, an array of other stakeholders are affected by the organisation's value creation and value destruction (Nielsen, 2023b). Take a moment to consider some of the following:

- Business partners, including suppliers, production and logistics
- Customers

¹ See www.businessmodelconference.com

- Consumers
- Employees and other workers
- Media
- Communities
- NGO's and other public organisations
- Trade unions

Another concept worth spending a few moments considering is that of resilience. Strength and resilience take on different forms depending on whether the company is private, public, or NGO and whether the company is a start-up, an SME, or a large multinational corporation. Nielsen (2023c) argues that resilience is just as important to depict in a sustainability report as the E, S and G categories of Environmental, Social and Governance disclosures. Resilience can take many forms. For example, it could be in the form of flexibility and adaptability, leading to agility towards exogenous shocks or the physical impacts of climate change. Resilience could also take the form of business model innovation, supply chain management, innovation performance and improving the use value of product-service offerings. Finally, resilience may be concerned with achieving profitable growth at the EBITDA level, reasonable reserves valuation, and sufficient cash for capital expenditures for innovation.

Business model innovation foresight refers to identifying themes, practices, methods, tools and techniques that help your organisation explore, shape and manage the future. Among such techniques are, for example, creating an understanding of the future of decision-making and translating this to a business model innovation context.

How Technological and Transformational Forces will form Business Model Innovation in The Decade(S) To Come

Existing contributions to the field of business models and business model innovation are rich with depictions and discussions of differing perspectives or schools of thought and how they relate to and contribute to the development of the field. This article

does not build upon a validated framework that organises the contributions according to schools of thought, disciplinary perspectives or research phases. Rather, it corroborates that a fruitful forward-looking outlook for business model innovation is to be found in combinations of perspectives and inspiration from age-old so-called core management disciplines, grand challenges to society and risks to the existence of mankind, and newly invented technologies and their applications.

This is among the reasons that makes the field of business models so appealing for researchers to engage in. It is also a major reason why the Journal of Business Models is a cornerstone for relevant research to society, businesses and people. It is a reason why the Journal of Business Models is an essential foundation of knowledge creation for the benefit of future generations, and remember, it's still free, even though Nielsen et al. (2013) threatened to figure out a way to make you pay someday.

Expert insights

The first three articles in this special issue are expert insights. In fact, they are comprised of three keynote speakers from the 2018 Business Model Conference held in Florence, namely the closing keynote, the opening keynote, and the PhD keynote (in that order).

Nicolai Foss (2023) provides insights into organisational design issues related to business model innovation. It is a well-known fact that Nicolai argues that managers matter (Foss & Klein, 2023). In this context, he points out that different types of business model innovation require different leadership approaches. He also points to the fact that there are opportunities to link business model innovation to top management cognition, which still needs to be done. Another item on Professor Foss' wishlist is linking business model innovation theory to existing theories systematically and cumulatively rather than constantly reinventing the wheel. One opportunity to do this is in understanding the basic coordination and cooperation needs that different business models and business model innovations give rise to and in linking these to different management and organisation approaches. His main point in the article is

the need for a more accurate dimensionalisation of the unit of analysis by which business model innovation is done and that this would provide a better idea of the performance implications of business models and business model innovation.

One of the critical challenges that Nicolai Foss sees in the literature is understanding the governance and the governance challenges across an ecosystem's lifecycle. Precisely, governance choices are on the mind of Joan E. Ricart, who argues that from an ecosystem perspective, governance choices are crucial, albeit they may be related to immaterial assets or decisions. He argues that introducing a relational stakeholder perspective to business model innovation and design is an essential job to be done (Ricart, 2023). Joan also highlights the role of communities and community-building in establishing such platform-based business model innovation. This links very neatly to the ideas brought forth by Rosenstand et al. (2023) on Society 5.0 and other contributions on, for example, collaborative networks (Peronard & Brix, 2018). Professor Ricart emphasises the importance of considering sustainability in contemporary business model innovation and the education of the next generations so that circular economy is a natural part of their knowledge base. Finally, he revisits the intricate relationship between strategy and business models by stating that the business model is the central node of strategy, now and in the future.

Lorenzo Massa (2023) agrees and adds a "but", which is consistent with Nicolai Foss in many ways. He states that business model innovation is an over-complex field that needs research to create structure and meaning. He exemplifies machine learning as an interesting strategy and wishes to engage with engineers, mathematicians and computer scientists to start modelling for business model innovation. Only then will the field of business models and business model innovation be able to overtake the strategy discipline, as Snihur and Eisenhardt (2022) have proclaimed. Lorenzo argues that creating structures between scientists and business model innovation experts will be important from a research perspective. But this is only half the story because business model innovation needs to create

real impact, for example, by minimising corporate footprint. Lorenzo argues that when markets reward companies for doing the right thing and when value creation and value capture are democratised to a much broader set of stakeholders than at present, then real change takes place. Lorenzo Massa finishes off by contemplating the decision-making around business model innovation, the effects of uncertainties, and how they can be handled to empower management and leadership.

Technological Forces

The next five contributions concern the transformation of business models from a technological perspective. In the first of these contributions, Riccardo Silvi, Andrea Pia, and I present the Digital Transformation Canvas™ as a tool that helps to organise and plan the execution of digital projects (Silvi et al., 2023). The fact is that many digital projects fail, with poor governance and bad leadership being among the key reasons. They argue that although resource scarcity is a problem, there are a series of issues relating to poor execution, including poor or no definition of the digital transformation objective, poor analysis, and continuing despite a bad business case. The Digital Transformation Canvas™ offers a methodology that organises the process, helps to turn business ideas of digital transformation into business opportunities, translates business opportunities into actions, and creates a performance management plan for digital transformations.

The next contributions are the hot generic technologies currently forming business model innovation. Naomi Haefner and Oliver Gassmann (2023) shed light on generative AI, its impending evolution, its transformative implications, and how businesses can use AI to innovate their business models. The potential impact of AI on business model innovation and businesses will naturally cause uncertainty for managers, who will need to analyse how AI aligns with the company's overall digital strategy and transformation, as well as other current technological revolutions such as blockchain, cloud computing, 6G and the metaverse. Besides the ethical concerns surrounding the introduction of AI, potential regulation could also affect companies' operational spaces. A

balanced approach is essential as we navigate these changes, leveraging AI's potential while upholding ethical considerations. The outlook is promising for those who thoughtfully harness AI's power.

In his contribution to the future of business model innovation given Hexa-X and 6G technologies, Petri Ahokangas (2023) argues that connectivity is already the foundation of all digitalisation in modern society. Ubiquitous, affordable, and trustworthy connectivity is becoming increasingly important, and when combined with artificial intelligence, we can expect new opportunities to emerge. However, given the significant regulatory burden, the question remains: how can we capitalise on these opportunities? There is a great deal of variation and difference in values globally, as well as the global rollout of 5G. Professor Ahokangas' concern is whether we will achieve global 6G adoption. He is not entirely convinced at this point. From an innovation perspective, this significantly impacts business models' scalability, replicability, and long-term sustainability.

Kilian Schmück (2023) examines the impact of blockchain technology on business model innovation. He argues that blockchain is not simply about cryptocurrencies but rather a digital trustee that enables secure and reliable management of digital assets in cross-organizational relationships, even those characterised by conflict of interest. This expands the scope of blockchain beyond financial transactions to encompass trusted and distributed interdependencies within ecosystems. As a result, blockchain mitigates the lock-in effects experienced by users, which have been a key value driver in various digital business model configurations. As relationships transition from a Web2 and platform-centric perspective to a Web3 and user-centric perspective, value mechanisms and ecosystems incorporating blockchain must account for this transformative shift. The primary challenges associated with blockchain lie in organisation and governance structures, which present a range of disruptive dynamics. Just as the internet, platforms, and ecosystems disrupted incumbent and non-digital firms in the realm of digitalisation and digital business models, blockchain is now disrupting platform business models and ecosystem management.

In this context, blockchain technology contributes to democratising platforms and ecosystems, linking it to the later article by Bernhard Lingens (2023) and the last contribution to the technology perspective, namely the article covering the Metaverse and Society 5.0. In this article, Claus Rosenstand, Jacob Brix and I discuss how companies should think and do business model innovation in the Society 5.0 and metaverse space. The metaverse can create a more human-centred, sustainable, and inclusive society by introducing new technologies that improve people's lives and create a better world. This article describes the relationship between the metaverse and Society 5.0 and the types of technologies and mechanisms they rely on, including AI, 6G and Blockchain. Sound familiar? ;-)

Transformational Forces

The third group of contributions represent transformational forces from the perspective of the business environment. The first one of these grasps one of the results of an uncertain, hyper-competitive and globalised business world.

Jesper Sort, Romeo V. Turcan and Yariv Taran argue that business model innovation in the future needs to go beyond factoring in notions of internationalisation. In the future, businesses need to be able to handle both de-internationalisation and re-internationalisation at speeds not seen previously (Sort et al., 2023). International business has become increasingly complex and challenging to manage in a volatile, uncertain, complex, and ambiguous (VUCA) world characterised by highly uncertain economic trends, unpredictable market changes, shorter life-cycles of products, competencies, strategic choices, and routine work tasks, and a shift from internal to collaborative innovation increasingly taking place outside the firm's network. Decision-makers must dynamically adapt to and navigate this fluid and rapidly changing environment by adjusting their foreign market presence. Business model innovation will be particularly challenged in a VUCA world, and developing sound de- and re-internationalisation strategies and processes will be pivotal to future success.

As mentioned in several of the opening contributions to this special issue (Ricart, 2023; Massa,

2023), ecosystems, innovation ecosystems, platform-based business models, and network-based business models (see, for example, Montemari & Nielsen, 2013; Nielsen & Montemari, 2012) are all keywords for future business model innovation makers to take careful note of. Bernhard Lingens (2023) asserts that ecosystems have become one of the most topical subjects in industry and academia. They are increasingly important for companies to comprehend in their business model innovation efforts. However, research and practice are evolving in different directions. Therefore, this article aims to bridge the gap between theory and practice and clarify the critical topics in ecosystem management that will be crucial for future business model innovation. This leads to four key areas that require attention: 1) Organisational change and firm culture are the most significant barriers to ecosystems and, consequently, business model innovation, 2) Portfolio strategies and performance evaluation are essential for ecosystem-based business model innovation; 3) New investment approaches are needed to deal with start-ups that are ecosystem orchestrators, and 4) Hands-on approaches are needed for the different roles and tasks in an ecosystem. These four areas make ecosystem thinking an integral part of business model innovation thinking.

According to Nielsen (2023d), firms must be aware of the potential impacts of regulation on their business models, anticipate changes in the regulatory landscape, and innovate their business models accordingly. This article surveys seven regulatory archetypes and identifies six critical regulatory trajectories that are expected to influence and shape business model innovation in the future significantly. The first three trajectories, cybersecurity, artificial intelligence, and telecommunications, are associated with technological advancement. In contrast, the latter three trajectories, taxation, asset sharing and crowdfunding, and accounting and environmental regulation, are primarily associated with sustainability and organisational concerns. Especially the field of sustainability reporting is undergoing heavy regulatory changes. From being reported by managerial choice (Nielsen & Madsen, 2009), sustainability reporting now has to factor in business models (Roslender & Nielsen, 2015) and how these affect a

wider array of stakeholders, including the environment, society, employees and customers (Roslender & Nielsen, 2022a).

To comprehensively analyse and design business models, Xavier Lecocq, Benoît Demil and Vanessa Warnier introduce a framework that complements the concept of externalities with the symmetrical concept of internalities. Despite the growing recognition of the significance of surrounding ecosystems, business models are often viewed as internal configurations involving resources, organisation, and offerings. This narrow perspective relegates the ecosystem to a mere facilitator of stakeholder value creation and focal company value capture. However, we argue that ecosystems are also breeding grounds for externalities generated by the focal business model, which can ultimately erode stakeholder value. Therefore, sustainable business models require a holistic understanding of externalities, with the business model acting as the crucial intermediary between externalities and internalities.

Transformative Conclusions

Business model innovation must accommodate many forces, both internal and external. Internally, resources, processes, knowledge and competencies form the possibilities at hand. External forces, being both positive and negative, can derive from market developments, regulatory developments, societal developments, customer developments, and technological developments.

In this space, managers are expected to make decisions that balance long-term versus short-term horizons, balance sustainable approaches versus profitability, balance innovation versus being reactive.

Which forces will have the most significant impact on your future business models is hard to predict. However, survival and resilience will likely require some aspects of your business to change. Therefore, I urge you to read the articles you find relevant to your particular situation and note how things are anticipated to be different in the future.

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Organisational Design Issues and the Proper Dimensionalisation of Business Model Innovation

A conversation with Nicolai Foss about the future of business model innovation research

Nicolai Foss can be without an introduction in this context. Over the years, Nicolai has made substantial contributions to the business model innovation field.

I met Nicolai across the street from CBS at Solbjerg Plads. Copenhagen is bathed in springtime sunshine, and we aim to finish with a light lunch before afternoon meetings kick in for both of us.

I asked him about his general perception of the recent developments within the field of business models and business model innovation:

"I think it is fair to say that the business model research landscape has changed quite a lot from what it was in the early days. A decade ago, many researchers still reacted negatively to notions of business models and innovation. These two concepts were mainly viewed as practitioner concepts with little theoretical grounding and unclear empirical relevance. I think that has changed.

There are probably two reasons for this. First, much research on BM/BMI has been carried out. It is no longer "just" a practitioner phenomenon. The leading journals increasingly take BM and BMI seriously. The 2010 Long Range Planning special issue on business models was probably entirely instrumental here. Second, the big moves in business towards sustainability and digitalisation have further underscored the meaningfulness of thinking "holistically" about overarching strategy issues, in the way BM and BMI research seeks to do."¹

What are, in your opinion, the most critical recent theoretical contributions in the BMI area?

"This is a good question! I think we have seen many applications of the BMI notion recently, notably to

¹ The current special issue contains contributions specifically looking at digital transformation (Silvi et al. 2023), Artificial Intelligence (Haefner and Gassmann, 2023), Blockchain (Schmuek, 2023) the Metaverse (Rosenstand et al., 2023) and Sustainability (Demil and Léococq, 2023/Ricart 2023)

sustainability and digitalisation issues. So, there have been applications to the “circular economy”, “the Internet of Things”, and similar. There have also been applications to SMEs and family firms. However, I am not sure I currently see a lot of distinctly theoretical work in the BMI space. There is much application of existing ideas to new contexts and qualitative research, but little distinct theoretical work and rigorous empirical research with large numbers of observations”.

What research gaps do we need to explore in this BMI area?

“I think the research gaps that Tina Saebi and I pointed to in our 2015 book one and our 2017 and 2018 articles remain (Foss and Saebi, 2017; 2018) In terms of what we discussed in the book, I think organisational design issues remain a black box in BM and BMI research, which is odd because the overlaps are so many: Organization design and BM/BMI research are fundamentally about choosing the right mix of specialised activities, coordinating them in the right way, and making cooperation happen.

Even more fundamentally, we still need proper dimensionalisation of the unit of analysis, that is, the business model innovation. What are the relevant dimensions in which business model innovations differ? Tina and I proposed that BMIs differ in terms of their novelty and the extent to which they are modular or architectural. Getting some clarity on this is essential for several reasons. Thus, Nils Stieglitz and I have argued that different BMIs require different leadership approaches (Foss and Stieglitz, 2015). BMI characteristics may also determine diffusion patterns of BMIs; more incremental and modular BMIs diffuse more quickly. Antecedents, as well as consequences of different BMIs, are likely to differ. And so on. So, I think dimensionalisation matters a great deal.

I am partial to the specific dimensionalisation that Tina and I proposed because it links up with many excellent and well-established management and social science theories, such as thinking about interdependencies between investments and processes and

how they give rise to coordination and cooperation challenges in implementation. So, a great deal of organisation theory, complexity theory, etc., is relevant here. That is good because we need to link BMI theory to existing theory systematically and cumulatively rather than reinvent the wheel.

Another gap that seems evident to me is to link BMI more to top managers. Yves Doz did some critical work on this, but I haven't seen much in this space since his creation. I think there are opportunities to link BMI to top management cognition. My PhD student Kristin Ringvold (also a consultant with CapGemini) has done significant work in Telenor investigating the managerial cognition associated with conceiving and implementing BMIs. Another possibility is to link BMI to the heuristics and biases of top managers. This is something I have pursued with Tina Saebi and Lasse Lien (Saebi et al., 2017).

Which current/contemporary trends have you been focusing on in your recent research on business models?

“If by ‘current/contemporary trends’ you mean ‘trends’ in business reality, this isn't something that has occupied me too much. Theoretically and empirically speaking, I am mainly interested in getting notions of BM and BMI on a more solid footing. However, I have some recent work with Kristin Ringvold and Tina Saebi in which we explore sustainable business models and the additional challenges they raise because they add to the complexity of the BMI process (Ringvold et al., 2023).”

Which new BMI trends are you seeing: a) in the research literature? b) in practice and from society? What is the reasoning behind these trends; where do they arise from?

“A big theme both in practice and in the research literature is business models for digitally enabled (and enabling) platforms. Related to this is a broader theme of business models exploiting ecologies of complements between services and products. This relates to platforms because platforms are also about building a central service and product

with various complementary add-ons. However, “ecologies of complements” is broader. It is partly captured by the notion of “ecosystems” (which may or may not be platform-mediated), which is a megatrend both in research and practice².

However, I think it is fair that ecosystem thinking is still in its infancy. I don’t even think we have an excellent basic definition of “business ecosystems” yet. One of the critical challenges in this literature seems to be understanding governance challenges across an ecosystem’s lifecycle. I have some ongoing research with Jens Schmidt and David Teece. We conceptualise these challenges using a mix of transaction cost economics arguments and David’s notion of (the micro-foundations of) dynamic capabilities (Foss et al., 2022). But, it seems that notions of business models and business model innovation may also be linked naturally to ecosystems. So, we need to think more about business models for ecosystems, both for those companies that set up such ecologies and that those are part of them without assuming a leadership role.”

How should academia/universities educate students and inspire industry (in new ways/differently) for future BM/BMI?

“I think the fundamental thing is to students to practitioners convey that BM/BMI are holistic phenomena. One of the things I like about BM/BMI is that, in some ways, it takes us back to the 1960s strategy approach associated with, notably, the Harvard Business School, where the task of strategy is to think holistically about the enterprise in a way that integrates all functions, processes, etc. This disappeared when focusing on external environments or “resources” mainly. BM/BMI thinking brought it back. And I suspect this is a key reason why BM/BMI thinking has resonated so well with practitioners.

However, I have sometimes observed that the holistic thing gets lost in discussing business models in teaching. In teaching the business model canvas, there seems to be an unfortunate tendency to overly

focus on the value proposition aspects of the business model. It is like in entrepreneurship education, where sometimes the attention is on opportunity identification, and the realisation part is forgotten. However, the fundamental thing is that business models are meant to convey the holistic notion of an enterprise as a system of interlocking activities.”

What are, in your opinion, the new and unexplored/unchartered territories in BM research?

“As I indicated above, I think there is still so much fundamental ground-clearing left, such as meaningful taxonomies and dimensionalizations of BM/BMI; understanding the basic coordination and cooperation needs that different BM/BMIs give rise to; linking these to different management and organisation approaches, etc. Of course, we also want to get a better idea of the performance implications of BM/BMI.

As you can hear, I am a theory-driven traditionalist in these matters: I think we need to be more grounded, theoretically and empirically speaking. There is considerable tension here because many strongly theoretically or empirically minded management don’t take BM/BMI research too seriously. Similarly, much of the attraction to many BM/BMI research is that it is heavily applied. I honestly don’t know how to resolve that tension, but hopefully, it will come “naturally.”

What is the next significant phase in business model research?

“Well, although I do hope that this would be about beefing up business model research theoretically and empirically—making it more rigorous—I doubt this is going to be the ‘next big phase.’ It is more realistic that business model research will jump on some new Big Phenomenon, such as, who knows, the blockchain or quantum computing. The BM/BMI research community seems to do rather quickly—and this is a strength. However, the balance between exploitation and exploration in organisational learning also applies to research. Thus, we can do too much exploration and too little exploitation. On the one hand, we need both careful theory-building and careful empirics and a keen interest in novel phe-

² See also the contributions on ecosystems by Lingens (2023) in this special issue.

nomena. Perhaps BM/BMI research has been leaning too much towards the exploration side of things. That said, it does seem clear that we will experience much change, particularly in the digital dimension. Machine learning and other AI technologies are general-purpose technologies that will profoundly impact multiple aspects of existing business models. Thinking about how the individual impact components of business components and how these relationships are... tricky – but undoubtedly worthwhile.”

What new/altered roles will businesses, society, state/government, ecosystems, policymakers, and others play in future BMs/BMI?

“That is a comprehensive question, but there is one comment I would like to make: I think that we are going to see even more policy involvement with business in the future. It may not be the ‘Grand Reset’/Davos extremes that seem almost about a corporatist state. But there is lots of policy attention on sustainability, competition policy appears to be tightening everywhere, public/private partnerships are increasingly emphasised, and there is attention to ownership, gender representation and whatnot. In other words, many more aspects of the enterprise have now come under policy scrutiny. Like it or not, that is a fact³.

In this situation, it makes sense for top managers to think about business models: We need to focus on all aspects of the company and how they may be in-

³ See for example Nielsen’s (2023) account of the influence of regulation on business model innovation

terdependent. For example, what does a new value proposition imply for sustainability issues in the supply chain? Or what are the competitive implications of our unique value proposition that may throw the competition authorities’ searchlight on us? How much of our existing business model does a new public-private partnership involve?”

Lunchtime!

Concluding Remarks – by Christian Nielsen

This conversation with Nicolai Foss summarises that research in business model innovation needs to factor in the ever-rising application of machine learning and artificial intelligence, along with other digital enablers, to ensure that managers, owners, entrepreneurs and business developers are continuously forced to consider holistic approaches to improving their competitive advantage. Business model innovation is a central holistic approach to strategy that can help companies with these challenges. Nicolai is attentive to the fact that there are organisational design issues that we need to understand properly. He argues that only through academic rigour in studying business model innovation, in the form of empirics with large numbers of observations, can we solve these challenges. Such research will trigger the next critical theoretical insights into business model innovation and maybe also solve Nicolai’s request for proper, or more accurate, dimensionalisation of the unit of analysis by which business model innovation is done.

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Business Model Innovation as the New Strategy Arena

A conversation with Joan E. Ricart – Interviewed by Christian Nielsen

Joan E. Ricart is Carl Schröder Professor of Strategic Management at IESE Business School in Barcelona, Spain. Joan has been influential in forming discussions of the relationship between strategy and business models with his colleague Ramon Casadesus-Masanell from Harvard Business School. In the earlier years of distinguishing between business models and strategy, colleagues of Ramon, including Michael Porter and Joan Magretta, were instrumental in forming the initial understanding of the differences between strategy and business models, from which many researchers took their points of departure.

“How companies work together and interact with society will be a game-changer for business model innovation in the future”, states Joan, and explains that rising concerns towards sustainability (cf. Massa, 2023) in part spur this trajectory and, on the other hand, also technological development (Silvi et al., 2023). Technology will drive societal growth by improving the conditions for developing sustainability

and “smartness” (Ahokangas, 2023). This will alter how we think about strategy and business models. With this point of departure, Professor Ricart identifies four key scenarios that are important to consider in developing the field of business models and business model innovation.

First, the relationship between strategy and business models is currently being challenged.

Recently, Snihur and Eisenhardt have argued that business models have taken over the central role of strategy. Business models are about developing holistic concepts of value creation and a set of choices, and by doing this, they fill out a space that contemporary strategy research needs to pay more attention to.

The relationship between strategy and business models has existed since the initial papers on the subject. This is why when Prof. Casadesus-Masanell and I started working on this subject in the early 2000s, we needed to clarify how this new

perspective of business models was related to the strategy concept.

Our HBR article 2011 defines a business model as “a model of the business” that explains the logic of value creation and value capture by different stakeholders (Casadesus-Masanell & Ricart, 2011). A business model is like identifying the “motor” that makes the strategy real. This motor is fuelled by choices, which are the essence of strategy. These choices have consequences that feed other consequences and eventually feed back some of the choices, creating positive loops (virtuous loops) or negative loops (vicious loops). Virtue reinforces one’s positive consequences, allowing us to obtain good and better outcomes, or vice versa, with vicious loops.

As you can appreciate, our business model definition tries to capture the essential elements of strategy dynamics. This provides a language that allows us to deal with the relationship between strategy and business model, as we develop in our Long Range Planning article (Casadesus-Masanell & Ricart, 2010a). As strategy is a set of contingent choices, and we define a business model as the set of choices and their consequences, the choices of the realised strategy generate consequences, and the corresponding dual set ends being the business model of the company; of course, a business model is constantly evolving, as consequences affect choices, and those affect consequences, and the movement continues cycling.

Things are more complex because strategies are usually contingent choices made in interaction with the choices of other claimants and creators of value. However, you can easily visualise the loops of the focal business model interacting with loops of, for instance, the competitor’s business model whose choices affect our essential consequences. Therefore, the simple explanation is still valid under the complexities of interacting business models (Casadesus-Masanell & Ricart, 2008; 2008b; 2008c).

As you might realise, I have always referred to the business unit (represented in the BM) strategy rather than the firm-level strategy. However, we can also contribute to corporate strategy by “modelling”

the interaction with other business units (models) of the same firm. This representation, we call the corporate-level business model, provides a good understanding of the value creation process at the corporate level (Casadesus-Masanell et al., 2015).

This understanding of strategic interaction through the lens of business models has been instrumental in understanding regional competitiveness (Casadesus-Masanell & Ricart, 2010b), productivity growth (García-Castro et al., 2018), strategies in the Bottom of the Pyramid (Sánchez & Ricart, 2010), or reinventing companies with digitalisation (Ricart, 2014), among other interesting strategic problems. The business model perspective in strategy provides new important roles for CEOs focussing on entrepreneurship, innovation, artificial intelligence, and business model renewal (Ricart, 2015; 2019; 2020). And even corporate purpose and governance (Ricart & Rey, 2022).

The second perspective that Professor Ricart highlights is the role of communities and community-building in establishing platform-based business model innovation.

Professor Ricart explains: “I have much interest in helping transform cities towards what has been called smart cities. The name is associated with the use of ICT as a facilitator of the transformation. Thanks to ICT, many new business models are emerging in the context of cities, and many of them take the form of sharing (platform) business models”¹.

Initially, sharing business models grew relatively fast, as with Airbnb. Airbnb started with the reputation of almost a social business, allowing hosts to get extra money renting rooms and allowing guests short-term, affordable accommodation. All sounds very good, but soon, they started getting strong social rejection in some cities like Barcelona.

Initially, our focus was to provide data that may help to understand this tension with Airbnb in Barcelona. Our initial empirical study got tremendous adverse

¹ See also Lingens’ (2023) article on ecosystems and business model innovation

reactions from the Airbnb local management, so we had to go very carefully to sustain each step in the analysis and tried to be as rigorous as possible. While publishing the paper took some time (Carrasco et al., 2022), it helped us approach the problem more theoretically.

We focused our theories on understanding the grassroots resistance to digital platforms and what recommendations we could make to these platforms to avoid or alleviate the reaction. The result was our Strategy Science paper (Ricart et al., 2020), where we identify the conditions that give rise to adverse reactions (local and scarce physical assets or local and precarious labour markets) and the need to respond with relational business models that provide inclusive stakeholder value propositions and relational ecosystem governance to the multisided platform, including the local community. It is a co-creation of value exercise, thanks to stakeholder governance.

These relational business models, responding to community needs, play an essential role in the governance of emerging city ecosystems and the new Public-Private Partnership cities used to face the grand challenges of our century. With my co-authors in those papers, we are working on new papers on this triangle (Ecosystem/platforms; PPPs for the SDGs; Relational business model), hoping to contribute mainly to the so-called New Stakeholder Strategy and its governance.

Third, according to Professor Ricart, the importance of considering sustainability in today's business environment and the education of the next generations means that the circular economy is crucial to factor into business model innovation activities.

Besides digital transformation, Sustainability is another big trend changing the world and cities. Circularity or circular business models are a particular case of relational business models. I have studied those models in a European Horizon 2020 project called GrowSmarter² with actual applications to the cities of Stockholm, Cologne and Barcelona involved

² [Grow Smarter: Home \(grow-smarter.eu\)](https://grow-smarter.eu)

in the project. Still, we have yet to publish academic publications from this research.

Firms that decide to include in their corporate purpose contributions to the SDGs will need to work on business model innovation towards a sustainable business model (Ricart & Rey, 2022). Back to the context of cities, we are seeing that both trends go hand-to-hand³ or what is the same, we will only be able to advance on achieving the SDGs with new technology-based business models.

Our research in this area focuses on cities and SDGs (Giuliodori et al., 2022) and in PPP business models and their evaluation in line with their contributions to the SDGs (Berrone et al., 2016; 2019). Broadening this research to understand the governance of PPP that focuses on achieving SDGs, we converge to the line of study I was advancing in answering the previous question.

According to Professor Ricart, the fourth and final theme is understanding ecosystems (Lingens, 2023) and platforms because of the link to digital transformation in general (see also Silvi et al., 2023).

The third axis is ecosystems and platforms following relational business models, which I explore in greater depth in my forthcoming paper in the Journal of Business Models (see Ricart, 2023), sustainability, and PPPs. Some of my research on this area has been mentioned before, but now I want to focus on a different issue related to digital business models. As a professor in Strategy trained in economics, the commitment model developed by Prof. Pankaj Ghemawat many years ago greatly impacted my thinking about strategy and competitive advantage. As Pankaj moved into Emeritus Professor at IESE Business School, Strategy Science decided to organise a special issue in his honour; together with colleagues Bruno Cassiman and Giovanni Valentini, we decided to study if the concept of commitment was still so central to competitive advantage in the digital world. The result of this reflection was published as a short paper in this issue (Cassiman et al., 2022).

³ See the report in <https://thoughtlabgroup.com/building-a-future-ready-city/>; Joan was an academic advisor on this report.

Contrary to intuition, the final answer was a strong yes, but with some important caveats. First, committed choices are less related to sticky assets and irreversible investments (sometimes involved) than to the platform owner's architectural and governance choices. Note that architectural choices are still quite sticky but less than, say, a new factory, but governance choices are even less sticky but usually more important.

The second caveat is the relevance of flexibility. When you think about big investment decisions, real options are a good way to deal with uncertainty, gain flexibility, wait as much as possible and learn about the future. But in the digital world, learning is so fast that flexibility is crucial to committed governance choices. While commitment is a dynamic concept, it gets all the meaning of dynamism in the digital context.

The above reflection tells us that business models facing great uncertainty (Massa, 2023) should be designed with governance able to learn and adapt, and this is fundamental in the relational business models, closing our magic triangle. Let me remind you of the three connected sides: Relational business model, PPP (for SDG), Platforms (and ecosystem).

Let me finish this conversation with some reference to two special issues I had the opportunity to co-organize in Strategic Entrepreneurship Journal and R&D Management (Demil et al., 2015; Spieth et al., 2014). They are part of the history of a field that has gained much traction in the last decade. It has tremendous, transformational potential as we move into a world where competition, innovation and competitive advantage are fundamentally associated with business model innovation and renewal.

I am claiming the relevance of introducing a relational stakeholder perspective to business model innovation and design, resulting in relational business model design. This design involves three key aspects:

1. A multisided business model structure, as we need to include all potential stakeholders affected by positive or negative externalities. If we omit stakeholders that benefit from positive externalities, we are capturing and distributing this value created. Moreover, we may encounter grassroots resistance to the platform if we omit stakeholders suffering negative externalities.
2. An inclusive Stakeholder Value Proposition (SVP) for each added stakeholder to better balance the incentives dealing with the externalities.
3. An Ecosystem-Centered Governance (ECG) to improve alignment and balance power differences among the partners, focusing on value-creation (and distribution) by increasing entrepreneurship and innovation.

The design of a relational business model ends up being the orchestration of an ecosystem integrated by a multisided platform, and the prevalence of these ecosystems in many economic activities will drastically change how we think about strategy and competitive advantage, the gamechanger being that the central node of strategy now and in the future is the business model. Perhaps this may lead us to revisit Chandler's seminal work on the relationship between strategy and organisational structure by contemplating business models as the determinant around which organisation and governance should pivot.

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Why Uncertainty and Sustainability will be Key Drivers of Business Model Innovation

A conversation with Lorenzo Massa – interviewed by Christian Nielsen

I met Lorenzo Massa in a *maker space*-inspired innovation lab. It is a natural place for a researcher interested in creating ontologies, structures, learning and meaning that will enable flourishing businesses of the future to be made. He looks relaxed and in a hurry at the same time, but this is because he has things on his mind. He is a curious person by nature but also a researcher keen to make an impact on business practices. We agreed to start the discussion immediately and finish with coffee.

Lorenzo has been told that this interview is about picking his brain on the prospects for business model innovation as a field of research, and he does not let me down. He is well-prepared. To start, I ask Lorenzo:

How will the importance of business model innovation play out in the next decade?

“Perhaps we are over-enthusiastic about the importance of business models and business model innovation?” Lorenzo probes and adds: “This is an interesting question and can be answered both with

research and theory building in mind or through the lens of management practice.”

“I would love to offer some comments first on recent research developments. Research has moved away from the definitional debate on what business models are. Scholars are accepting high-level definitions of the construct and, in general, the idea that it offers a valuable lens and unit of analysis (e.g., see Massa and Tucci, 2021).

Within earlier research, there was some tension around the idea that this construct was attracting so much attention and yet leading to a plurality of perspectives instead of cumulative progress and convergence. We commented on this in the literature review article by Zott et al. (2011) and the later conceptual paper for the Academy of Management (Massa et al., 2017).

My reading of the more recent literature is that scholars are starting to put emphasis on interdependencies and unpack their role concerning

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different dependent variables, for example, using configurational approaches, as done by Leppänen et al. (2023) or in conceptual terms, as elaborated by Lanzolla and Markides (2021). Another topic where I see some focus is monetisation, which I would consider the part of the business model concerned with how the value created is monetised and, therefore, captured by the firm. Here, we see the emergence of exciting work, often published in top journals (cf. McDonald & Eisenhardt, 2020). There are probably many other topics, but if I were to prioritise them, I would focus on the following two. The first is the intersection between business models and digital, which I think will receive increasing attention with advances in digital technologies, particularly generative AI (Haefner & Gassmann, 2023). The second one is understanding or shedding light on the nature of the business model innovation phenomenon, both business model design, which Chris Tucci and I defined as the generation and validation of a business model when none is in place and reconfiguration, the innovation of an existing business model (Massa & Tucci, 2014). I think these areas will play an essential role in the near future.

In practice, there are two, perhaps obvious yet critical, main areas in which business models will play a critical role.

The first area is sustainability. I will comment on this in greater detail further down the text, but in essence, the business model is essential for sustainability for two reasons.

One is that we need new business models and business model innovation to more convincingly unlock the innovation potential of firms and the private sector to turn sustainability issues into profit opportunities.

The other one is that we are progressively accepting, at least in some parts of the world, of which Europe is undoubtedly one, the idea that reducing value creation to benefit the customer and economic return to the firm is limiting. Even if we add the creation of employment and the payment of taxes, it is evident that firms have an impact, and often a significant one, along with additional value dimensions for several stakeholders. We are moving toward a

broader understanding of value and wealth creation (Lüdeke-Freund et al., 2022; Nielsen, 2023). Here, business models matter because the logic of doing business, which is used, influences how, where and what kind of value is created (or destroyed) and how this is distributed. However, our understanding of these relationships between business models and an extended notion of value and wealth creation is in its infancy to the best of my knowledge of the literature. Overall, this is an area where research could tremendously support practice. The second one is business model innovation in the presence of uncertainty, to be discussed later."

Our Understanding of the Business Model Innovation Processes will Mature.

From a research standpoint, I see a gap and an opportunity related to understanding better the nature of the business model innovation process. There has always been a gap here, particularly concerning the innovation of an existing business model. The main reason is that it is tough to observe that process because it can unfold over a long time, e.g., several years. Advances in digital technologies, like Blockchain (Schmuek, 2023), 6G (Ahokangas, 2023) and those associated with the Metaverse (Rosenstand, 2023) are pushing the need to react faster. Soon, we can observe such changes occurring in much shorter periods (Silvi et al., 2023). However, we have been confronted with the need to study a longitudinal phenomenon, which may take several years, making following these changes through direct observation impractical. The solution is conducting in-depth historical case studies similar to what Siggelkow (2002) did years ago. His idea of change occurring using changes in activities is also very much in line with the activity system perspective on the business model by Zott and Amit (2010). This could represent an exciting reference, methodologically and conceptually, for researching business model innovation in incumbent firms.

Another research gap here is the following. We know that one of the main barriers to business model innovation is cognitive in nature. We also have anecdotal evidence that even when you change leadership at

the top and replace the top management team with a new one, which brings a new way of thinking, more is needed to guarantee that cognitive barriers are overcome. The risk is that the rest of the organisation will continue operating within the boundaries of the mental models and linguistic schema that reflect the old business model and impede the migration to a new one. In synthesis, we know quite a bit about the challenges related to the cognitive manifestation of business models for business model reconfiguration. We also know that visual tools and maps of business models can help overcome these cognitive barriers. However, research in these areas needs to mature for two main reasons. The first one is that visual models of business models are often developed without anchoring in the knowledge in conceptual and formal modelling, which several colleagues and I have discussed (Szopinski et al., 2022). The second one is that we do now know much about the cognitive merits of different visual representations and models of business models because there is a gap in empirical research here. Fredrik Hacklin and I have advocated this and suggested some initial ideas (Massa & Hacklin, 2020). This could be a very fruitful area of research, Lorenzo notes.

Does Such a Thing as a Sustainable Business Model Exist?

Asking whether there is such a thing as a sustainable business model when you are in the line of business that Lorenzo is in is genuinely thought-provoking. According to Lorenzo, there is no such thing as a fully sustainable business model, but certainly, there are ways of doing business that allow for greater sustainability.

This is thought-provoking. By the principles of sustainability, it can be argued that no business model is entirely sustainable due to the various impacts of all business models, such as resource consumption or adverse effects. In this sense, strictly speaking, the most sustainable approach from an environmental perspective would be not engaging in business at all. Florian Lüdeke-Freund, Henning Breuer and I discuss this in *Sustainable Business Model Design: 45 Patterns* (Lüdeke-Freund et al., 2022). This is an impossibility theorem. We need business in the

same way in which we need an economy. Rather than discussing sustainable business models, it is more appropriate to refer to business models for sustainability (Schaltegger et al., 2016). These business models can potentially support companies in generating social, environmental, and economic value. In other words, they help create more sustainable value for several stakeholders. Alternatively, in the language of global sustainability governance frameworks, business models for sustainability contribute to reaching the United Nations Sustainable Development Goals (SDGs) (United Nations, 2015).

How do they do that? In essence, by supporting overcoming structural barriers to sustainability inherent in market functioning. When companies attempt to push the sustainability envelope, recurrent barriers tend to arise due to market dynamics. These barriers introduce managerial dilemmas for those caring about sustainability and its principles.

A concrete example of this market-driven dilemma is the tension between producing long-lasting products that support repair and reuse versus a business model that relies on selling products as frequently and broadly as possible to avoid market saturation. This tension results from how markets operate and highlights the importance of the logic companies use to create and monetise value, also known as the business model. Business models that have been inherited from the industrial economy may need to align with sustainable goals, but alternative models can help companies overcome barriers to sustainability. For instance, one solution to the dilemma mentioned above is to offer a modular product that combines a durable item with short-lived consumables. This approach enables experimentation with generating stable and scalable revenue from the consumables while allowing for the marketing of a long-lasting product. At its extreme, this approach could involve selling a product and a service where the product is designed to last, generating revenue through servicing.

In summary, a “business model for sustainability” refers to the value creation and capture logic that can partially overcome the recurring barriers to creating social and environmental value. Research to date

has identified 45 patterns of business models for sustainability (Lüdeke-Freund et al., 2018). Patterns are a repeatable solution to enduring environmental, social, and economic challenges that arise when an organisation aims to create, deliver, or capture value in a sustainability-oriented manner. They are problem-solution combinations. In this sense, patterns are practical and offer knowledge for action.

I see an opportunity for continuing research on patterns and disseminating that research using structures, templates, and a language that would make it worthwhile for those in charge of designing organisations and their business models.

Enabling Business Model Innovation Under Uncertainty will be Crucial for Future Success.

When discussing business model innovation under uncertainty, we are at the intersection between mental models, strategic innovation and vision or visionary leadership. The key is to understand that in the presence of uncertainty, managers tend to claim that they should innovate their business models (Massa, 2020). As researchers, we may be tempted to think that this refers to innovating value creation, delivery, and capture logic. We also consider business model innovation as what companies like Hilti did.¹

As I have suggested elsewhere (Massa, 2020), this is only sometimes appropriate. There is another, much more appropriate, interpretation of innovating a

¹ Hilti went from selling tools to renting out “tool hours”, thus selling productivity instead of products

business model. I think the claim “we see uncertainty, we should innovate our business model” stands as a metaphor for the idea that “the known way of doing things is soon going to be invalid, but we do not know how or when”. The “business model” refers to “what we know and understand”, pointing to a, perhaps implicit, understanding of the construct as a dominant logic (Prahalad & Bettis, 1986) or a theory of the business, à la Drucker (1994).

From a managerial standpoint, the claim that managers tend to make, in presence of considerable uncertainty, that they should “innovate the business model” is to be understood as the surface manifestation of the perception of a challenging and perhaps even unpleasant situation. It refers to the situation in which management “feels” or “perceives” (perhaps implicitly) that – mainly because of external changes – the known way of doing things is soon going to be no longer sufficient, but at the same time, that the timing and direction of change is highly unclear. And they point to the business model to capture “the known way of doing business” which must be innovated.

In practice, learning what to do in these situations will play a vital role in the next decade, as uncertainty, once an episodic event, is becoming the norm. Moreover, what to do is not that obvious in many cases. For this reason, this is another area where research can significantly contribute. The challenge here is, once again, methodological. Both in terms of time needed to observe these phenomena meaningfully and in terms of sample size (implicitly, I am pointing to multiple case studies and action research).

Coffee time!

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JOURNAL OF BUSINESS MODELS

From Insights to Business Model Innovation and Results: Using the Digital Transformation Canvas

Riccardo Silvi, Christian Nielsen, Andrea Pia

Abstract

Digital transformation is the process that a company must undertake to connect its operational model with all stakeholders to respond to ongoing market effective changes in technological trends and to create the conditions for anticipating future trends. This article introduces and explains the digital transformation canvas's components and tools, intending to provide a starting point for developing a digital transformation strategy and a plan of action to achieve this.

Introduction

Much growth in productivity and the global economy in general in the last decades can be ascribed to digitalisation and digital transformation of existing modes of business. According to Vial (2019), digital transformation is a process in which digital technologies create disruptions that trigger strategic responses from organisations that seek to alter their value-creation paths while managing the structural changes and organisational barriers that affect this process's positive and negative outcomes (see also Foss, 2023).

Digital transformation is the process that a company must undertake to "connect" its operational model with all stakeholders (customers, suppliers,

partners, and employees) to respond to ongoing market effective changes in technological trends and to create the conditions for anticipating future trends vis-à-vis its competitors. Such a process often requires companies to substantially revise their existing operational models, starting with external stimuli (an outside-in approach). To implement such changes, it is necessary to:

- Instil the outside-in culture in all corporate departments, not limited to the marketing department
- Abandon or mitigate legacy processes and systems that render the company less flexible and adaptable to change

Keywords: Digital transformation, business model innovation, firm performance, business model canvas

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- Equip the organisation with digital infrastructures and platforms that facilitate stakeholder interaction

The starting point is developing a digital transformation strategy, a plan of action to achieve a specific objective. To craft this strategy, the Digital Transformation Canvas comes to our aid. Hence, this article aims to provide a tool managers can use to increase the probability that their digital transformation efforts will result in more resilient businesses and positive financial results. The article offers a conceptual model grounded in empirical probing over five years. It has been denoted the Digital Transformation Canvas because it assists managers in creating an overview, conducting appropriate analyses and drawing relevant conclusions that help them improve their business models.

The literature contains numerous examples of failed digital projects and the reasons for this (Saldanha, 2019). Davenport and Westerman (2018) argue that managers should avoid viewing digitalisation as the sole salvation of the business and be aware that digitalisation is not a plug-in but a very integrated process. Other less apparent factors affecting success and failure might be whether the industry you are operating is calibrated to digitalisation and whether the call of a new business model can become more potent than it should just because things are not going so well in the existing business. Poor governance and leadership are also key reasons for digital transformation failure. Ramesh and Delen (2021) identify five factors as critical influencers of digital transformation success: a) innovation attributes, b) opinion leaders, c) diffusion approach, d) timing, and e) duration.

Another problem often encountered is resource scarcity. Digitalisation projects often fight for a budget in the initial development stages. Still, if they lead to new business models that the firm needs to explore and invest in, they must fight for resources with the old business models. In addition to these organisational and governance aspects, our experiences and prior research into successful business development led us to formulate the following additional criteria:

- Lacking or no definition of the objectives of the digital transformation

- Poor analysis of the expected economic effects and lack of business case
- Lacking notion of how to turn business ideas from digital transformation into business opportunities
- Lacking knowledge of how to translate business opportunities into action
- Lacking a basis from which to measure the often multi-dimensional aspects of digital transformation success

These frustrations have led to the formulation of the digital transformation canvas.

The Relevance of the Digital of Everything

The relevance of the potential value created by the "Digital of Everything" (DoE) and the market potential spending on digital transformation is nothing short of transformative. Cisco's (2013) staggering estimate of over \$14 trillion in value in 2022 underscores the immense impact of this digital revolution. This potential spans various critical areas, such as asset utilisation, employee productivity, supply chain and logistics, customer experience, and innovation, as exemplified by billions of dollars in each category, and companies' positive financial performance is quite well documented: sales growth, cost reduction, improved efficiency (Accenture, 2023). Evidence of business Statista's projections for 2025 suggests that the Internet of Things alone could generate up to \$11.1 trillion in revenue annually. Moreover, with digital transformation spending projected to rise from \$1.6 trillion in 2022 to a forecasted \$3.4 trillion in 2026, businesses worldwide recognise the urgency of investing in digital innovation. McKinsey's (2013, see also 2015) forecast of over \$14 to \$33 trillion in value creation by 2025 across numerous sectors, including mobile internet, IoT, automation, cloud technology, and advanced robotics, attests to the vast opportunities within the DoE. Additionally (Mordor Intelligence 2023), the Manufacturing Digital Transformation Market is projected to exhibit robust growth, with an anticipated increase from USD 307.87 billion in 2023 to USD 733.75 billion by 2028,

reflecting a compound annual growth rate (CAGR) of 18.97% over the forecast period spanning 2023 to 2028. As spending on digital transformation continues to surge, it is evident that the DoE is driving a global revolution with unprecedented economic and societal implications.

Evidence on the effects of digital transformation on firm performance needs to be clarified. Curran (2018) found no direct positive correlation between digital transformation and firm performance, while Guo et al. found that digital transformation hurt firm performance due to higher operational cost rates, reduction in total asset turnover, and increased management expenses. Other studies find positive correlations between digital transformation and firm performance, for example, through cost reductions and the promotion of innovation (Heredia et al., 2022; Peng & Tao, 2022).

What is digital transformation?

Digital transformation is currently one of incumbent firms' most pervasive managerial challenges and is intimately connected to achieving greater sustainability effectiveness (see also Ricart, 2023). According to Nadkarni & Prügl (2020) and Hess et al. (2016), digital transformation concerns all the changes digital technologies can bring about in a company's business model, services, products, and organisational and governance structures. According to Vial (2019), digital transformation is a process in which digital technologies create disruptions that trigger strategic responses from organisations that seek to alter their value-creation paths while managing the structural changes and organisational barriers that affect this process's positive and negative outcomes. Schwertner (2017), quoting Kane et al. (2015), argues for grouping the effects of digital transformation processes into three areas: effects on consumer behaviour, business processes and business models.

Nadkarni and Prügl (2020) identify technology and actors as the two aggregate dimensions of digital transformation and digital transformation processes. Digital transformation is typically connected to concrete technologies and infrastructures. To mention a few: AI (see Haafner and Gassmann, 2023), Cloud computing (DaSilva et al., 2013), HPC,

multi-cloud-as-default, cybersecurity, Blockchain (Schmück, 2023), cryptocurrency, 6G (Ahokangas, 2023), robotics, Web 3.0, digital twins (Rosenstand et al., 2023), mobile technologies, social technologies, big data, analytics, internet of things. Regarding the actors, Bradley et al. (2015) identify troubling findings about the potential for disruption and incumbents' readiness to adapt. While the potential is massive, companies do not seem to take the movement seriously and lack the competencies to embrace digital transformation.

Failure Potential

While digital transformation is crucial for companies to embrace and has the potential to create value for both companies, the planet and society, it takes work to achieve. Everest (2021 and 2019) and McKinsey (2019 and 2022) estimate a massive 66% to 78% failure rate on digital transformation initiatives. Additionally, McKinsey has found that traditional industries such as pharmaceuticals, oil and gas, automotive, and infrastructure face even lower success rates than those indicated above. They found success rates ranging from as low as 4% to 11%. The complexity of these sectors, involving numerous stakeholders with diverse objectives and heavy regulatory frameworks (Nielsen, 2023), contributes to the challenges faced in achieving successful digital transformations. Boston Consulting Group's (BCG) research (2020) highlights that merely 30% of digital transformations can be classified as "winning," meeting or exceeding their target value and resulting in enduring change. Several reasons contribute to this need for more success in implementing digital transformations¹. These reasons can be attributed to four main clusters:

- 1. Strategy and Digital Technology Fit.** There is a lack of alignment between strategies and the concept of the "digital of everything." (see

¹ In this chapter, we do not consider reasons and evidence why digital transformation has yet to be considered or implemented. Lack of resources, adequate digital competencies and knowledge, and timing are recurrent. Here, we focus on failures during implementation. See: Harvard Business Review (HBR) Analytic Services Survey, September 2021 and Magnusson et al., 2022

Everest, BCG, McKinsey 2018). Digital transformation necessitates a holistic and comprehensive approach. Digital transformation or the integration of digital technologies should be part of a clear strategic vision and the business model through which the company aims to position itself in the competitive landscape. It is essential to understand that introducing digital components does not equate to genuine digital transformation.

- 2. Implementation Pitfalls.** Errors during the implementation phase, such as communication and engagement of various actors involved or potentially affected by the project (see Accenture, HBR 2021). Leadership and commitment are essential. A compartmentalised view of the digital journey, known as the “silos effect,” hampers its effectiveness. In addition, a misalignment between the objectives of digital transformation and performance management systems might cause conflicts, ambiguity, confusion, or undesired and opportunistic actions.
- 3. Poor business case exercise.** Inadequate business case analysis and the absence of robust assumptions testing (Bland & Osterwalder, 2020) may lead to underestimating potential threats and overemphasising opportunities and outcomes while ignoring competitive reactions or genuine market interest. Furthermore, little attention is paid to the presence of resources, capabilities, and skills or a supportive ecosystem. Finally, poor quantitative and financial analysis is sometimes due to superficial accounting skills or the effective translation of the digital strategy into a performance model.
- 4. Governance restraint.** Weak governance and inadequate leadership hinder the successful execution of digital transformation initiatives. The governance style and the level of involvement in embodying a digital model or transformation can be critical factors in transmitting the vision and information related to strategies, plans, and programs to various levels of the organisation (Khezri, 2022). Furthermore, the dynamic capabilities of the board are crucial for the success of digital strategies. These capabilities should be more focused on cognition

than operations, and transformation should not rely solely on a transformation-oriented CEO; the board should continuously develop these dynamic capabilities to ensure the right balance between exploitation and exploration, financial and strategic sustainability (Khezri, 2022).

Considering the size of the investments currently going into digital transformation projects, reducing this failure rate even minutely would have significant economic implications. The following section introduces the Digital Transformation Canvas. This framework aims to effectively exploit and explore the potential of digital technologies in a business context and to drive digital strategy deployment.

Driving digital transformation: The Digital Transformation Canvas

Digital transformation is not just about adopting new technologies; it is more about changing people's behaviour and connecting the company's operations with all stakeholders - customers, suppliers, partners, and employees - to adapt to market changes and stay competitive. To do this, the company must reframe its existing business model, starting with external influences. Key steps include fostering an outside-in mindset, eliminating legacy processes, and investing in digital infrastructure. Viewed from a business standpoint, the “Digital of Everything” (DoE) empowers organisations to optimise their business models, enhancing both efficiency and effectiveness (referred to as business refinement). It also provides the opportunity to pioneer innovative approaches for serving existing market categories and user bases (business innovation) or venture into entirely new business sectors and markets (referred to as business expansion).

Given the substantial value potential inherent in digital transformation for businesses and the notable failure rates in digital endeavours, the core challenge is to adeptly leverage competitive advantages offered by the “Digital of Everything” (DoE). In tackling this challenge, the formulation and deployment

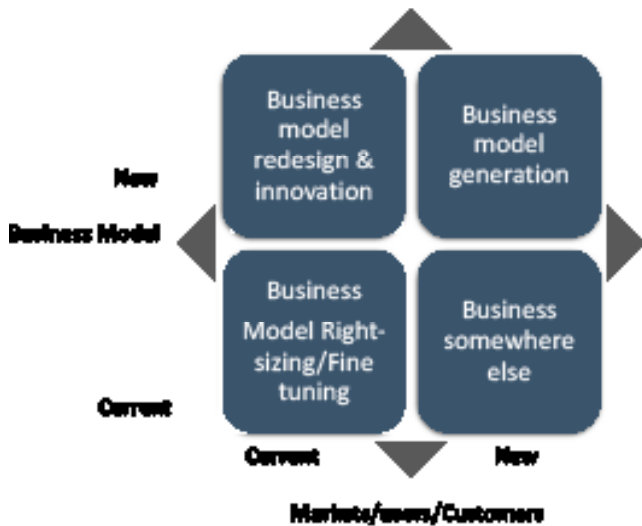


Figure 1: A typology of business model innovation

of a digital strategy requires at least four moments of reflection:

- 1. Comprehension of the business context:** It seeks to identify opportunities and threats of markets, technologies, and the firm's business model
- 2. Assessment of Digital Maturity:** It assesses the digital maturity level of an organisation.
- 3. Impact Identification:** It identifies the potential impact that can be achieved through digital transformation.

- 4. Progress Monitoring:** It controls the advancement of the digital transformation process through successive assessments and feedback management.

From this standpoint, the Digital Transformation Canvas (DTC) serves as a structured framework for facilitating digital transformation, considering the abovementioned reflection. The DTC encompasses four fundamental domains (Figure 2).

- 1. Understanding the Big Picture:** This step involves gaining a comprehensive view of the broader landscape. It encompasses analysing the competitive market environment, identifying threats and opportunities in business and technology realms, understanding business model performance, and recognising key success factors. By doing so, organisations can better position themselves to leverage the advantages of the digital age.
- 2. Digital Assets:** Assessing digital assets' availability, readiness, and needs is crucial. This includes evaluating the presence of **digital talents** within the organisation, the state of **digital infrastructure**, and the potential of the digital ecosystem. Recognising what is already in place and identifying areas where improvements or

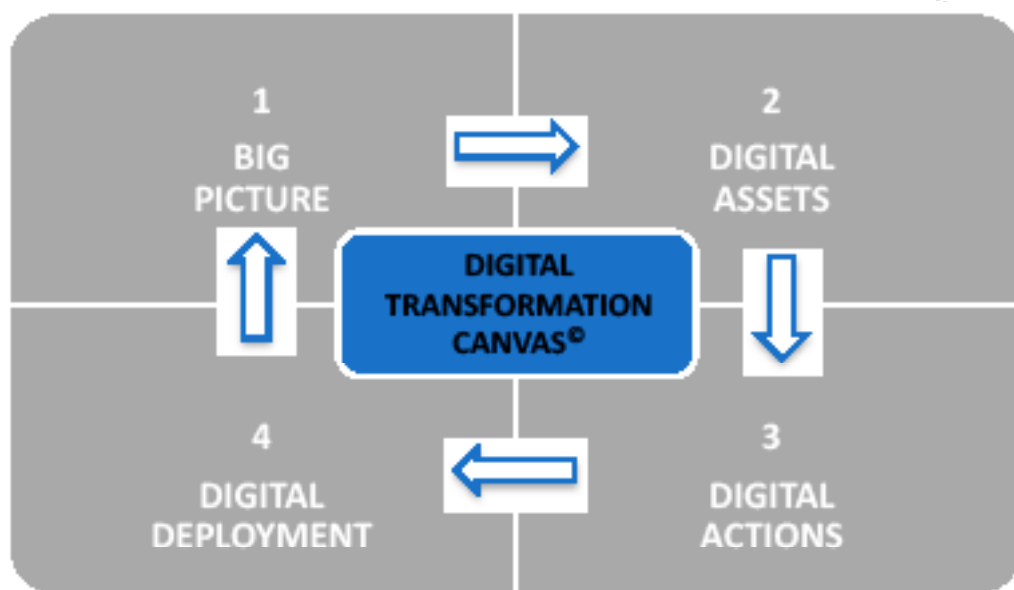


Figure 2: The Digital Transformation Canvas™

investments are needed is central to a successful digital strategy.

3. Digital Actions: This step involves aligning opportunities and threats with potential actions. It may encompass fine-tuning existing business processes, fostering innovation to stay competitive, exploring new avenues for revenue generation, or even considering expansion to new markets. By matching the digital potential with the appropriate action, businesses can adapt and thrive in the digital era.

4. Digital Deployment (of Strategy and Plans): Once the actions are defined, it is essential to translate them into a concrete digital strategy. This entails setting clear goals, targets, and Key Performance Indicators (KPIs) to measure progress. Equally important is the continuous monitoring, control, and management of

feedback. A test-learn-adjust-improve approach ensures that the digital strategy remains flexible and responsive to changes in the dynamic digital landscape.

By following these four steps, organisations can better navigate the “Digital of Everything” complexities and position themselves to extract competitive value from the digital transformation journey.

The Digital Transformation Canvas in detail

While Figure 2 illustrates the overall components of the Digital Transformation Canvas, a detailed breakdown of the areas of investigation and the potential tools associated with each is provided in Figure 3). The numbers in the Figure explain the ideal process flow.

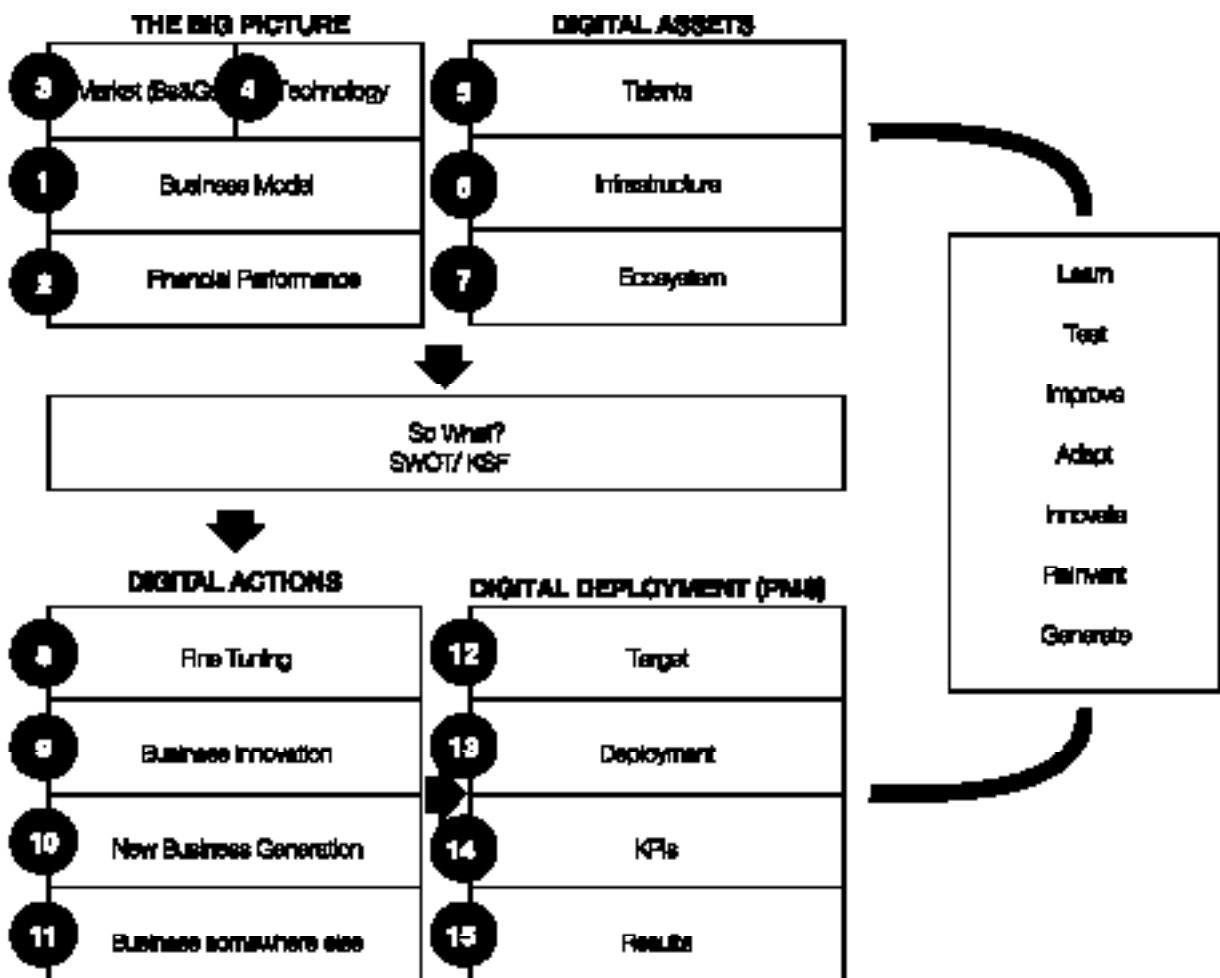


Figure 3. The detailed steps of the Digital Transformation Canvas™

As already mentioned, the Digital Transformation Canvas™ introduces four analytical phases for the performative evaluation of digital transformations. First, you need to establish the big picture. In doing so, you identify the technology and type of transformation, the market potentials and value propositions it promises, the type of business model that is currently applied, and the type of financial improvements and results that can be expected. So far, so good. This phase is what is currently known and a space where companies are well-acquainted in making decisions.

The digital assets needed to implement the potential digital transformation are analysed in the next phase. These assets can be in the form of digital talent, digital infrastructure, or digital ecosystems. In conjunction with phase one, the baseline establishes a call to action, denoted by the “so what” conclusion. In establishing this, strengths, weaknesses, and critical success factors must be identified.

These provide a natural point of departure for the third phase, namely Digital Actions. Digital actions are the actual digital transformations to be made. In depicting the type of transformation and the specific type of technology, the focus in this phase is to depict the potential severity of the transformation in terms of the degree of effect on the business model, as depicted by Johnson (2010). This spans from fine-tuning the existing business model to redesigning a minor or significant proportion of the business model’s value drivers to generating an entirely new

business model.

In the fourth and final phase of the Digital Transformation Canvas™, the deployment of the digital transformation is designed. Constructing a sound performance management system around digital transformation is crucial in bringing resources into effective action and is often a neglected area. This is where the necessary analytical strategies are designed and undertaken. In ensuring that organisations can go from transformation potentials to concrete actions and results, managers need to understand how to analyse and measure status and performance. Below, the four key investigative areas of the Digital Transformation Canvas are explained.

FIRST AREA: BIG PICTURE

The first area, known as the “Big Picture,” encompasses the following aspects:

1. The business model of a company (utilising tools such as the Business Model Canvas or similar frameworks). A company’s business model, as defined by Osterwalder and Pigneur (2010), describes how the company creates, delivers, and captures value. The Business Model Canvas is a key tool for understanding this, with nine building blocks that focus on value creation, delivery, and profitability. In a similar vein, Gassmann introduces a framework called “the business model navigator” (Figure 5) to delineate and understand

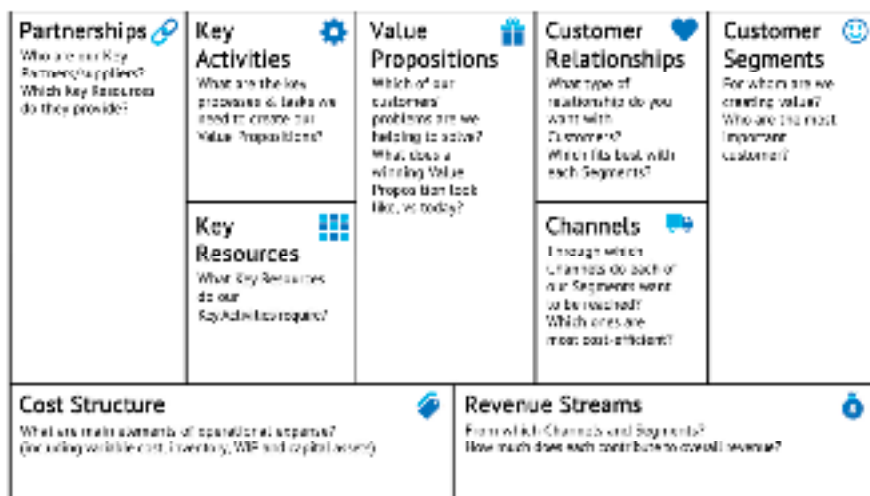


Figure 4. A Business Model Canvas with questions (Osterwalder & Pigneur, 2010)



Figure 5. The Business Model Navigator (Gassmann et al., 2014)

the company's offerings, its target customers, the production process, and the resulting financial outcomes (Gassmann et al., 2014). The business model comprehension exercise is a sound starting point for identifying the most relevant value drivers (Montemari et al., 2019), which are the key to identifying Key Performance Indicators (Nielsen et al., 2017).

2. Critical financial aspects are pertinent to the intended transformation journey. This section deals with comprehending the financial situation underlying the company's business model. In particular, it involves understanding business profitability, its drivers and financial solvency and riskiness (if relevant). Understanding the revenue, cost, and asset models and drivers supports this investigation. In addition, benchmarking with competitors or best practices and using simulation and forecasting tools are employed to understand better how contextual factors and assumptions impact business results.
3. Market analysis encompasses ongoing changes, strengths, weaknesses, opportunities, and threats. This includes market research, trend analysis, and consumer research.

4. The ongoing technological trends, emerging start-ups entering the relevant market or value chain, and potential innovative solutions. Digital technologies enable digital processes (and capture throughout), enabling the digitalisation of customer relationships/partnerships, which requires digital skills. They produce new use value for users, customers, and society (and probably several different use value types). Technologies include Sensors for movement, temperature, location, etc., augmented reality/wearables, 3D printing, mobile units, and Virtual Reality.

SECOND AREA: DIGITAL ASSETS

The "Digital Assets" area pinpoints the organisation's current and target digital resources and readiness state. This analysis, presented in Figure 6, includes (Bartolini et al., 2017; Bartolini & Silvi, 2020):

1. Mapping of digital talents, acquired competencies, existing capabilities, experiences, and training paths (past, present, and future).
2. Mapping of digital technologies existing within the organisation, excluding legacy IT systems from the digital ecosystem.

Digital Assets



Figure 6: Digital Assets overview

3. Identify existing relationships with external entities supporting the digital transformation process, such as research centres, open innovation activities, technological incubators, and strategic partners.

Digital talents

The digital transformation of a business is, in some cases, a matter of vision or necessity. Still, it cannot be separated from the presence of consistent digital knowledge, skills, and competencies. This specifically encompasses technological and IT skills (systems and network experts), data analysis (data science), programming, development, usage, and management of digital platforms that enable communication, sales, production, and overall relationships with customers and suppliers (Davenport, 2001), and cybersecurity. Digital human capital is evident in the knowledge embedded in the workforce, acquired through targeted recruitment, and developed through appropriate training and the involvement of these resources in analysis and decision-making processes. Knowledge, skills, and participatory analytical processes all contribute to forming an organisation's so-called digital intelligence quotient (DIQ) (Geissbauer et al., 2015). Its presence and growth over time help seize digital

opportunities, while its absence becomes an obstacle to digital transformation, progressively widening the gap between competitive and non-competitive companies.

Digital infrastructure

While the presence and development of digital knowledge are critical factors for the success of digital transformation (Catlin et al., 2015; Bi and Cochran, 2014), achieving the latter will be challenging without adequate technological provisions, including hardware, software, networks, and infrastructure. Information and Communication Technology (ICT) systems, in fact, play a fundamental role in addressing the challenges posed by digital ecosystems. These systems enable the collection and management of both internal and external data within a company, even in large quantities (Big Data). In the business context, these provisions could encompass systems like Enterprise Resource Planning (ERP), Business Intelligence (BI) and Data Mining tools, inter-organizational sharing mechanisms, databases, and web-based software. On the other hand, the infrastructure component relates to the presence of technologies that enable Industry 4.0 (Schwab, 2017). ICT infrastructure grants management direct access to a wide range

of operational, financial, and market/customer information, often in real-time. It aids in serving customers better, developing new products, optimising productive and intangible assets (data), performing processes autonomously (artificial intelligence, machine learning), and preventing operational risks stemming from both malfunctions and cybersecurity breaches (Geissbauer et al., 2015).

Digital ecosystem

The importance of ecosystems in the realm of business strategy and sustainability is increasingly emphasised in the literature (Adner 2017, Orlova et al. 2020, Tsujimoto 2018, Lingens 2023, Jacobides et al. 2018), and this perspective also encompasses digital transformation. This approach involves strategies for inter-company collaboration and is completely aligned with the Industry 4.0 paradigm and related phenomena. These trends anticipate higher levels of integration among supply chain partners facilitated by digitalisation, going as far as envisioning industrial digital ecosystems (as described by Moore in 1996 and Nachira in 2002). This category encompasses technology suppliers, research and training centres, industry-specific institutions, customers, and consumer associations.

THIRD AREA: DIGITAL ACTIONS

After analysing the first two areas, hypotheses can be formulated regarding the impact of a digital transformation process within an organisation. While there is no one-size-fits-all solution, appropriate actions can be identified based on the specific context:

- **Fine Tuning:** Suitable when there are opportunities for improving market or financial indicators, a need for short-term results in the absence of significant resources or internal competencies, or challenges in scaling an existing, robust business model.
- **Business Reinvention:** This is applicable when companies aim to maintain their products and services while introducing innovative business models, such as subscription models. This approach is advisable in cases involving a high

market share, increasing revenue and profits without expanding production, capitalising on relationships with existing stakeholders, and enhancing stakeholder loyalty.

- **Business Somewhere Else:** It refers to the opportunity to use digital to serve markets of another geographical area or to address new segments of customers. This digital action might refer to the possibility of decentralised production or activity phases in different locations.
- **New Business Generation:** The most radical form of digital action, suitable for solid companies seeking expansion beyond saturated markets or sensing obsolescence in their existing business models. This approach requires substantial digital resources.

FOURTH AREA: DIGITAL DEPLOYMENT

The fourth and final section of the Digital Transformation Canvas focuses on control and performance analysis tools for assessing the progress and potential impact of the digital transformation process. This phase involves:

- Designing, testing and selecting the business actions
- Setting the deployment of the selected business action. It requires the formulation of new objectives and targets, the alignment of the organisation, and the assessment of its readiness
- Evaluating the organisation's focus and motivation and the degree of readiness for a new operational model
- Engaging stakeholders to drive effective implementation.

Once the entire organisation is moving in the right direction with appropriate focus and strength, financial and market objectives can be established. These objectives are directly influenced by the type of digital action identified.

In conjunction with activity planning, the roadmap for transformation associates the anticipated impacts, both qualitatively and quantitatively. Effective

control necessitates the identification of specific Key Performance Indicators (KPIs).

The performance management system remains incomplete without the interpretation of KPIs as feedback for:

- Identifying unforeseen barriers or challenges
- Acquiring new information and data in new contexts
- Refining and updating the digital transformation plan to optimise objective achievement

At the end of the assessment phase, one or more digital actions are defined and prioritised based on impact assessment and required time for realisation. Typically, actions that maximise impact in the shortest time are considered first.

Conclusions, Recommendations, and Future Research

Spending projections for digital transformation in the future indicate massive investments. At the same time, digital transformation projects seem to have horrific failure rates, so focusing on supporting analyses, business cases, processes, project management, and governance structures that increase the likelihood of positive outcomes is a sensible endeavour. Given these considerations of the value potential of digital in business transformation and high failure rates, the challenge is to extract competitive value from the digital of everything.

The Digital Transformation Canvas is useful for clarifying and providing input to businesses' strategies and results. It identifies four relevant steps: First is understanding the big picture, including the

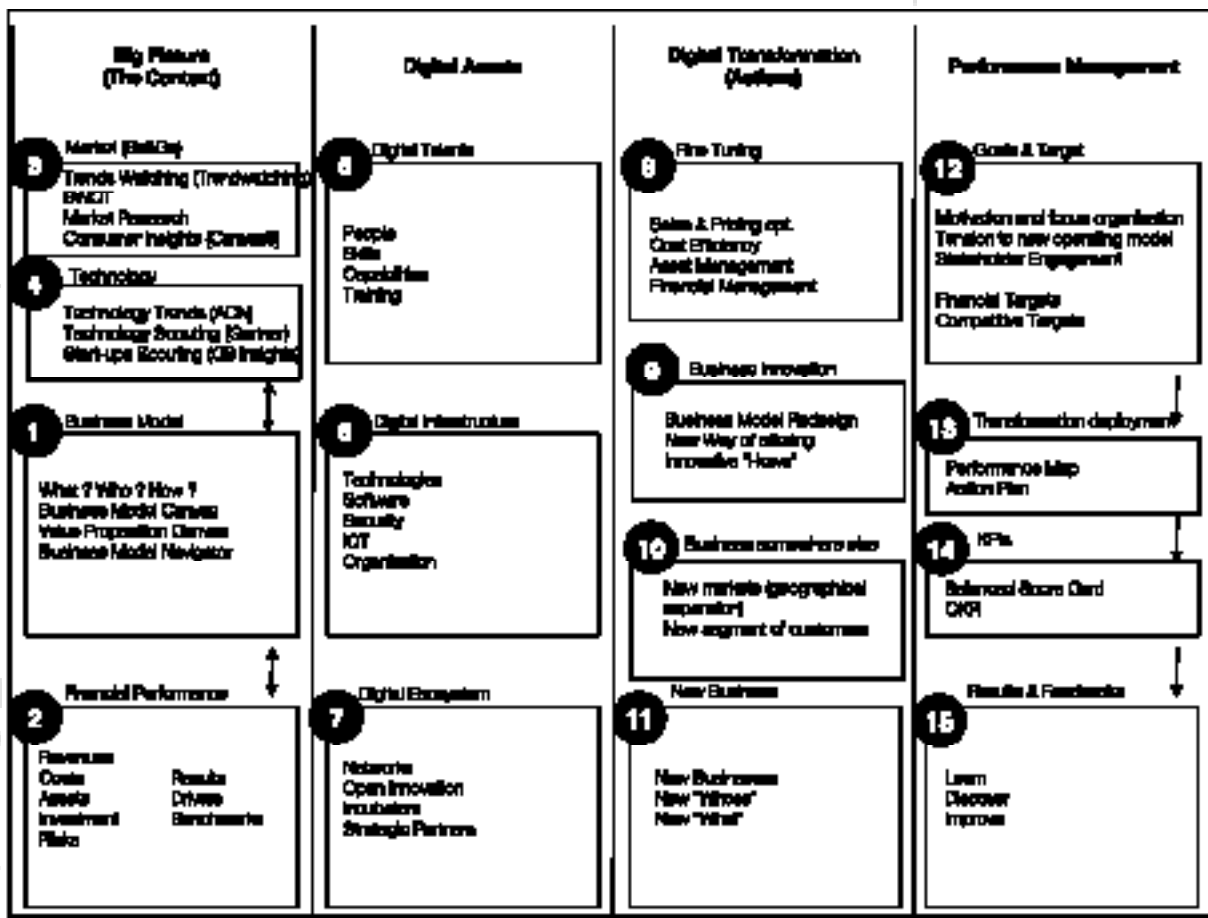


Figure 7: The expanded Digital Transformation CanvasTM

competitive landscape, threats and opportunities in business and technology, business model performance and key success factors. The second is to create an overview of the company's digital assets, including digital talents, digital infrastructure, and the digital ecosystem, as well as the needs and availability in the future. Third, regarding digital actions, companies must match opportunities and threats with digital potentials and potential action strategies such as business fine-tuning, business innovation, business generation, and doing business somewhere else. Fourth, the digital strategy and deployment plans are set, including goals, targets, and KPIs), so that management control and feedback are made possible through testing, learning, adjusting, and improving mechanisms.

In addition to these practical implications, the research implications of the Digital Transformation Canvas are as a research tool for studying the successes and failures of digital transformation. First, the Digital Transformation Canvas can be a model for linking digital transformation actions to financial firm performance. Second, it depicts various characteristics that could serve as latent variables for further quantitative empirical testing.

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Generative AI and AI-Based Business Model Innovation

A conversation with Oliver Gassmann and Naomi Haefner – interviewed by Christian Nielsen

Oliver Gassmann (OG) and Christian Nielsen (CN) convened at the Business Model Conference in Bologna, where he gave the opening keynote on business model innovation. His emphasis has been on digital technologies and generative AI as game changers for companies – and their business models. We completed the interview with Oliver and Naomi online after the conference. They work together at the University of St. Gallen on several research projects on AI-based business models and how AI will influence business model innovation in future years.

CN: Can you explain generative AI and why it is essential?

OG: Certainly. Generative AI is a branch of artificial intelligence that uses neural networks to create new content like images, text, video, and music based on patterns it learns from large amounts of data. It is significant because it replaces routines, automates creativity, and has diverse applications across all fields of the value chain. Forecasts on the productivity gains through AI go into trillions of dollars during

the next decade. According to the McKinsey forecast, by 2030.

CN: How do you see generative AI evolving in the near future?

OG: The future of generative AI looks promising. We will see improvements in the quality and variety of content it produces due to better neural networks. It will work more alongside humans, enhancing creativity rather than replacing it. In our paper from 2021 (Haefner et al., 2021), we addressed the role of AI in innovation processes. However, Chat GPT's rise in 2022 exceeded all forecasts regarding its impact. Interesting is the speed of the progress. In 2012, modern AI arose with the breakthrough of the Alex Net (cf. Alom et al., 2018), a convolutional neural network for visual pattern recognition. It started the area of discriminative AI, for example, distinguishing cats from dogs, traffic signs from billboards, etc. Since the Open AI initiative, Chat GPT had its breakthrough, the role of Generative AI has started to make a difference. It is close to impossible to

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forecast its development. Every day, new applications are posted. Indeed, we can say that ethical concerns and responsible development will become more critical.

NH: I agree that many developments to improve implementation and the responsible use of generative AI are heading our way. It will be interesting to see the kinds of applications that can be built once the models successfully cover more modalities—currently, they do text and images well—and as they are expanded to be able to take more data like web search into consideration. Of course, there may be more surprises, like the original unveiling of ChatGPT in November 2022. The capabilities of that model surprised even the researchers working on it, so I am hoping more of that is to come. Aside from improved systems, I think we will also see the proliferation of open-source generative AI models, which could potentially lead to many more companies being able to use this exciting technology.

CN: How does generative AI impact business models?

OG: Generative AI is set to reshape business models in various ways. In creative industries, it speeds up content creation for artists and designers. In e-commerce, it personalises product suggestions and even designs custom items. Businesses can also use AI-generated content for marketing, saving time and resources while staying innovative. To every SME manager, I suggest experimenting with ChatGPT to think about enhancing communication with customers on digital channels, improving customer retention, developing tender offers, and managing customer complaints. Getting a first experience and starting with the learning journey is essential.

NH: There are many opportunities for companies to use generative AI in ways that lead to efficiency gains or cost reductions. These can work within existing business models or enable potent adjustments. The exciting impact of generative AI will come from companies that can devise creative new applications, bringing to light various possibilities for innovating existing business models and creating entirely new ones.

OG: There are a lot of critical statements regarding Generative AI, primarily the phenomenon of “hallucinations”. These are wrong sentences, but they sound reasonable. However, do not forget that the quality of the Gen AI output will increase very fast. We are used to discussing exponential development when we have Moore’s law in mind. However, today’s development of Gen AI has a radically faster speed than anticipated. Generally, we tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run.

CN: Can you provide examples of businesses using Generative AI effectively?

NH: Many companies are experimenting with Generative AI in various areas across the value chain. One of the most well-known examples is coding, where many programmers have adopted GitHub’s Copilot to speed up and improve their programming efficiency. There are also now open-source implementations, such as StarCoder by BigCode, which any business can use.

OG: Brands like H&M and Adidas use Generative AI to design clothing patterns efficiently. Adobe uses Gen AI to generate safe images for commercial use; they are trained on millions of professional grades, licensed, high-resolution images and ensure that the created content does not violate existing intellectual property. Video game developers use AI to create expansive virtual worlds effortlessly. For example, the Korean NC Soft uses Gen AI to create dialogue and movements based on text and sound given to it. Huge efficiency improvements are predicted around marketing and customer support. Most known are Amazon and Meta, which have begun to integrate their generative AI into their product advertising. This will further accelerate the famous flywheel of platform business models.

CN: What challenges might businesses face in adopting AI, and how can they address them?

OG: Implementing AI can be resource-intensive for smaller businesses due to the need for data and computing power. There is also the risk of AI-generated content being mistaken for human-made,

raising authenticity concerns. Ethical issues, like bias in content, recruitment, and potential job displacement, need careful handling.

NH: Absolutely; firms need to be ready with a suitable technical basis and employees who understand the technology and can ensure it is well-implemented. Running models in production requires managing data, keeping track of models, updating them, monitoring them for bias and drift, etc. Beyond these technical and organisational aspects, it is also crucial that the company instils a data-driven culture (Haefner et al., forthcoming). This is closely linked to the next issue...

OG: ...balancing automation with human creativity. Overall, the dominant mindset remains the most significant barrier to implementing AI on a larger scale. Our research on the pharmaceutical industry has shown that despite the vast productivity gaps in pharma innovation and the demonstrated potential of AI, pharma has challenges in adopting digital technologies (Schuhmacher et al., 2020; 2023). AI-based companies like Insilico Medicine use the technology effectively in the drug discovery process.

CN: Can you highlight directions in generative AI?

OG: Researchers strive to make AI more creative, producing novel content, not just mimicking what is already there. Integrating generative AI with technologies like augmented reality opens possibilities for immersive experiences that blend real and virtual seamlessly. However, I do not only want to promote the technology. Besides the often discussed more obvious limitations of using AI as weapons – see the 1999 movie Matrix – we have many questions: How can we break the echo chambers accelerated by AI? How to keep data private and prevent unauthorised use of personal data? How can we protect ourselves against the automated requests of Gen AI dialogues, trying to sell me something?

In our paper on trust principles (Schäfer et al., 2023), we investigated the tension between using data on business models and protecting privacy. We found four principles to support companies in implementing

these measures: Firstly, let privacy and data-driven business go hand in hand. Secondly, put customers first and turn their privacy preferences into opportunities. Thirdly, align risk-management activities with the process of digital service development. Finally, use technology to professionalise legal processes.

Rather sooner than later, I expect, together with my Machine Learning colleague Damian Borth, that everybody gets his or her personal AI agent whom I trust will become the gatekeeper to manage my personal information overload. Companies like Apple, with strong privacy principles, will gain trust.

CN: How does AI affect the job market?

OG: AI influences employment, but we already had the same fear in the seventies with the advent of industrial robots. We all must learn how to work with the new technologies. Some jobs will be replaced or reduced; others will just be enriched. In the long run, many new types of jobs will be created, like AI ethicist, AI content curator, AI communication specialist, and AI data steward – to name a few. However, in the short term, there will be structural unemployment since not everybody can keep up with the pace of transformation. In the words of my HBS colleague Karim Lakhani, AI will not replace humans. Nevertheless, humans with AI will replace humans without AI.

NH: That is right. We are already seeing that in areas where AI has become very advanced, like in the games of Chess and Go, humans who use AI systems to train themselves or work as centaurs with AI systems outperform the best 'lone wolf' human players. In my opinion, humans will continue to play a vital role in developing AI systems. Our ability to design AI systems and select the most impactful and exciting use cases will remain highly relevant.

CN: How should businesses prepare for AI integration while minimising risks?

OG: Businesses need a solid understanding of AI capabilities and limitations. Decision-makers should be informed about generative AI's potential.

Responsible AI development is critical, addressing biases in data and ensuring transparency with customers about AI involvement in content creation. For all companies, it is essential to become familiar with the new technology and its disruptive potential. Overall, companies survive if they learn faster than the pace of the changing environment. The speed of change is incredible if you see the improvement of Generative AI during the last months. So, we must keep up with the learning process.

CN: Do you have any final advice for small businesses starting with AI?

NH: If you still need to, start experimenting now. The great thing about the current state of AI is that the ecosystem has evolved enough that so many resources can help everyone get started quickly. There are cloud-based machine learning platforms like Amazon SageMaker or similar offerings from Google and Microsoft that can help you get started and allow you to scale up quickly. Many external partners can accelerate your AI journey as well. One of the critical things to keep in mind is that there are myriad options out there, but to get lasting benefits from your foray into AI, it is essential to focus on areas where you can derive real business value, be that in terms

of improving efficiency or creating new opportunities.

OG: Exactly. To summarise our advice, I suggest thinking big, starting small, failing cheap, and learning fast.

In conclusion, Oliver Gassmann and Naomi Haefner's insights have shed crucial light on the forthcoming evolution of generative AI, its transformational implications for businesses, and how they can use AI to innovate their business models. The potential effects that AI will have on business model innovation and businesses will naturally be a cause of uncertainty for managers (see also Massa, 2023), who will need to analyse how AI plays into the overall digital strategies and transformation of the company (Silvi et al., 2023) as well as other current technological revolutions such as Blockchains (Schmuek, 2023) and the Metaverse (Rosenstand et al., 2023). Besides the ethical concerns relating to the introduction of AI, potential regulation could also affect companies' operational spaces (Nielsen, 2023). A balanced approach is crucial as we navigate these changes, leveraging AI's potential while upholding ethical considerations. The horizon is bright for those who harness AI's power thoughtfully.

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Hexa-X/6G as a General Technology Platform for Business Model Innovation

Interviewed by Christian Nielsen

An interview about the latest mobile communications technology is naturally done on older technology platforms, namely 4G. Initially, Petri is driving from Oulu to Toholampi in his car, and I am on the train to Copenhagen. After Petri arrives at his destination, we switch to WiFi and record the interview before it is transcribed by Teams software.

CN: Could you explain what 6G is all about?

PA: 6G is the latest generation of mobile communications technology to be launched to markets by 2030. It is currently at the vision stage; the United Nations body ITU-R should decide on the global vision for 6G by the end of 2023 (Ahokangas et al., 2023c). After that, it will enter the standardisation and development stage, which means that it starts the discussion of whose patients will be used as a basis for the 6G implementations. The first 6G services will be launched a year or two before the expected 2030 launch.

CN: What is the difference between 6G and 5G?

PA: The current latest mobile communications technology generation in use is 5G. There are three different versions of 5G being deployed, one for the consumers called the enhanced mobile broadband and then two other cases that are more for the industrial or organisational users. First, massive machine-type communications could be used, for example, in smart cities for Internet-of-Things applications, and the other is called ultra-reliable low latency communications that are needed, for example, in factories, especially for robots (ITU-R, 2015). Still, it could also be used in hospitals for medical devices. Currently, we have enhanced mobile broadband for consumers available in hotspots like cities and most urban areas, but not in rural areas yet. Today, approximately 20-30% of the possible 5G coverage is still 4G, so there is a lot of growth potential.

It has yet to be determined exactly what 6G will become. Still, it is expected to be increasingly used

beyond humans by machines and autonomous things, as well as communities and organisations, for use cases such as immersive communications, reliable and trustworthy communications, massive digital twinning, sensing for sustainability, or even connecting the unconnected. It is also expected that future 6G will deeply integrate with artificial intelligence. For example, we have been discussing these in our recent book, *The Changing World of Mobile Communications* (Ahokangas & Aagaard, 2023).

CN: When do we expect 5G to be fully rolled out?

PA: A good question. 5G is being rolled out constantly and developed further based on the original vision. At some point, a decision will be made that the next technology release will be called the 6G.

Already, 5G and 6G will increasingly bring new kinds of stakeholders to the mobile communications scene. Vodafone expects that by 2030, there will be a million private local 5G networks in Europe¹. So, think about all the possible use cases where you could go indoors and provide private mobile connectivity to improve the efficiency of operations. Another new opportunity is sustainability sensing of the environment (Matinmikko-Blue & Arslan, 2023). And then, of course, connecting the unconnected. These are the opportunity discussions ongoing around 6G. Of course, the commercial side of these is something that has yet to be learned, but these examples indicate new growth beyond the matured consumer business.

CN: So now you explained a little bit about where we are with 5G and the timeline for 6G. What will be the major differences between what we can see now, both in the consumer segment and the two industrial segments? And then what? What will we be able to do with the 6G in the future?

PA: Well, for the consumers, the expected most likely use case builds on virtual and augmented reality-based services that require wider bandwidth and lower latency enabled by 6G. For example, something

¹ <https://www.communicationstoday.co.in/a-million-private-5g-networks-by-2030-a-million-just-in-europe-says-vodafone/>

that we call immersive communications. Different use cases will be developed for industry and other verticals, like secure zones or twinning. Companies and cities are expected to be interested in paying for them, especially all the communications that are needed around and for critical infrastructures like energy systems and logistics.

CN: So, what you are talking about here resembles many expressions used in relation to the metaverse (which is covered in greater detail in this special issue in Rosenstand et al., 2023).

PA: Yes, exactly. They are the first steps towards the metaverse.

Concerning this, something is based on novel technical capabilities, like the combination of communications and sensing, which is new (Uusitalo et al., 2021). When communications go to higher spectrum bands, radios can be turned into radars that can sense the environment and even recognise people. These features come in handy in metaverse applications.

It is important to note that there are many regulations around sensing and when communications and artificial intelligence are combined. These regulations will impact the business models and business model innovation.

CN: I know that you have developed business models for 6G companies. How will 6G influence business model innovation for companies using 6G?

PA: First of all, 6G is a new kind of general-purpose technology for which the innovation landscape will change. No single company can do 6G innovation alone, but as a part of an ecosystem: ecosystemic effort is needed to create seamless services and devices around 6G connectivity (Yrjölä et al., 2022).

The key thing here is that to profit from 6G innovation, companies need to change from the traditional single-company-controlled logic of discrete or enabling technologies into surviving in the ecosystemic context of integrated general-purpose technology

platform infrastructures that comprise connectivity, cloud services, and artificial intelligence (Haefner and Gassmann, 2023; Ahokangas et al., 2023a). Already, organisations like cloud service providers are selling connectivity bundled with the cloud services or everything else that you can do with the cloud.

So, the innovation of the potential of 6G lies in the combination of connectivity with all the other types of data usage (Hurmelinna-Laukkanen & Yrjölä, 2023). A good example is context data, meaning the location of activities or contextual awareness of what is happening in the environment. That kind of data collected, analysed, reported, and utilised for different kinds of services form the basis for different context business models. Also, context-related business models could form the basis for monetising privacy as a service with the help of artificial intelligence.

CN: So this means that for business model innovation, you have to think more about ecosystems, which Lingens (2023) goes into detail with?

PA: Exactly. Business models and ecosystem innovation will become inseparable in this context (see Ricart 2023). So now the question is, how do you create platforms that attract service providers? And then the question also is how to enable lock-in with consumers or whatever type of customers you might have. To me, business model innovation-related theories like the 'nice' framework – novelty, lock-in, complementarity and efficiency (Amit & Zott, 2001) – or discussions around business model content, structure and governance (Zott & Amit, 2010; Foss, 2023) might have completely different meanings in ecosystemic general-purpose technology cases compared to traditional focal-company-specific cases.

CN: What should be done next in 6G planning, especially considering value creation, delivery, and capture with 6G?

PA: Of course, the customer is always important. The question is how you ensure the continuity of the services you build. Technically and architecture-wise,

things still need to be done to enable new business models.

Continuing the 5G architecture, we are now in a situation where the system's control point is the mobile network operator. I see that to be something that might change in the future. The over-the-top Internet players with lots of content might have completely different ideas of how to commercialise 6G connectivity, as they can also monetise connectivity as a part of their services.

And then there is the question of all the different devices to be used in the future. It will be about more than just mobile phones; connectivity will merge with very different types of devices in the future. It is already in all new cars and can be in whatever kind of future devices, including virtual glasses or clothing.

CN: So, you talk about the future here. What type of research will be needed before we are ready to move into 6G commercialisation?

PA: Technical development is, of course, one thing. The other side that should concern business model researchers is regulation. I think there are three elements to understanding business model innovation in high and new technology contexts.

Technology is there to enable things, so we need to understand what it may bring us and how it may evolve (Ahokangas et al, 2023). Then, of course, numerous regulatory aspects need to be considered.

Spectrum regulation is one in the telecom sector, but also all the competition regulation, platform regulation, data regulation, consumer rights regulation, sustainability regulation, artificial intelligence regulation, cybersecurity regulation, and regulations related to national sovereignty, to mention a few.

Regulation increases and gets more complex all the time. If and when you are doing business model and business model innovation research, understanding the regulatory context and its impacts on businesses is crucial.

CN: I am delighted that you mentioned that regulation would significantly affect business model innovation (because it is the theme of another contribution to this special issue (see Nielsen, 2023)).

PA: This is what I have asked myself. Our new book, "The Changing World of Mobile Communications: 5G, 6G, and the Future of Digital Services", explores this, among others (Ahokangas & Aagaard, 2023).

However, I see a crucial thing as a beyond-regulation thing: sustainability and resilience, especially social and societal sustainability and resilience (Ahokangas et al. 2023b). How should mobile communications support them? How do we ensure that 6G infrastructures are sustainable and support social and societal sustainability and resilience?

Think of critical infrastructures which call for cybersecurity and raise national sovereignty-related concerns. Privacy and security concerns depend on cultural differences and are reflected in how data ownership, for example, and privacy and security are seen in Europe, the US, or China (Ahokangas et al. 2023b).

CN: So, there is also a cultural aspect here?

PA: So yes. Social and societal values differ, putting pressure on how you do business model innovation. It's not possible to have the same business models globally. Social and societal differences between countries influence how you practice business.

If you think about this discussion on the backlash on internationalisation because of what has happened during the past 20 years, this becomes evident. Many jobs have been transferred to the east, and now they are required to come back. The global turmoil and political situation also influence how you can do business and with whom you do business.

It's already been said in Europe that we should collaborate with like-minded countries. To make sure that our values prevail. This whole business innovation landscape has changed and becomes not only something that you think about as how to commercialise a technology, but you have to consider the regulation, values, and national interests much more.

CN: And for 6G, this means what?

PA: Connectivity is already the backbone of all digitalisation in modern society. Ubiquitous, affordable, and trustworthy connectivity is increasing in importance from that kind of perspective and combined with artificial intelligence, we will see new opportunities arising. But then, the question is how can we utilise those opportunities because there is so much regulation. We have variety and differences in values globally. We have global 5G. My concern is do we get global 6G. I'm not completely sure of that now. From the innovation perspective, this strongly influences the scalability and replicability of business models and their sustainability in the long term.

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How Blockchain Disrupts Business Model Innovation Counting on Lock-In Effects

**A conversation with Kilian Schmück
– interviewed by Christian Nielsen**

Kilian and I meet at Oliver Gassmann's office in St. Gallen at the Institute for Technology Management. Kilian, Oliver's former PhD student, focused on decentralised platform architectures. At the time of the interview, Kilian worked at Siemens to support their digital platform and data strategies. In the meantime, however, he has commenced his own start-up adventure.

The interview is opened with a short question: What is blockchain, and what does it do?

Certainly! When examining the concept of blockchain, it is beneficial to approach it from both a technical and a business standpoint.

From a technical perspective, blockchain is a distributed digital ledger technology that meticulously records and verifies transactions across a network of multiple nodes. This decentralised system systematically links blocks, which are individual records, securely through cryptographic techniques. Crucially, consensus mechanisms like proof of work or

proof of stake ensure unanimous agreement among participants regarding the legitimacy of recorded transactions, eliminating the need for a centralised authority (see also the discussion on regulation in Nielsen, 2023).

From a business standpoint, one particularly intriguing aspect arises. Implementing blockchain technologies facilitates the emergence of what is known as Web3 (Rosenstand et al., 2023), enabling the execution of digital ownership transactions throughout the network without the reliance on a central intermediary. In the previous iterations, Web1 and Web2, which were founded on the internet, only transactions of digital information could be carried out in a disintermediated and scalable manner. However, transactions involving the transfer of ownership always necessitate the involvement of a central authority. For instance, when utilising platforms like PayPal, users solely provide digital information to the platform regarding their desired transaction, while the execution itself becomes part of PayPal's accounting processes.

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Consequently, a challenging intermediary factor is present. However, this paradigm is being reshaped with the advent of Web3. Through blockchain, ownership transactions can now be decentralised and made scalable, paving the way for novel business opportunities, particularly in the realm of industrial Internet-of-things.

What is blockchain not, and what is the difference between blockchain and cryptocurrencies?

The topic of blockchain and its applications requires a nuanced understanding. It is important to note that blockchain is not a technology that should be indiscriminately implemented for all transactional processes, particularly within secure and trusted environments. For instance, when transactions occur within a company that maintains robust accounting practices and internal controls, the adoption of blockchain may be optional. In such cases, any fraudulent activity would be readily detectable and ultimately self-defeating, rendering blockchain implementation redundant. Therefore, the true value of blockchain technology lies in its ability to address trustless spaces, particularly in situations where different companies with conflicting interests are involved.

It is crucial to distinguish cryptocurrencies as just one facet of blockchain technology, specifically when the network is publicly accessible. Cryptocurrencies primarily serve as coordination tools or incentive mechanisms within the blockchain ecosystem. Unfortunately, the hype surrounding cryptocurrencies, especially during the COVID-19 pandemic, has had a detrimental effect and does not adequately encapsulate the full technological potential of blockchain. Regrettably, the largely unregulated market environment surrounding cryptocurrencies has been exploited for various fraudulent schemes. However, it is important to acknowledge legitimate representatives in the space, such as Bitcoin, Ethereum, or Polkadot. In these cases, the inherent tokens within the network serve as effective mechanisms for incentivisation or to support network governance, exemplifying the genuine value and purpose of cryptocurrencies beyond the negative connotations associated with fraud (Schmück, 2022).

What is the current development phase of blockchain, and which developments are expected in the near future?

I believe two parallel development streams are progressing concurrently in the blockchain space. Firstly, blockchain protocols have continued advancement, with a discernible process of technological refinement and a natural filtration of projects. Many blockchain protocols that gained momentum solely through hype are now facing financial challenges, while only the most serious and robust projects are persistently evolving. This selective process ensures that the focus remains on projects with genuine potential and technological merit.

Simultaneously, industrial companies are actively involved in implementing blockchain technology and preparing for the advent of Web3. They carefully examine and experiment with the most promising applications within a protected framework to optimise their potential benefits. This preparation entails considering the implications for their business models and corporate strategies as they recognise the transformative power of blockchain and the upcoming Web3 paradigm, possibly even spurred by 6G technologies (Ahokangas, 2023).

In my view, these two development streams will eventually converge. The most high-performing blockchain protocols, refined through rigorous selection, will align with the genuinely relevant industrial use cases. Particularly in the realm of B2B multi-party data sharing constellations, I anticipate a convergence where the best-performing blockchain protocols will be utilised. This convergence will pave the way for robust and secure solutions that facilitate efficient and trusted data sharing among multiple parties within the industrial landscape.

Concerning the general perception of recent developments in Blockchain, what are the apparent research gaps we need to explore further in the relationships between Blockchain and Business Model Innovation?

As I indicated above regarding potential application areas, also relevant research gaps lie in the interplay

between companies rather than covering the internal perspectives of companies. This becomes significantly pronounced when companies find themselves in a competitive situation alongside the imperative for cooperation, thus giving rise to conflicting interests. In these complex constellations, commonly called "coopetition," blockchain may have a significant and positive impact.

By harnessing the inherent properties of blockchain, such as transparency, traceability, and immutability, alongside the implementation of smart contracts, decentralised relationships can effectively address complexities and foster trust, even amid competitive dynamics. This adaptability will be advantageous in a world where de- and re-internationalisation happens often (Sort et al., 2023). Notably, there is a discernible shift away from a paradigm of pure competition towards a more collaborative model, which finds resonance within platform ecosystems operating in the B2B context. An illustrative example of this shift can be seen in the co-development of federated platform ecosystems like Catena-X. Within such ecosystems, stakeholders must internally justify their resource investments while directing efficient and targeted contributions to the partner network (see also Silvi et al., 2023). However, the intricacies surrounding contribution games in these scenarios remain largely unexplored. This is where blockchain technology holds potential value, as it can provide valuable insights for measuring and evaluating contribution efficiency, thereby facilitating effective resource allocation (Schmück, 2022).

Furthermore, the matter of decentralised platform governance emerges as a pivotal consideration. As co-opetition intensifies within platform ecosystems, decision-making processes necessitate an approach that embraces democratic principles. Here, blockchain can serve as a neutral trustee, ensuring fairness and upholding integrity in decision-making while concurrently dispersing authority (Schmück et al., 2021).

So, where does that leave you regarding the core implications for practitioners regarding where to apply blockchain?

When considering the application of blockchain technology, we can distil it into three fundamental circumstances where it holds meaningful relevance. Firstly, it is pertinent in business constellations involving cross-organization value transfers and carrying potential conflicts of interest. In such scenarios, blockchain's inherent function of providing neutral trust becomes particularly valuable.

Secondly, blockchain technology's decentralised and neutral nature finds its natural fit within platform ecosystems, especially when addressing B2B relationships. Unlike end-consumers, businesses often have a heightened need for data sovereignty, which can be achieved by implementing data usage policies and their consistent enforcement via smart contracts. These smart contracts enable predefined and automatically executed if-then relationships within the decentralised network, ensuring data integrity and enhancing participant trust.

Lastly, blockchain-supported transactions should exhibit a comparatively higher ratio of value to volume. This consideration is crucial because it is only in such cases that the additional operational complexity of decentralised platforms or networks can be justified. By aligning the value-to-volume ratio, blockchain technology can demonstrate its efficiency and viability as a cost-effective solution for facilitating secure and transparent transactions.

As such, what are the core implications related to platform economics?

We are delving into the realm of decentralised platforms, where blockchain seamlessly integrates into the core operational mechanisms of these platforms. Blockchain truly unleashes its full potential within the

decentralised network structure (see also Lingers, 2023). Consequently, platforms themselves inevitably adopt a certain level of decentralisation. Thoughtful implementation of this approach can profoundly influence the power dynamics within a platform. For instance, a central platform sponsor can no longer amass the same level of information asymmetry, a shift that greatly benefits the remaining stakeholders, particularly in the B2B context. As a result, a strong incentive emerges to dismantle data silos, as the platform fosters greater trust and collaboration. In the Industrial Internet-of-Things realm, we are witnessing a notable shift away from centralised data monopolies towards federated or decentralised multi-party data sharing. However, it is vital to underscore the significance of platform governance in this context. A fitting analogy can be drawn to the realm of politics. Just as establishing more democracy necessitates a robust constitution, the same principle holds true for platforms. The more decentralised a platform becomes, the more pivotal platform governance becomes (Schmück and Gilgen, 2021). It must strike a delicate balance, ensuring optimal platform liquidity while safeguarding maximum user data sovereignty. The governance framework plays a crucial role in upholding these dual objectives.

Concluding Remarks

In conclusion, Blockchain technology introduces trusted and distributed interdependencies within ecosystems. Consequently, it mitigates the lock-in effects experienced by users, which influenced the success of network effects as a significant value driver in various digital business model configurations. As relationships transcend from a Web2 and

platform-centric to a Web3 and user-centric perspective (see also Rosenstand et al., 2023), value mechanisms and ecosystems incorporating blockchain must account for this transformative aspect.

The challenges associated with Blockchain predominantly lie in the organisation and governance structure (cf. Foss, 2023), presenting a range of game-changing dynamics for business model innovation. In the last few decades, the internet, platforms and ecosystems disrupted incumbent and non-digital firms with digitalisation and digital business models. Now, blockchains are disrupting platform business models and ecosystem management. In this context, blockchain technologies contribute to democratising platforms and ecosystems, providing them with reach and ease of access. Dal Mas et al. (2020) identify four ways blockchains can lead to more sustainable business models (see also Ricart, 2023). First, asset tokenisation allow for participative business models where stakeholders can take part in each other's decisions. Second, transparency creates social proof and can drive consumer behaviour. Third, reduced transaction costs through disintermediation allow for the utilisation of unused resources, reducing waste. Finally, the distributed ledger allows distributed investments and profits, allowing more people to participate in a given business idea investment.

In conclusion, blockchain is not the same as cryptocurrencies. Blockchain serves as a digitally compliant trustee for cross-organization relationships that may characterised by conflict of interest. It ensures secure and reliable management of digital assets, reinforcing the notion that blockchain encompasses more than just financial transactions.

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Metaverse and Society 5.0: Pivotal for Future Business Model Innovation

Abstract

The area of interest is future business model innovation in Society 5.0. This is important as the transition from Society 4.0 to Society 5.0 is happening at an exponential pace driven by the Metaverse. Thus, the research question is: how should companies think and do business model innovation in the Society 5.0 / Metaverse space? The method is conceptual, where the business model characteristics of Society 1.0 to 4.0 are empirically stated for inductive arguments for equivalent characteristics of Society 5.0. This is framed with Society 5.0 theory, Metaverse theory, and Osterwalder and Pigneur's nine business model building blocks from their iconic Business Model Canvas (BMC). The contribution is a framework cross-tabulating Society 1.0 to Society 5.0 with the nine BMC elements. Finally, a discussion is provided with findings and implications for managers regarding business model innovation, new businesses, outcome logic, ecospheres, and currencies.

Introduction

According to Taran et al. (2022), based on the work of Keeley et al. (2013), business model innovation holds promise for the most significant value creation potential. Civilisation, as we know it, is on the verge of transitioning from Society 4.0, the industrial society, to the super smart Society 5.0. In a recent report, McKinsey & Company (2022) estimates that by 2030, the Metaverse has the potential to generate up to USD 5 trillion in value. The metaverse is a megatrend and one way to encompass the digital future, in

which economic and political barriers of the current Internet could be overcome. As such, the metaverse is a candidate to become the next generation of the Internet, a possible interface or platform of Web 3.0. (Ritterbusch and Teichmann, 2023), it holds promise for catalysing future business model innovation.

The field of business model innovation has matured considerably in the last decade, and the business model discipline has undergone some distinct development stages (Zott et al., 2011; Nielsen et al.,

Keywords: Metaverse, Society 5.0, business model innovation, foresight

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2018). According to (Aagaard & Nielsen, 2021), the fifth research stage relates to the role of business models in times of increased instability in society and the uncertainties associated with these. With the intent to identify critical trajectories towards a 2030 horizon, Aagaard & Nielsen (2021) argue that business model innovation must be able to provide value for society because while technology may solve problems, value is created through its inclusion in viable and scalable business models that live up to the norms and standards expected by society. We also see new tendencies emerge around the globe where a human-centric approach is expected to be an integral part of technological innovation and business model innovation – e.g., Japan's policy on Society 5.0 (Japan Cabinet Office, 2016) and the European Commission's policy brief on Industry 5.0 (Breque et al., 2021). The logic behind this tendency to include the human-centric perspective is that the current way of working for society has created giant leaps in technological innovation and stretched the boundary for what earlier was considered almost impossible, but aspects of social innovation and focus on the societal development and aligning society to these many innovations have been down-prioritized (Gershenfeld et al., 2017).

The metaverse can significantly create a more human-centred, sustainable, and inclusive society by introducing new technologies that improve people's lives and create a better world. This article describes the relationship between the metaverse and Society 5.0 and the types of technologies and mechanisms they rely on. The research question we discuss and unfold is: *How should companies think and do business model innovation in the Society 5.0 / metaverse space?*

As part of our response to this research question, we develop a framework which can be used to develop strategies for business model innovation in the metaverse/Society 5.0 context. The remainder of this article is organised as follows: First, the metaverse is introduced, followed by an introduction to Society 5.0 that includes a depiction of different types of value creation. The fourth section introduces our framework for business model innovation in the metaverse and Society 5.0, and the conclusion

provides avenues for future research and spotting new business opportunities.

Introducing the Metaverse

In its most basic form, the Metaverse includes three features: 1) a sense of immersion, 2) real-time interactivity, and 3) user agency. Ultimately, the full version of the metaverse will include platforms and devices that work seamlessly with each other, allowing thousands of people to interact simultaneously and use cases that go well beyond gaming. To some extent, the Metaverse is already present in limited form in online video games and virtual worlds as the Web 3.0 iteration of the internet supports online 3-D virtual environments through conventional personal computing and virtual and augmented realities. Companies are already using tools and methodologies associated with the Metaverse. For example, Boeing uses the Metaverse to design and test new aircraft. Siemens uses it to create digital twins, as a virtual representation of the physical objects and systems of its factories and production lines, used to simulate, analyse, and control its counterpart. General Motors uses the metaverse to train its workers to assemble new vehicles.

The Metaverse concept was first introduced in Stephenson's novel "Snow Crash" (Stephenson, 1992), describing a 3D virtual reality populated by avatars of real people. To this end, the metaverse refers to a virtual reality existing beyond reality (Key et al., 2021). In common parlance, the Metaverse often refers to a world created by a creator, where the users must "live" under the creator's rules (Hwang & Chien, 2022). As the metaverse is an emerging technology, the concept is not consistently defined. Thus, a broader definition should be applied, including a broad range of immersive technologies such as virtual, augmented, and mixed reality (Vistisen et al., 2023), where mixed reality allows interactions between real and digital objects.

From a business perspective, Metaverse is often defined as a platform for activity. To this end, Meta, formerly known as Facebook, defines it as a place to "connect, work, play, learn, and shop" (Meta, n.d.). However, researchers tend to define the Metaverse

with platform-independent characteristics, as seen in the 28 research definitions in a structured literature review by Ritterbusch and Teichmann (2023). Their study illuminates a highly interdisciplinary interest in the phenomena, including arts and humanities, business management, accounting, computer science, engineering, environmental science, medicine, and social science (ibid.). To encompass both a platform and platform-independent perspective, they suggest “... that the metaverse will be a single three-dimensional online environment with many metaverse platforms, in which each metaverse platform is embodied in the form of virtual spaces” (ibid., p. 12375).

The Metaverse is still in its infancy but holds promise of substantial change for many industries. For example, the Metaverse can be used in manufacturing to create digital twins of factories and production lines to simulate and optimise production processes. The same could go for ships and aircraft; in logistics, the Metaverse can track the movement of goods and materials in real-time. In the retail sector, the Metaverse would lead to virtual stores where customers can browse and purchase products immersively. In education and healthcare, the Metaverse can improve accessibility and quality in training, learning, and interaction. In addition to these specific industry applications, the Metaverse will likely have a broader impact on how we work, learn, and socialise. For example, the Metaverse enables and enhances remote work as we know it today, attending virtual conferences and other events without travelling. It could also create new social networking opportunities and foster collaboration between people from different cultures.

The market size of the Metaverse is growing exponentially, doubling nearly every second year. Here, it is defined “... as the next iteration of the internet, the metaverse is where physical and digital worlds come together” (Statista, n.d.). From USD 19 billion in 2021 to an estimated 100 billion USD in 2026. Following this broad market definition from Statista, we are close to another megatrend, namely *Society 5.0*, as a concept originated from the Japan Cabinet Office. *Society 5.0* is defined as a “... human-centred society that balances economic advancement with the

resolution of social problems by a system that highly integrates cyberspace and physical space” (Japan Cabinet Office, n.d), where cyberspace is equivalent to virtual reality. The last part of the definition, “... a system that highly integrates cyberspace and physical space,” is equivalent to the market perspective on the Metaverse, where the physical and digital worlds come together. Therefore, it can be argued that the Metaverse is the very technology that constitutes the future infrastructure of *Society 5.0*. The logic is, hence, that the Metaverse and *Society 5.0* are two closely related concepts bound by the presence of technological advances such as 6G (Ahokangas, 2023), AR, XR, digital twins, web3, digital assets, NFTs (Schmück, 2023), and Generative AI (Haefner & Gassmann, 2023).

Introducing Society 5.0

Since the early ages, we have seen different archetypes of society that have emerged, mixed with a new archetype, and continued this trajectory, where what was useful was kept, what was no longer functional was abandoned, and what was new was adopted and put in use. The logic with these societal shifts is that new societal movements emerge to solve the problems created within the existing and prior societal forms (Huang et al., 2022).

Society 1.0 is often referred to as the ‘hunter-gatherer society’. This societal form was characterised as a non-productive economy, focusing on gathering food and surviving by finding food, fishing, and hunting. The transition to *Society 2.0* occurred as knowledge was created about agriculture and farming. This societal form is often referred to as ‘the agricultural society’. The logical transition from 1.0 to 2.0 occurred because the hunter-gatherer society could not provide enough food for the increasing population. Therefore, the 2.0 way of living solved the problem that the 1.0 form could not. In the agricultural society, living standards increased as the food supply became self-sufficient. Therefore, new activities came into focus, such as weaving fabrics and creating pottery like in ceramics. In this era, we saw the first industrial revolution with light industry. This development led to a barter economy between large groups of families and settlers.

In the transition towards *Society 3.0* – the ‘industrial society’ – the invention and application of machines and more advanced technology (compared to, e.g., axes, shovels, and needles) began to replace many of the hitherto manual labour processes. Here, we saw the second industrial revolution and the beginning of heavy industry and the use of, e.g., chemicals. Small factories started to sprout, and the Industrial Revolution started with machines and factories, e.g., related to the textile industry. What also occurred in *Society 3.0* was the establishment of critical infrastructure such as ports, railways, and roads and, in addition to this, electricity, water, and sanitary installations in households. Moreover, an essential aspect at this point was that people started gaining rights. At this point, we witnessed the third industrial revolution with the introduction of computers and the Internet to large companies and universities. Currently, we are in *Society 4.0*, ‘the information society’ recognised by individuals having access to their own ICT devices, the development of IoT, automated manufacturing, Machine Learning, and Augmented Reality. These technologies represent the fourth industrial revolution, which is taking place as we write this chapter.

Currently, we can instantly share information, interact, and know what happens when it happens, and it also, to some extent, is possible for us to forecast tendencies. The problems that our way of living in society 4.0 has created are, e.g., a high degree of environmental impact, mass consumption of scarce resources, and nations around the globe, where differences between living standards and quality of life have not developed the same pace as technology (i.e., Japan Cabinet Office, 2016; Gershenfeld et al., 2017; Huang et al., 2022; Breque et al., 2021). The down-prioritised focus – at least in the early stages of *Society 4.0* has led to a new emerging tendency: *Society 5.0*. In the last decade, we have been introduced to the 17 United Nations Sustainable Development Goals, and Japan and the European Commission have put human-centricity on the political agenda for solving the problems we have created ourselves.

Society 5.0 – the super smart society

We currently stand on the edge of a transition towards *Society 5.0*, which is referred to as a ‘super smart society’ (Japan Cabinet Office, 2016; Huang et al., 2022) and ‘the imagination society’ (Keidanren, 2018). *Society 5.0* is, as mentioned, defined as:

“A human-centred society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space.” (Japan Cabinet Office, 2016).

Central to *Society 5.0* is creating a balance between economic development and solving societal issues. The outcomes and potentials associated with *Society 5.0* include improving citizens’ health and well-being, attracting and retaining talent, and ensuring long-term prosperity. The ambition is that it is now time to grab the social aspects of innovation and let both technological- and social innovation co-evolve much closer and better than we have seen until now. Hence, collaboration and co-production have become new ways of working across administrative and sectoral boundaries (Brix et al., 2020). While the *Society 5.0* movement could seem like a far-away abstraction, it is possible already to see tendencies where this ‘new way of working’ is taking place. In the region of Eindhoven in the Netherlands, a range of local companies and organisations from both public, private, and third-sector organisations have created a large-scale collaboration with a shared vision for the region, where close collaboration, common strategies, and alike have been developed to solve the problems of the region, e.g., attracting a critical mass of talents for the tech-companies. This concrete example of a movement that can be defined as a small-scale *society 5.0* is called ‘Brainport Eindhoven (n.d.) – the home of Pioneers’.

With the increasing attention towards the mix of cyberspace and physical space, we already see the Metaverse as an approach to turn data into things and things into data to create more value and better lives (Gershenfeld et al., 2017; Nielsen & Brix, 2023). One of the tendencies that are forecasted to shift

is, e.g., the movement from economies of scale and the efficiency pervasion towards focusing on value-creation in the word's broadest terms. Our evidence for this postulate can be found in the European Commission's policy brief (Breque *et al.*, 2021).

"Industry 5.01 recognises the power of industry to achieve societal goals beyond jobs and growth to become a resilient provider of prosperity by making production respect the boundaries of our planet and placing the wellbeing of the industry worker at the centre of the production process." (Breque et al., 2021, p.14)

Value creation - private value, public value, and outcome logic

While the value-creation construct is a central part of business models in general, where the notion of the value proposition towards the user of a given product/service/technology also plays a central role, and it captures the way value is delivered, captured (Osterwalder & Pigneur, 2010), and according to Nielsen (2023a) also dispersed among the stakeholders of a company. Our logic is that when we apply a Society 5.0 filter on the current understanding of value-creation about business models, we might benefit from applying the distinction between private value and public value (Moore, 1995) and introducing the perspectives of outcome logic (Funnel & Rogers, 2011). The business model innovation process can capture more societal and social nuances if the business model's value construct is further unfolded and elaborated with this inspiration from sociology and political science.

Private and Public Value

The classic distinction between private and public value is that private organisations create private value, for example, growth and new jobs. In contrast, public organisations create public value, such as service delivery to citizens, where the citizens, users of services and alike experience the service(s) to be meaningful and valuable (Moore, 1995). There is, however, more to it than what is stated in this distinction (Try and Radnor, 2007). Our point is that the

business model innovation literature is already enriched by knowledge and intellectual development in the 'private value' perspective, which we have just unfolded above. However, we can potentially find new value-related themes in the business model literature by delving into the literature on public value, co-production, and outcome logic (Durose *et al.*, 2015; Brix *et al.*, 2020). The critical aspect of public value is that organisations who (co-)produce public value, on the one hand, must focus intensely on internal efficiency and effectiveness, implying that waste, in the broadest term, must be avoided. While having this internal focus, it is also essential that the organisation's way of working and what they create live up to the expectations of users (and citizens in general), e.g., related to sustainability, the UN SDGs, and the UN Global Compact. Therefore, the same organisations, on the other hand, must ensure that the services (and the artefacts related to these) they make available are relevant and valuable to the citizens and users (Colon & Guérin-Schneider, 2015). The logic is that no one is better off with services that do not work or matter. As a third parameter, this implies that organisations must continuously evaluate if and how they live up to their strategies and what they have promised in these strategies, and also - ideally typically - to include users in this evaluation (Moore, 2019). The premise for this perspective is that if the organisation does not live up to its promise, or if the users or citizens, in general, are sceptical in this regard, value conflict or perhaps even value destruction could potentially occur (Nabatchi, 2018). This implies that organisations must unfold critical outcome logic explicitly related to the value creation expected to materialise in their business model.

Outcome logic

An outcome logic - also known as the effect logic - is an explicit account of not only the concrete output that is created because of a range of activities (e.g., a product) but also the effect that this product will have on the medium and long term on the users, on the environment, socially, etc. (Pawson & Tilley, 1997; Kringelum & Brix, 2020). Our point is that when political ambitions such as the definitions found by the European Commission stage well-being, etc., explicitly, it is also essential that organisations start including this line of thinking in their business

¹ The European Commission's policy brief does explicitly mention Society 5.0

Table 1.

Output (short term)	Outcome Short term	Outcome medium term	Outcome long term
A product is produced, e.g., a hearing aid	The hearing aid is sold/ given to a user. The user starts hearing (better), experiences to be better included in conversations, and perhaps also feels safer when walking because of warning sounds might better be heard.	The user might find it easier to socialise in general and take more active part in sports, and / or other hobbies, and hence increase the feeling of inclusion in local community.	The user's individual well-being is increased, s/he becomes physically and mentally healthier and the degree of democracy is higher since the user can engage in dialogue easier than before.

Table 1: An illustrative example of an outcome logic (Source: Authors' development)

models and reporting, perhaps as a new accountability measure. Table 1 gives an illustrative short example of an outcome logic for inspiration.

We believe that adding a public value outcome logic when revisiting existing business models or recognising opportunities for new business models is a relevant and potentially soon-required avenue.

Analysis: BM perspectives on the Metaverse and Society 5.0

We are currently leaping into a super-smart and human-centred society. An essential aspect of this definition is the focus on 'highly integrating cyberspace and physical space', where the Metaverse plays a key role cf. our perspectives above. In Society 5.0, the digital and real-world interact – this is the Metaverse. The digital and real-world interactions play a vital role in the transformation towards Society 5.0 in several ways. Regarding personalisation, the Metaverse can be used to create tailored experiences for individuals in, for example, healthcare, education, and entertainment. The Metaverse can also play a role in reducing our environmental impact through virtual meetings, conferences, or virtual experiences instead of travelling.

Regarding inclusivity, the Metaverse can be used to make our society more inclusive and accessible to everyone. For example, people with disabilities could participate in activities they would otherwise be unable to do through Metaverse technologies. Overall, the Metaverse has the potential to play a significant role in helping to create a more human-centred, sustainable, and inclusive society. The Metaverse and Society 5.0 also focus on how technology improves people's lives and creates a better world.

As argued above, the Metaverse is the future infrastructure of Society 5.0 and, thus, also a system needed to operate and communicate in Society 5.0 and its businesses. From a communication science perspective, the following accumulative progression from Society 1.0 to 5.0 can be argued regarding society format, communication activity, involved parties in communication, spatial distance, and infrastructure.

The ambition is not a media historical contribution, as this is a well-established field (e.g., Finnemann, 2005). This article investigates the framing of Society 5.0 and its infrastructure according to business models. To this end, we leverage the nine elements of Osterwalder and Pigneur's Business Model Canvas (BMC) for developing, describing, and analysing

Table 2.						
Society	Society format	Activity	Involved	Spatial	Value	Infrastructure
1.0	Hunter-gatherer	Speak	Person-to-person	Close	Prey & plants	Air
2.0	Agrarian	Write	Person-to-person	Distant	Yield	Postal
3.0	Industrial	Print	Person-to-people	Distributed	Goods	Publishers
4.0	Information	Browse	People-to-people	Digital	Service	Internet
5.0	Smart	Immerge	Als to people	Virtual	Intelligence	Metaverse

Table 2. Cross-tabulation of society-format and media history. (Source: Authors' development)

business models: Customer segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, and Cost Structure (Osterwalder & Pigneur, 2010).

We argue that each of the nine BMC elements has different qualities regarding success in different society formats. The method is thus inductive, as we from business history know the accumulative qualities from Society 1.0 to 4.0, and we use this knowledge to extrapolate suggestions for accumulative business model qualities in the upcoming Society 5.0. The suggested general qualities, both from history, today, and in the future, are suggestions and, thus, to some extent, examples that can be debated. The contribution is an imaginative framework for developing business models for Society 5.0 with the Metaverse as the most important communication infrastructure. In the following, we give examples of each element from the business model canvas.

Customer segments

They identify the different groups of people or organisations a business aims to serve. The customer

segments align with the involved and spatial columns from Table 2. In the hunter-gatherer Society 1.0 with close person-to-person involvement, customer-to-customer (**C2C**) models were the norm. The agrarian Society 2.0 extended this to distant person-to-person involvement, allowing business-to-customer (**B2C**) models to be developed. Then, with the industrial Society 3.0 with distributed person-to-people (one-to-many) involvement, a market for business-to-business (**B2B**) arose. Moreover, with the information Society 4.0, online people-to-people (many-to-many) involvement is leveraged for platform economy with hybrid forms of earlier business models such as business-to-business-to-customer (**Hybrid**) models. Because AI is involved in communication in the Metaverse, we will see **AI-2-Hybrid** models emerge in the smart Society 5.0.

Value Proposition

The unique value that a business offers to its customers. Generally, this follows the primary exchanged values of different societies outlined in Table 2. In the hunter-gatherer Society 1.0, the value was natural resources in the form of prey and plants, and the value proposition for offering this was simply

survival. In the agrarian Society 2.0, the value was cultivated resources in the form of yield from, e.g., farming and mining, resulting in **quantity** as an emerging value proposition. In industrial Society 3.0, where the value was in mass-produced goods, **convenience** emerged as a value proposition. Today, in information Society 4.0, where value comes in the form of services, the value proposition is **transformative**. Taking this further into the smart Society 5.0, where the value is intelligence, whether artificial, human, or hybrid, the value proposition will be different forms of **meaning**, probably in the form of artificial or mixed minds. Another essential aspect that will become increasingly important is the dual focus on both private value and public value and the ability of (and expectations too) organisations to operationalise the outcome logics of how their supply impact business, society, and wellbeing.

Channels

The various ways a business delivers its value proposition to customers. In general, the channels align with the customer segments of the societies. In the hunter-gatherer Society 1.0 with C2C businesses, the channels were **personal**. This evolved into **markets** as a new general channel where business owners could sell directly to customers (B2C) in seasons when yield was harvested. The following industrial Society 3.0 with mass-produced goods was not season-dependent, and thus, permanent **shops** for B2C became the norm. Today's information Society 4.0 is characterised by the exponential growth of internet trade through **online** channels with hybrid business models such as platforms for sharing economy. From the definition of Metaverse with many virtual spaces primarily owned by different businesses (Teichmann, 2023), a **virtual space** will probably be the future primary channel for AI delivering value propositions to hybrid customer segments.

Customer relationships

The type of relationship a business establishes with a customer. Customer relationship is generally aligned with the channels that characterise a society. In the hunter-gatherer Society 1.0, personal channels were established as **ad hoc** customer relationships. Later, in the agrarian Society 2.0 with marketplaces, customer relationships were

established through **merchants**. In the industry Society 3.0 with shops, customer relationships are established through shops offering **standard** goods. Today, in Information Society 4.0, mass **customised** services are expected. Following this forward, channels for mass-individualised **tailor-made** offers will be expected.

Revenue streams

The way a business makes money from its customers. The revenue stream generally aligns with the society format and value from Table 2. In the hunter-gatherer Society 1.0, where prey & plants were valued, money or income, or broader speaking revenue, was generated from **barter**. Trade generated revenue in the agrarian Society 2.0, where yield was valued. Later, **delivery** generated revenue in the industrial Society 3.0, where goods were valued. In today's information Society 4.0, where services are valued, **subscription** generates revenue. Following this into the smart Society 5.0, where intelligence is valued as a commodity, revenue will be generated by artificial or hybrid **minds**.

Key resources

The critical resources required to operate the business, deliver the value proposition, maintain customer relationships, and achieve profitability. The essential resources are aligned with the source of the value from Table 2. So, in the hunter-gatherer Society 1.0, the source of prey & plants was **nature**, thus the critical resource. Later, in the agrarian Society 2.0, the source of yield was **cultivated** nature as the key resource. Then, in Industrial Society 3.0, the source of goods was the **factory** and thus the key resource. Today's information Society 4.0 is characterised by services, where the source for this is **data** as the key resource. Taking this further into the smart Society 5.0, where the value is intelligence, the source is **algorithms** generating information as the key resource.

Key activities

The essential activities or operations required to achieve the business objectives. This aligns with how key resources are leveraged to create value propositions. In the hunter-gatherer Society 1.0, the key activity **hunt & collect** created the value proposition of survival in nature. In the agrarian Society

Table 3.

Business model elements	Society 1.0 Hunter-gatherer	Society 2.0 Agrarian	Society 3.0 Industrial	Society 4.0 Information	Society 5.0 Super Smart
CUSTOMER SEGMENTS	C2C	B2C	B2B	Hybrid	AI-2-Hybrid
VALUE PROPOSITION	Survival	Status	Convenience	Transformative	Meaning
CHANNELS	Personal	Markets	Shops	Online	Virtual space
CUSTOMER RELATIONSHIPS	Ad hoc	Merchants	Standard	Customized	Tailor-made
REVENUE STREAMS	Barter	Trade	Delivery	Subscription	Minds
KEY RESOURCES	Nature	Cultivated	Factory	Data	Algorithms
KEY ACTIVITIES	Hunt & collect	Extracting	Producing	Analysing	Sensing
KEY PARTNERSHIPS	Tribes	Guilds	Value chains	Ecosystems	Ecospheres
COST STRUCTURE	Health	Workers	Material	Computing	Mental

Table 3: Summary of business model analysis of Society 5.0 (Source: Authors' development)

2.0, where the key resources were cultivated, the value proposition of status was created through the key activity of **extracting** yield from e.g., farms or mines. Then, in industrial Society 3.0, the key activity became **producing** goods from factories, hence creating scales of economy and lower costs that made it possible for more consumers to afford such goods as the value propositions. In today's information Society 4.0, where the value proposition

is transformative, the key activity is **analysing** key data resources. Projecting this into the smart Society 5.0 where the key resources are algorithms, the value proposition is meaning created by **sensing** as the key activity.

Key partnerships

The organisations, suppliers, or other entities a business collaborates with to achieve its objectives.

In general, the key partnerships are aligned with the governance behind the performance of key activities leveraging key resources. To this end, the hunter-gatherer Society 1.0 was characterised by **tribes** as the key partnerships protecting its members and a platform for organising hunt & collect from nature. Then, in the agrarian Society 2.0, key partners were organised in **guilds** developing and sharing methods of extracting from a cultivated nature. In the following industrial Society 3.0, key partnerships were organised in **value chains**. Today, in the Information Society 4.0, value chains have emerged into value systems as loosely coupled value chains, also termed **ecosystems**, where key partnerships are configured to leverage data for analysis. Extending this thinking into the smart Society 5.0 with loosely coupled ecosystems (see also Lingens 2023 and Ricart, 2023), resulting in ecosystems of ecosystems, also termed **ecospheres** (Rosenstand, 2021, 2023), where platforms for partnerships are configured to leverage algorithms.

Cost structure

The significant costs and expenses associated with operating the business. This aligns with the prerequisite for the key activities. In the hunter-gatherer Society 1.0, the prerequisite for hunt & collect was physical **health** as the cost structure. Then, the cost structure became **workers** as the prerequisite for extracting in the agrarian Society 2.0. The following industrial Society 3.0 cost structure was raw **material** as a prerequisite for producing goods. In today's information Society 4.0, digital **computing** is the prerequisite for analysing data. Taking this further into the smart Society 5.0, the prerequisite for sensing is a healthy human and artificial psyche - **mental health**.

Summary of historical ideal types of business model components throughout time

Summarising the logic and perspectives from section 4.1, the following patterns emerge in Table 3.

Discussion and Implications

The section discusses and provides implications to our article's research question, 'How should

companies think and do business model innovation in the Society 5.0 and the Metaverse space? We discuss four relevant business model innovation trajectories based on articulations of the Metaverse and Society 5.0 and our illustration of how they are connected to key business model elements.

The Metaverse as a space to create (new) business

Leaning on the above analysis, successful business model innovation in Society 5.0 will need to provide meaningful value propositions in virtual space(s). The logic is that customers are increasingly entering virtual reality where new offerings are made, e.g., it is possible to check out a rental apartment from the other side of the globe before accepting the lease. We also see that some customer segments are adopting hybrid versions of former physical products/services when offered. In the Central Region of Denmark, a theatre has started using virtual reality as part of the physical performances, where VR goggles are used by the audience to 'travel back in time' and experience past local historical events. This implies that successful value propositions must simultaneously be viable in the real world and be created to allow for integration in cyberspace or vice versa. Computational power, AI, and AR (and other new technologies) will be able to create tailored individual solutions and experiences in real time for customers in virtual spaces. Revenues, too, will be challenged. They will be algorithm-based, and factoring in technology, pay-per-use or pay-per-intensity and pay-per-calculated satisfaction will be viable revenue models.

In Society 5.0, technology plays a positive role in the planet's and citizens' wellbeing. It can create proximity in mixed spaces, ensuring access and affordability to different geographies and customer segments. In the future, the Metaverse, using these mechanisms, can also improve citizen engagement and democratic processes, which are at the core of Society 5.0.

Implications for managers

Based on these perspectives, we claim that managers must consider value propositions that are created in the virtual space or are accessible through both real and virtual channels, and they should consider

how the virtual and real access channels enrich one another rather than cannibalising each other (see also Nielsen & Lund, 2018).

Articulation of outcome logics

Pressures to document private and public value outcomes are well underway (Breque et al., 2019) and will be significant in the entrance to Society 5.0. Understanding and showcasing concrete examples of outcome logic associated with activities in business and how they form business model innovation will become strategic success parameters, especially in recognition of opportunities for new business models (Brix & Jakobsen, 2015). Outcome logic includes a focus on welfare and the health and well-being of citizens, of which the technologies that enable the Metaverse, such as 6G, AI, and digital twins, will be pivotal. Outcome logic will also be a game-changer in repurposing products and services for society and the environment.

Implications for managers

Based on these perspectives, we claim managers must consider citizen-inclusive business model innovation with a net-positive societal outcome.

From ecosystems to ecospheres

DLT and NFTs, including Blockchain technology, will create ecosystem interdependencies that can become trusted and distributed, e.g., ecospheres (Rosenstand, 2023). Lock-in effects for customers are a vital value driver in many current business model configurations (Taran et al., 2016), which will be mitigated with these new technologies. In such a situation, companies will need to create business models that are less dependent on close relationships (Peronard & Brix, 2018), or they will need to create additional interactions to mitigate the associated risks. NFTs and the Metaverse complicate the organisation and governance structure. First, platforms and ecosystems disrupted incumbent and non-digital firms concerning business model innovation. Now, we have the Metaverse and NFTs disrupting platform business models and making ecosystem management and governance difficult.

The Metaverse and NFTs can enable democracy and democratic processes by helping societies

with more accessible and more convenient access to knowledge, platforms, and business-to-business ecosystems. From an ecosystem perspective, business model innovation must focus on joint value propositions that draw the customers into the ecosystem, where several firms jointly meet the customers' jobs to be done (Christensen, 2016).

Implications for managers

For business model innovation, managers must leave behind the perspective of their firm as the central node. Also, the availability of smart technologies, instant connection, communication, and computational power will enable solutions with individual utility.

Normalising new currencies

In the virtual space, it is not given that only traditional currencies will flow as part of the revenue streams between organisations and their customers. Adopting new and safe payment methods will open new markets and transactions. NFTs provide digitally compliant trustees for monetary transactions, and blockchain offers digitally compliant trustees with data.

Implications for managers

Based on these perspectives, we claim that managers must enable the creation of business models where blockchain and NFTs are standard components in linking individual consumers to value offerings from ecosphere-based, and often virtual, "producers".

Conclusion

This article articulated how companies should think and do business model innovation in Society 5.0 and the Metaverse space. The theoretical implications of our discussions point towards several aspects that need further scrutiny. Business model innovation researchers should study how value propositions in the Metaverse evolve and how they factor in the potential cannibalisation of different access channels. Also, the effects of DLT and NFTs on customer lock-in are valid for further probing because the lock-in effect has been crucial to so many successful business model innovations in the last decade. Also,

future research trajectories will welcome the theorisation of business models in ecospheres. The implications for managers are that many rules of thumb and good examples of the last period might offer different probabilities of success in the Metaverse or Society 5.0.

The metaverse is a new and rapidly developing arena full of novel technologies that managers, academics, or consumers still need to develop or understand fully. This poses challenges. The Metaverse requires a significant amount of computing power and bandwidth. This means that there are issues of accessibility but also sustainability in terms of energy use. In addition, the Metaverse raises concerns about privacy and security. For example, how will consumer data be collected and used? How will users be protected from harassment and abuse? Finally, it needs to be clarified how the Metaverse should be regulated (Nielsen, 2023b).



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De-internationalisation, Re-internationalisation and Business Model Innovation: Exploring the Intersection

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Abstract:

This article explores firms' de-internationalisation and re-internationalisation through the lens of business model innovation. The purpose is to uncover the potential of business model innovation to enrich firms' understanding of the reasons behind de-internationalisation and inspire their endeavour to re-internationalise. This article contributes to the research of this intersection. It supports practitioners in enhancing their decision-making by applying business model innovation lenses to their international business activities. Finally, it suggests and encourages further research of this scarcely researched intersection.

Introduction

Volatility, uncertainty, complexity, and ambiguity (VUCA) permeate today's hyper-competitive world (Massa 2023; Taran, 2023) - and are here to stay. Managing firms in the VUCA world has never been more challenging (Economist, 2021), especially considering recent global crises and pandemics (Aagaard & Nielsen, 2021). The VUCA setting and the hyper-competitive world dramatically affect

internationalising firms' cross-border capacities and operating business patterns (Petersen & Welch, 2003; Welch & Luostarinen, 1988). Internationalising firms experience rapid expansions into international markets and equally fast and abrupt withdrawal or de-internationalization from their international markets or business operations.; some even contemplate re-internationalise. Under such circumstances, firms' cross-border capacities and

Keywords: Business Model Innovation, Internationalization, De-internationalisation, Re-internationalisation, International Business

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respective operating business patterns shall be continuously revised and adapted. This is expected to be one of the major challenges for achieving successful business model innovation (BMI) in the future (Nielsen, 2023). We maintain that BMI is important in internationalisation processes. Internationalisation, de-internationalisation, and re-internationalisation are all types of firms' cross-border or international business activities (Turcan, 2003; 2006). In our article, we adopt this view and apply it to our analysis of how business model configuration can help enhance our understanding of why and how firms de- and re-internationalise.

However, the research on the intersection of firms' international business (internationalisation, de-internationalisation and re-internationalisation) activities and business model innovation is still in its infancy (Nielsen et al., 2021; Sort et al., 2021). This article aims to shed some light on this intersection by enhancing the current theoretical and practical understanding of firms' de-internationalisation and re-internationalisation through the lenses of BMI and setting an agenda for future research. Initially, BMI and a typology of de-internationalisation are introduced before a discussion of reasons for de-internationalisation (e.g., Bernini et al., 2016; Berry, 2013; Dachs et al., 2019; Konara & Ganotakis, 2020; Mohr et al., 2018) is presented. In the following section, the BMI logic is applied to this process in investigating *how* firms can re-start their international growth and cross-border activities through various re-internationalisation strategic postures (e.g., Bernini et al., 2016; Chen et al., 2019; Javalgi et al., 2011; Surdu et al., 2019; Welch & Welch, 2009) that are enabled by a BMI logic. Or how BMI can be an essential part of firms' understanding and ability to succeed in their de- and re-internationalisation efforts.

Business Model Innovation

Historically, the fundamental concepts of innovation have been focused on product, process, and organisational innovation (Keeley et al., 2013). Only recently has BMI emerged as an equally robust framework for understanding product, process, and organisational innovation (Massa & Tucci, 2013), although it has

been identified as a space of relatively high-value creation (Nielsen, 2017). BMI has the potential to be a game changer in the competitive landscape (Massa and Tucci, 2013) and could have a higher impact than traditional product, process, or organisational innovation (Keeley et al., 2013) since the empirical reality has shown how BMI can *disrupt* organisations and industries (Hwang & Christensen, 2008; Vesti et al., 2017). Furthermore, BMI is a pivotal component in building new capabilities in an organisation (Foss, 2023) and connection with business development, BMI has been shown to improve firms' decision-making and strategic choices (Ricart, 2023).

Today, BMI is a significant competitive advantage and cause of future benefits (Massa & Tucci, 2013; Taran et al., 2022). It has also started to spur interest in international business and how firms could use BMI as a model or pattern for the global success of the firm (García-Álvarez & Ramírez-García, 2019; Guercini and Milanese, 2017; Rask, 2014). Most BMI studies focus on success stories in gaining significant firm growth in existing and new markets. The BMI Research on firms' decisions to de-internationalise, willingly or forcefully, partly or wholly, is scarce, and the BMI research on firms' re-internationalisation is non-existent.

De-Internationalisation

"Our single-minded concentration on internationalisation ignores a key fact of reality, that firms also 'de-internationalise' frequently" (Devinney et al., 2013, p. 81). Indeed, compared to internationalisation, de-internationalisation is a less researched and understood phenomenon, while most scholars virtually ignore re-internationalisation. Nonetheless, there is some interest in *de-internationalisation* and *re-internationalisation* of the firm (e.g., Kafouros et al., 2021), *modes and reasons* for de-internationalisation, such as *de-exporting*, *de-franchising*, *de-investment and back-shoring* (e.g., Bernini et al., 2016; Berry, 2013; Dachs et al., 2019; Fraser, 2001a; Konara & Ganotakis, 2020; Mohr et al., 2018; 2020; Soule et al., 2014; Tang et al., 2021; Turcan, 2006) and *re-internationalisation* (e.g., Bernini et al., 2016; Chen et al., 2019; Javalgi et al., 2011; Surdu et al., 2019; Welch & Welch, 2009).

The idea for the de-internationalisation of firms was introduced by Welch and Luoastarinen (1988), who argued that there was no inevitability about the continuance of the internationalisation process. The first attempt to define de-internationalisation was made by Benito and Welch (1997, p. 9) as “any voluntary or forced actions that reduce a company’s engagement in or exposure to current cross-border activities”. This definition poses several challenges. Indeed, a firm’s engagement in or exposure to international or cross-border activities may be reduced due to de-internationalisation. However, de-internationalisation may also lead to an increase in the firm’s concentration in or exposure to cross-border activities (e.g., Turcan, 2006; Chen et al., 2019), eventually contributing to an increase in the firm’s overall growth. Such expectations from de-internationalisation activities that (may) diminish a firm’s engagement in or exposure to cross-border activities imply that de-internationalisation is a harmful and undesirable phenomenon (Benito & Welch, 1997) and perceived as a failure, as opposed to internationalisation that is seen as growth. These (perceived) negative properties of de-internationalisation make it undesirable or inconvenient to research, producing sample selection bias when only successful firms are analysed (Turcan, 2006; Turcan et al., 2010). The latter approach, unfortunately, dominates current research.

Why Firms de-Internationalise

Before we discuss why firms de-internationalise, we will focus briefly on ‘context’ and ‘modes’ of de-internationalisation. To understand the context within which firms de-internationalise (and eventually re-internationalise) and, hence, the motives, it is pivotal to clarify what we mean by it. This article defines context as “situational opportunities and constraints that affect the occurrence and meaning of organisational behaviour as well as functional relationships between variables” (Johns, 2006, p. 386). Within this defined scope of context, we view de-internationalisation (and re-internationalisation) as dependent on the firm’s context-tailored organisational *gestalt* that consists of mutually supportive organisational system elements combined with

appropriate resources and behavioural patterns (Covin & Slevin, 1997) and *dominant logic*: a way in which decision makers conceptualise their business and make critical resource allocation decisions (Prahalad & Bettis, 1986). Once established and pursued, a firm’s context-tailored organisational *gestalt* and dominant logic can act as a *trap* (Chesbrough, 2003) or *blinder* (Prahalad, 2004), preventing the firm from changing and unlearning its internationalisation organisational *gestalt* and dominant logic and eventually to de-internationalise.

Understanding *how* firms de-internationalise further contributes to our understanding of *why* firms de-internationalise. This relation comes to the fore, especially when we take into account the inverse relationship between (i) de-internationalisation and internationalisation (Benito & Welch, 1997) and (ii) agility and entrapment (Turcan, 2013). In discussing de-internationalisation modes, we draw on Benito et al.’s (2009, p.1458) definition of foreign operations modes as “the organisational arrangements that a company uses to conduct international business activities.” We also build on Turcan (2013) and Casson (1986), who conceptualise de-internationalisation as a *turning point* and *error-correction mechanism*, respectively. Intersecting international business and business model literature, we extend Turcan’s (2006, p. 33) framework of modes of de-internationalisation (Figure 1). Firms that partly withdraw from a foreign market can optimise (i) their operations in that market, (ii) the number of their foreign markets, and (iii) their entry modes, switching to the ones that entail a lesser risk, cost, and commitment. A firm may optimise its operations in a foreign market through new value offerings, ways and forms of organising, or social capital (Mellahi, 2003; Palmer & Quinn, 2007; Pauwels & Mathyseens, 1999; Turcan, 2006; Turner & Gardiner, 2007). It is also essential to distinguish between the de-internationalisation of ownership and the de-internationalisation of control (e.g., Casson, 1986). Firms may optimise their foreign markets by backshoring and re-shoring (Bals et al., 2015; Dachs et al., 2019; UNCTAG, 2013).

As to the exit modes, a firm may decide to de-invest, de-franchise, or de-export. De-investment

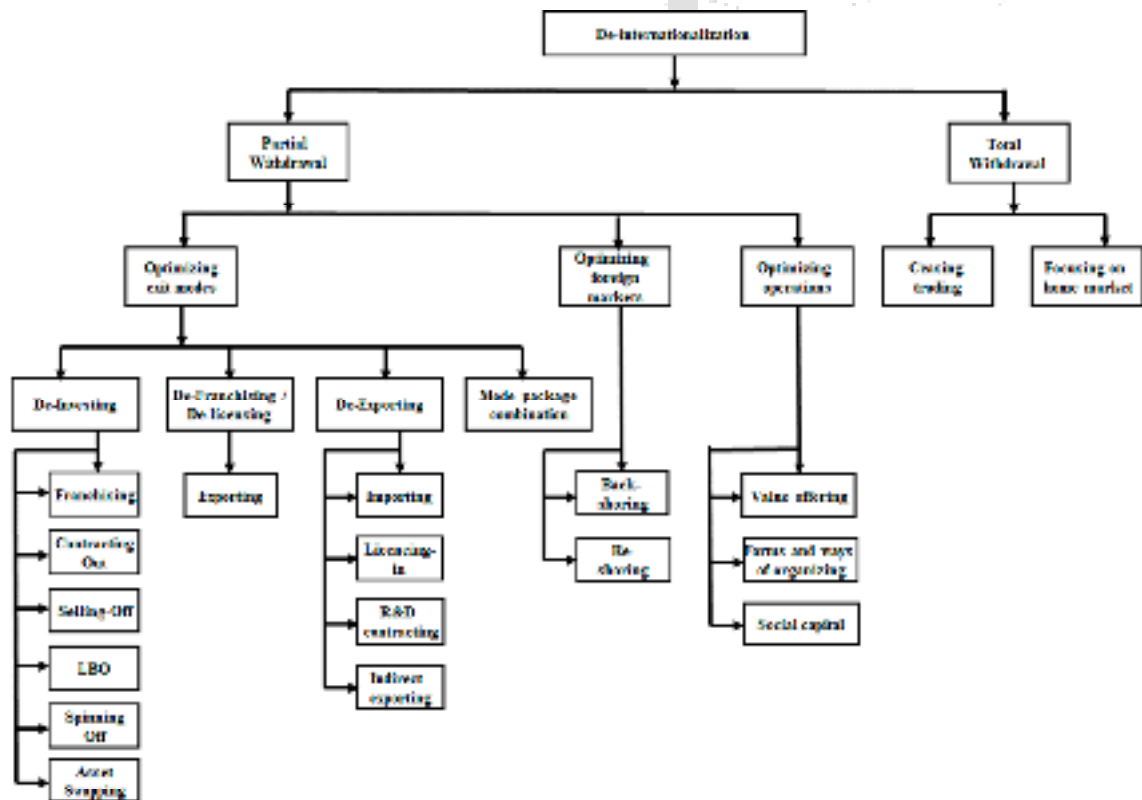


Figure 1: Modes of de-internationalisation (Source: Adapted from Turcan (2006; 2013) and enhanced)

can be achieved through franchising, contracting out, selling-out, leverage buy-out, spin-off, or asset swap (Berry, 2013; Konara & Ganotakis, 2020; Coyne & Wright, 1986; Mohr et al., 2018; Soule et al., 2014; Turcan, 2006). From franchising (or licensing), a firm may switch, for example, to exporting (Fraser, 2001b) and from exporting to importing, licensing-in, and R&D contracting (Bernini et al., 2016; Chen et al., 2019; Crick, 2004; Jones, 1999; Pauwels & Mathyseens, 1999), in-direct exporting and trade in value-added (OECD, 2018). Considering what Benito et al. (2009) call mode package and mode package change are also pivotal. For example, Benito et al. (2009) use the word “de-emphasise” (p.1461) when discussing changes from a joint venture to licensing and exporting. These authors also advance the concept of mode dynamics to emphasise that the modes “evolve in response to foreign market involvement and developments over time, displaying the characteristics of evolutionary dynamics” (Benito et al., 2009, p. 1464).

International business literature distinguishes between external and internal factors that drive firms

to de-internationalise (Benito & Welch, 1997; Tang et al., 2021; Welch & Welch, 2009). A recent thematic review of 218 de-internationalisation articles by Tang et al. (2021) offers a glance at these drivers. For this article, to illustrate how de-internationalisation can be linked to re-internationalisation via business model configuration logic, we randomly selected recent (from 2000) empirical papers from the Tang et al. (2021) list of articles to identify internal and external drivers of de-internationalisation; the selected papers are presented in Table 1.

The review by Tang et al. (2021) emphasises macro, micro and cultural factors as *external drivers*. According to our brief survey, the following external factors emerged that drive de-internationalisation: changes in national legal and normative environments, e.g., exchange rates, tariffs, inflation, and ownership structures; cultural differences and physical distance; maturity of the offer in the target market; increased attractiveness of the home or close to home markets; increased production and transportation costs; quality and availability of labour; and collaboration constraints with and low quality

Table 1.

Internal drivers

Change of ownership	Kim et al, 2019; Mohr et al., 2018
Decreased quality/profitability of the offer	Grappi et al, 2018; Tan and Sousa, 2018
Intangible assets (both quality and quantity)	Delios and Beamish, 2001
Lack of innovation	Sui and Baum, 2014
Lack of international experience	Mohr et al, 2018
Lack of technological/technical capabilities	Giarratana and Torrisi, 2010
New, more efficient production/technology	Shaver and Flyer, 2000; Sui and Baum, 2014
Under performing subsidiaries	Tan and Sousa, 2018

External drivers

Changes in national legal and normative environments (exchange rates, tariffs, inflation, ownership structures)	Berry, 2013; Dhanaraj and Beamish, 2004; Fernandez-Mendez et al., 2019; Gaur and Lu, 2007; Hennart and Zeng, 2002; Jiang et al., 2015; Zschoche, 2016
Collaboration constraints (OEMs, VCs)	Kim and Kim, 2018; Turcan, 2006
Cultural difference/ physical distance	Malik and Zhao, 2013; Tjemkes et al., 2012
Increased attractiveness of the home market	Depecik et al, 2014
Increased production and transportation costs	Pal et al., 2018
Lack/poor performance of suppliers and/or distributors	Shaver and Flyer, 2000
Maturity of the product in the target market	Turcan, 2006
Quality and availability of labour	Sui and Baum, 2014; Zschoche, 2016

Table 1: De-internationalisation drivers

or performance of value chain partners, e.g., OEMs, VCs, suppliers, and distributors. It has to be noted that Tang et al.'s (2021) review included the 'quality of partners' as an internal driver for de-internationalisation. We, instead, consider the 'quality of partners' as an external factor.

Regarding *internal drivers*, the review by Tang et al. (2021) identifies the speed of internationalisation, product diversification, corporate governance and ownership, and poor subsidiary performance that drive firms to de-internationalise. A few additional internal drivers emerged as a result of our survey. These are decreased offer quality, lack of international experience, and lack of technological and technical capabilities. Innovation also emerged as an internal driver but as a double-edged sword. On one side, lack of innovation has been identified as an internal factor to de-internationalise; on the other, innovation resulting in more efficient production and technology is also seen as a de-internationalisation driver.

How firms learn and utilise their prior de-internationalisation experience and related knowledge to consider new re-internationalisation postures remains an unexplored area (Bernini et al., 2016) but is a critical question to address. Dachs and Zanker (2014), for example, found similarities between internationalisation and de-internationalisation motives related to quality, flexibility, capacity utilisation, transportation and coordination costs, lack of infrastructure, labour cost and its quality; lack of know-how and vicinity to R&D. Yet, here too, understanding the relationship between internationalisation and de-internationalisation drivers still awaits further exploration and validation. The intersection of the two is mainly unexplored research and practice areas: (i) internationalisation and de-internationalisation drivers, and (ii) de-internationalisation and re-internationalisation reasons and possible solutions. To start bridging this second research gap, in linking de-internationalisation reasons with possible re-internationalisation solutions, we build on the business model research to assist researchers in understanding how firms may innovate and renew their existing businesses by designing entirely new business models or by re-configuring the existing

structures (Massa & Tucci, 2013; Osiyevskyy & De-wald, 2015).

A business model perspective on de-internationalisation and re-internationalisation

Re-internationalisation of the firm will depend at least on three key factors: 1) the firm's experience and learning from its de-internationalisation, 2) the nature of new (international) business opportunities, and 3) its readiness (incl., cross-border capacities and operating business patterns) to act on these new opportunities. To re-internationalise, firms may pursue the following distinctive paths:

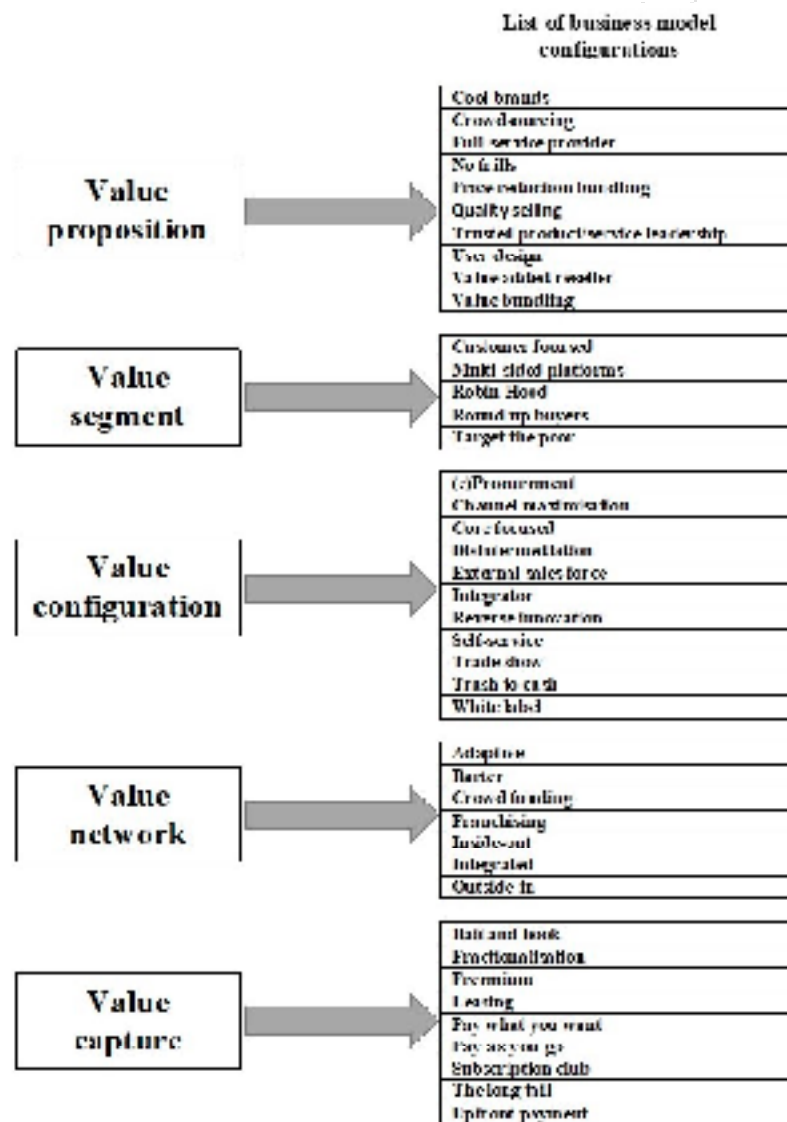
- *Imitate previous internationalisation* (incl., organisational gestalt and dominant logic), assuming that respective 'contexts' have changed.
- *Imitate previous internationalisation* (incl., organisational gestalt and dominant logic), assuming that respective 'contexts' have not changed (e.g., 'spooked,' a firm may commit too early to de-internationalisation – error of commission – and realising this error, decides to re-internationalise, imitating previous internationalisation attempts assuming the context has not changed).
- *Partially imitate previous internationalisation*, adding new (or modifying existing) forms and ways of organising, including new organisational gestalt and dominant logic.
- *Design an entirely new organisational gestalt and dominant logic* previously unknown to or untried by the firm.

From the business model perspective, these paths could be conceptualised as "business model re-configuration" (Massa & Tucci, 2013) and ways of innovation through imitation (Foss & Saebi, 2017). To understand how to reconfigure a business model, it is pivotal to understand first how it is theorised. Over the past decade, a growing interest has been in identifying successful business model process configurations (or patterns) across different industries. Identifying these configurations suggests that decision-makers prefer to have business model process "recipes" that could be generalised to develop

successful businesses (Pateli & Giaglis, 2004). These recipes, or ideal types, aim to describe the behaviour of firms with specific process characteristics operating in the real world, providing managers, practitioners, and academics with ‘formulas’ that have already been tried and tested in practice (Fielt, 2014; Taran et al. 2016, 2021).

Osterwalder and Pigneur (2010). (see also Gassmann et al., 2014) introduced four value categories to aid the analysis of business models. These are *value*

offer, what the firm is offering; *to whom the firm creates value*, who are the customers and how the value offer is delivered to them; *value infrastructure*, how the firm is structured in “building” the value offer; *profit formula*, how the firm creates more revenue than expenses. For this article, we will use a recent framework put forward by Taran et al. (2016; 2021), who define and conceptualise five value areas, or five V’s, to analyse a business model (Figure 2): *Value Proposition*; *Value Segment*; *Value Configuration*; *Value Network*; and *Value Capture*.



Note: We categorised business model configurations using scale model terminology extensively used in the existing business model literature (e.g., Johnson, 2010; Gassmann et al., 2014). We have chosen configurations from the list of 71 configurations provided by Taran et al. (2016) (compared to Gassmann et al. (2014), who operate with 55 configurations) based on the reasons for de-internationalisation shown in Table 1.

Figure 2: Five-V business model reconfiguration framework

Value proposition: a firm's offer of products and services that satisfy customers' needs and that customers are willing to pay for (Chesbrough & Rosenbloom, 2002; Osterwalder & Pigneur, 2010). An example of such a value proposition is 'no frills' (Figure 2), where a firm will attempt to offer a lower price or service than traditional offerings, which could relate to the BMC of Ryanair.

Value segment: It is a customer segment (or segments) a firm aims to serve and how it intends to establish customer relationships (Chesbrough & Rosenbloom, 2002). In Figure 2, 'round up buyers' exemplifies this value, where buyers are 'rounded up' to gain purchase discounts and thereby attractive prices; this example can be found in the BMC of Costco.

Value configuration: It is a mix of critical resources which enable the firm's key activities that create, produce, and deliver the value proposition effectively to the target value segment(s) (E.g., Chesbrough and Rosenbloom, 2002; Stähler, 2002), and the cost structure needed to make the business model work. 'External sales force' is an example (Figure 2), where a firm will use direct sales through an external sales force to enhance its sales, as seen in the BMC of Tupperware and Vorwerk.

Value network: It is a network of partners who engage in different types of cooperation with the firm to achieve economies of scale or scope, risk reduction, and tap into new knowledge or resources (e.g., Chesbrough and Rosenbloom, 2002; Hamel, 2000; Osterwalder & Pigneur, 2010). 'Franchising' (Figure 2) is where the owner will license their product and service to a dealer (franchisee). Examples of this BMC can be found in McDonald's and Starbucks.

Value Capture: How and how much the customers pay for the products/services delivered (Baden-Fuller & Haefliger, 2013; Baden-Fuller & Morgan, 2010; Chesbrough & Rosenbloom, 2002; Osterwalder & Pigneur, 2010). In Figure 2, 'Freemium' illustrates 'value capture,' where customers are offered the primary offering for free but pay for more features. Such 'Freemium' value capture can be found in the BMC of Skype, LinkedIn, and Youtube.

It is important to note that the list of business model configurations in Figure 2 is inspirational and not a complete list of all possible solutions. Still, it aims to inspire how the value areas are understood and how business model configurations work. At the same time, value areas and their configurations can inspire researchers and practitioners to understand how de-internationalisation can be linked to re-internationalisation via the value areas and BM configurations; Table 2 illustrates this relationship (Table 2).

Understanding and learning from their de-internationalisation contexts, including de-internationalisation reasons (the left side of Table 2), firms can employ the value areas (the middle of Table 2) to re-configure their business models and eventually re-internationalise (the right side of Table 2). For our article, on the left side of Table 2, we present the reasons for de-internationalisation derived from Table 1, with internal drivers highlighted in italics. On the right side of Table 2, an inspiration list of business model configurations is proposed. Firms can employ that to understand how de-internationalisation reasons could inform firms' re-internationalisation decisions; value areas mediate this process (Taran et al., 2016). For illustration, we will use one internal reason, '*decreased quality/profitability of the offer,*' and one external reason, '*changes in national legal and normative environments (exchange rates, tariffs, inflation, ownership structures),*' to exemplify how the understanding of these reasons could inform re-internationalisation decision being mediated by the business model configuration value areas.

BMC application to internal de-internationalisation reasons and re-internationalisation solutions

When a firm is concerned with "decreased quality/profitability of the offer" about its '*value proposition,*' the root of this concern could be linked directly to the firm's offer, e.g., 'too expensive,' 'diminishing sales' and 'decreasing profitability.' A BMC could be for a firm to consider a '*no-frills*' configuration to deliver a low(er)-cost version of the offer yet maintain the relevance of the value of the core product and service. If '*decreased quality/profitability of the offer*' is related to the '*value segment,*' then the

Table 2

Reasons to de-internationalise	Business model configuration	Re-internationalisation business model configurations
<p>Decreased quality/profitability of the offer</p> <p>Increased attractiveness of the home market</p> <p>Maturity of the product in the target market</p> <p>Changes in national legal and normative environments (exchange rates, tariffs, inflation, ownership structures)</p>	<p>Value Proposition</p>	<p><i>Cool brands</i>: Use a high-end brand marketing for offerings, either singly or with expert partners.</p> <p><i>Crowdsourcing</i>: Attain services/ideas from external actors (e.g. online communities), who add information, and thereby create value for one another.</p> <p><i>Full-service provider</i>: Offer complete coverage of services in one area.</p> <p><i>No frills</i>: Offer "low-cost", low priced, service/product in a traditionally high-end offering industry.</p> <p><i>Price reduction bundling</i>: Package deal lower the price sum of the single products/services.</p> <p><i>Quality selling</i>: High quality products sold for premium prices (mostly R&D based).</p> <p><i>Trusted product/service leadership</i>: Secure sustainable customer relationships through a continuous upgrade platform path.</p> <p><i>User design</i>: The customers design their own creative products.</p> <p><i>Value added reseller</i>: Offering a complete selection in a focus products category for attractive prices.</p> <p><i>Value bundling</i>: Offer a package of goods/services to form a single unique offering.</p>
<p>Decreased quality/profitability of the offer</p> <p>Increased attractiveness of the home market</p> <p>Cultural difference/ physical distance</p> <p>Changes in national legal and normative environments (exchange rates, tariffs, inflation, ownership structures)</p>	<p>Value Segment</p>	<p><i>Customer focused</i>: Pull from demand - focus on customer needs.</p> <p><i>Multi-sided platforms</i>: Facilitating interactions between two or more distinct but interdependent groups of customers.</p> <p><i>Robin Hood</i>: Similar offerings are being sold at high prices to high-income customers, but at lower prices to low-income customers.</p> <p><i>Round up buyers</i>: Purchase discounts and attractive prices are gained by rounding up buyers together.</p> <p><i>Target the poor</i>: The offering targets the customer positioned at the base of the pyramid.</p>

(Continued)

Table 2 (Continued)

Reasons to de-internationalise	Business model configuration	Re-internationalisation business model configurations
Intangible assets (both quality and quantity) Change of ownership Decreased quality/profitability of the offer Lack of innovation Lack of international experience Lack of technological/technical capabilities New, more efficient production/technology Under performing subsidiaries Cultural difference/ physical distance Increased production and transportation costs Lack/poor performance of suppliers and/or distributors Quality and availability of labor Changes in national legal and normative environments (exchange rates, tariffs, inflation, ownership structures)	Value configuration	<p><i>(e)Procurement</i>: Tendering procurement of goods/services.</p> <p><i>Channel maximization</i>: Multiple channels are used for product distribution to maximize the broadest reach possible.</p> <p><i>Core focused</i>: Focus on very core competencies of the firm and outsource all other activities.</p> <p><i>Disintermediation</i>: Deliver a product/service directly to the end customer.</p> <p><i>External sales force</i>: Aggressive external sales force motivated by e.g. pyramid commission structures.</p> <p><i>Integrator</i>: Controlling all resources/capabilities needed to create value within a given value chain.</p> <p><i>Reverse innovation</i>: Cheap products created within and for emerging markets are also repackaged and resold in developed nations.</p> <p><i>Self-service</i>: Customers gain lower prices by performing some value creation process tasks on their own.</p> <p><i>Trade show</i>: Outsource some value chain functions to a 3rd party with a well-known brand name.</p> <p><i>Trash to cash</i>: Used products/materials are reused/recycled and sold as new offering (sustainability related).</p> <p><i>Branded reliable commodity</i>: Well-designed brand marketing.</p> <p><i>White label</i>: An offering created by one firm is (re)packaged and sold by multiple marketers under varying brands.</p>
New, more efficient production/technology Decreased quality/profitability of the offer Collaboration constraints (OEMs, VCs) Cultural difference/ physical distance Lack/poor performance of suppliers and distributors Quality and availability of labour in national legal and normative environments (exchange rates, tariffs, inflation, ownership structures)	Value Network	<p><i>Adaptive</i>: Create a technology-based "ecosystem" platform for innovations, and benefit from the investments of others on that platform.</p> <p><i>Barter</i>: Exchange of offerings are with no money transfer among partners, due to a mutual benefit from bartering.</p> <p><i>Crowd funding</i>: Financing of ideas are generated from the public.</p> <p><i>Franchising</i>: Being part of a big chain/brand.</p> <p><i>Inside-out</i>: Sell or license out unused homegrown IP's.</p> <p><i>Integrated</i>: The firm operates as a system integrator, by utilizing external sources to fuel the business, and allows unused ideas and technologies to flow to the outside.</p> <p><i>Outside-in</i>: Gather value (e.g. IP; information) from external innovation partners and/or other communities.</p>

(Continued)

Table 2 (Continued)

Reasons to de-internationalise	Business model configuration	Re-internationalisation business model configurations
<p><i>Decreased quality/profitability of the offer</i></p> <p><i>Under performing subsidiaries</i></p> <p>Increased production and transportation costs</p> <p>Changes in national legal and normative environments (exchange rates, tariffs, inflation, ownership structures)</p>	Value capture	<p><i>Bait and hook</i>: Offering customers inexpensive or free initial product, an charge more for additional related products.</p> <p><i>Fractionalization</i>: Customers own part of a product and enjoy the benefit of ownership.</p> <p><i>Freemium</i>: Basic offerings are granted for free, and additional offerings require payment.</p> <p><i>Leasing</i>: Renting products, rather than outright selling them.</p> <p><i>Pay what you want</i>: Pricing a given product or service is set by the customer.</p> <p><i>Pay-as-you-go</i>: Customer are charged based on actual usage (metered services).</p> <p><i>Subscription club</i>: Customers are charged based on a fix subscription fee.</p> <p><i>The long tail</i>: Wide range of products are sold in low quantities.</p> <p><i>Upfront payment</i>: Customer pay up front for their goods.</p>

Note: In the left column, 'reasons to de-internationalise', the internal drivers are written in italics. The table 'reads' from left to right. Reasons for de-internationalisation are identified and assessed first. One or several de-internationalisation reasons could then be "x-rayed" through several value areas that offer decision-makers series of opportunities for business model configurations to pursue re-internationalisation of the firm. Most of the business model configurations to re-internationalise are drawn from Taran et al. (2016); we also drew from Timmers (1998); Linder and Cantrell (2000); Johnson (2010); Osterwalder and Pigneur (2010); Chesbrough (2006); and Gassmann et al. (2014).

Table 2: A business model perspective on the de- and re-internationalisation framework

firm aims to focus on how better to understand its customer base and mitigate the risks associated with its targeting. This could be achieved through a 'customer-focused' configuration, where the firm focuses more on customer pull and needs than push and wholesale. When the firm infrastructure is one of the main reasons for de-internationalisation, the decision-maker may look into 'value configuration' and get inspiration from 'self-service' BMC, where customers pay lower prices for the offer by performing several offer-related tasks themselves, contributing eventually to firm's profitability. If a

firm's social capital is a reason for 'decreased quality/profitability of the offer,' leading to de-internationalisation, then through 'value configuration,' decision-makers may pursue 'franchising,' where the seller gets higher stakes and an incentive to perform better. 'Decreased quality/profitability of the offer' could be due to the payment model of the offer. In this case, through 'value capture,' the firm may explore the 'subscription club' configuration, where the customers are charged a monthly fee for the offer rather than a full advance payment. These are just a few instances that exemplify how

an internal de-internationalisation reason, such as 'decreased quality/profitability of the offer,' could be understood and mitigated by business model configuration value areas to inform decision-makers on their re-internationalisation business model configuration opportunities.

BMC application to external de-internationalisation reasons and re-internationalisation solutions

When 'changes in national legal and normative environments', such as higher taxes and tariffs, cause a firm to de-internationalise, the mitigating value area to turn to is 'value proposition.' Decision-makers could consider a 'value bundling' configuration to mitigate these threats. Instead of selling single items, they could focus on selling a package of goods/services as a single offer. When incentives, structures, and penalties toward social dimension are one of the reasons to de-internationalise, 'value segment' would direct a decision-maker to a 'Robin Hood' configuration, where the firm will sell the same offer to high-income customers at higher prices and low-income customers at lower prices. Suppose higher tariffs affect various links and parts of the value chain, leading to de-internationalisation. In that case, the firm could assess its 'value configuration' and opt for a 'disintermediation' configuration to remove a link or links in the value chain and sell directly to the end customers. The firm could also appraise its 'value network' and look for configurations that would assist its partners in their growth through 'inside-out' configuration, e.g., where the firm would sell or license unused homegrown IPs. If 'changes in national legal and normative environments' affect the ownership of the product or service held by the customers of the firm, decision-makers could look into the 'value capture' and pursue a 'fractionalisation' configuration, where customers would only own part of the product or service, yet still enjoy the benefits of co-ownership. These are just a handful of examples of how decision-makers could use their understanding of external de-internationalisation reasons to employ business configuration value areas to assess the opportunities for re-internationalisation of the firm.

Implications

Contribution to Theory and Practice

This article explored how BMI could enrich firms' understanding of the reasons behind de-internationalisation and inspire their endeavour to re-internationalise. This was achieved by developing a business model perspective on de- and re-internationalisation framework to aid practitioners in how BMI can be employed to make sense of de-internationalisation and support the re-internationalisation of the firm. It focuses on the relationship between the reasons for de-internationalisation (Table 1) and the avenues of re-internationalisation. This relationship is mediated by business model configuration (Figure 2). The conceptualisation of this relationship resulted in a framework (Table 2) that conjectures how business model configuration 'value areas' could help understand and analyse de-internationalisation reasons and inform decisions regarding re-internationalisation business model configurations (Chesbrough, 2006; Gassmann et al., 2014; Johnson, 2010; Linder & Cantrell, 2000; Osterwalder & Pigneur, 2010; Taran et al., 2016; Timmers, 1998). The emergent framework helps address at least the following questions:

- To what extent are firms' decision-makers familiar with the reasons for de-internationalisation and the business model configurations available to them?
- If they are, then to what extent can they experiment with new business model configurations' opportunities to enable re-internationalisation?

The answers to these questions would allow decision-makers to avoid being trapped in their dominant logic. This emergent framework inspires and helps them to 'open the blinders' of a dominant logic and thus avoid prospects of failure, or at least minimise such scenarios being enriched by the BMI logic and inspiration from our emergent framework.

This framework shows how international business and business model innovation can be combined to stay competitive in a VUCA world. For example,

it could be employed to analyse not only *why* firms choose to de-internationalise (e.g., Table 1) but also, through business model configuration 'value areas', design a new path to re-internationalise by looking into the *how* (i.e., value configurations), *who* (i.e., value network), *what* (i.e., value proposition), *to whom* (value segment), and *how much* (value capture). As a result, a wide range of business model configurations allows decision-makers to consider many re-internationalisation alternatives, each with its degree of risk, costs, resources, and market commitment.

Our proposed framework shall not be seen as normative, i.e., as a "cause and effect" prescription. However, instead, as a practical strategic learning toolkit available for firms to understand the aftermath of their de-internationalisation and as an inspiration for different re-internationalisation avenues, they can pursue to kick-start their cross-border activities and eventually boost their international growth. As it is solely based on secondary data, future empirical research is warned to enhance, validate, and modify these initial proposed findings.

Future research directions

This article is the first attempt to cross-fertilise the de-internationalisation, re-internationalisation, and business model innovation research streams. We posit that business model theory helps enhance our understanding of why and how firms de-internationalise. At the same time, we foresee that the de-internationalisation of firms will contribute to our understanding of how firms re-configure or re-invent their business models during failures, growth, declines, or (strategic) departures from what is typical or expected. We call for future conceptual and empirical research to shed further light on this

intersection's theoretical, practical, and policy understanding and implications.

This could include employing empirical studies investigating the link between de-internationalisation and re-internationalisation decisions and strategies. Can business model configuration taxonomy be the moderator between de and re-internationalisation strategies? Do firms choose, through their re-internationalised strategy, to enter into similar or new markets? Is there a learning process between the two stages? What is the timespan between de and re-internationalisation choices? Other perspectives might look at the dispersion of technologies as drivers of de- and re-internationalisation, for example, Artificial Intelligence (Haefner & Gassmann, 2023), Blockchains (Schmuek, 2023) or the Metaverse (Rosenstand et al., 2023).

Concluding Remarks

Today's world is as liquid and fluid as ever (Bauman, 2007) and competition is not getting less fierce. International business has become increasingly challenging to manage when future economic trends are highly uncertain, market changes are unpredictable, the lifecycle of products, competencies, strategic choices and routine working tasks are all becoming shorter, and internal innovations make way for collaborative innovations increasingly taking place outside the firms in their networks. Decision-makers must learn to adapt to and deal with such a fluid and rapidly changing environment by increasing and decreasing their foreign market presence. BMI will be challenged in a global VUCA world, and developing sound de- and re-internationalisation strategies and processes will be pivotal to future success.

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JOURNAL OF BUSINESS MODELS

How Ecosystem Management will Influence Business Model Innovation: Bridging the Gap Between Theory and Practice

Bernhard Lingens¹

Abstract:

Ecosystems have become one of the “hottest” topics in industry practice and academia and are becoming increasingly important for companies to grasp in their business model innovation activities. However, research and practice are developing along different lines. Hence, this paper aims to bridge the gap between theory and practice and clarify which critical topics in the field of ecosystem management will be crucial for business model innovation in the future. This leads to four key areas that need attention: 1) Organisational change and firm culture as the most significant barriers for ecosystems and, thereby, business model innovation, 2) Portfolio strategies and performance evaluation for ecosystem-based business model innovation, 3) New investment approaches to deal with start-ups that are ecosystem orchestrators 4) Hands-on approaches for the different roles and tasks in an ecosystem. This makes ecosystem thinking an integral part of business model innovation thinking.

Introduction

A growing disconnect between academic insights on ecosystems and the needs of practitioners

When Moore (1996) introduced the term ecosystems, he laid the foundation for what has become

one of the “hottest” topics in industry practice and academia. At the concept’s core is the notion of cooperation with external partners. It only needs a little creativity to understand this idea’s significant impact on firms’ innovation capacity, business models and their opportunities for business model

Keywords: Ecosystems, Business Model Innovation, Organisational Change, Start-ups

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innovation. Accordingly, the topic has been gaining attention from academics and researchers alike: Whilst there is an ever-growing volume of academic papers, it becomes increasingly difficult to find firms that do not claim to engage in what they call “ecosystems”.

However, research and practice are developing along different lines. This is where the idea for this article emerged and, on a very personal note, how I come in: I spend half of my time in academia, researching ecosystems and trying to get published in decent journals. The other half I spend in practice as a consultant who advises firms on building up and managing ecosystems and as an angel investor working with start-ups specifically focusing on ecosystem innovation. Whilst this might seem to be a stuck-in-the-middle profile for many readers, it also has an advantage. To turn weaknesses into strengths, this article aims to bridge the gap between theory and practice to strengthen the connection between ecosystem management and business model innovation. In addition, these critical topics in ecosystem management from a practitioner’s perspective need to be addressed more by research. Hopefully, this can spark research activities that give practitioners valuable insights. However, we must clarify what we discuss before we can do so.

Why Confusion is the Common Theme in Both Ecosystem Research and Practice

Moore (1996) also laid the foundation for conceptual chaos with his seminal paper. He introduced the term ecosystems in the sense of groups of firms co-evolving around innovation in a setting of competition and cooperation. This might sound like a precise definition at first. Still, it opens up a broad field. Alliances, platforms, networks, cooperation, co-opetition and supply chains could all be framed as “ecosystems”. As a result, many different perspectives on this topic have emerged. For example, for the term “innovation ecosystems” alone, there are 21 definitions that do not have much in common and essentially deal with different concepts (Granstrand & Holgersson, 2020).

The same confusion can be found in practice. Since cooperation is vital in today’s VUCA world (Massa, 2023), large corporates and consulting firms use the buzzword “ecosystem” for everything related to cooperation, collaboration or, even worse, the external environment. Co-working spaces have a “vibrant ecosystem” instead of a network of people using their offices. Industry associations employ a “head of ecosystem management” who is responsible for managing what used to be called their members. Consulting firms offer “ecosystem mappings” when selling their standard sector analysis and make-or-buy/partner decisions. Marketplaces are labelled as ecosystems anyway, whilst the traditional multi-channel sales approach is re-branded as an ecosystem. Insurances and banks doing open innovation in health or mobility are now building up “Ecosystem Health” or “Ecosystem Mobility”.

Recent conceptual works managed to bring order into the mess of the growing ecosystem field. Adner (2017) and Jacobides et al. (2018) framed ecosystems around a joint value proposition based on complementary and non-generic modules. This points towards the two key challenges: 1) managing interdependencies amongst the actors involved and the resulting coordination efforts, and 2) achieving the superior value proposition that constitutes the ultimate purpose of the ecosystem.

This perspective is valuable to practitioners because it enables them to do what we might call “business model innovation on steroids.” Companies developed ideas for novel value propositions and business models in the traditional world. The first question to ask is whether this innovation is relevant to customers and whether it can be expected to generate handsome revenues. However, even if these criteria are fully met, innovation projects will likely be abandoned if the company needs more resources or knowledge to implement them. This is where ecosystems come in. Instead of failing to execute a potentially successful innovation due to a lack of skills, companies can now implement it with the involvement of external partners who contribute what is lacking internally. In this way, ecosystems open the innovation funnel and create growth and differentiation potential beyond limited in-house

capabilities (Chesbrough, 2010). Given the increasing importance of ecosystems to industrial practice, researchers should find many opportunities to support practitioners with valuable insights on ecosystem building and management. However, are they living up to this call?

Why Academic Research on Ecosystems is not Sufficiently Answering the Needs of Industry Practice

Plenty of research on ecosystems has been published. However, this research is often not applicable to real-world issues of ecosystem managers, too specific or focusing on just very few aspects. For instance, much work has been done on platform ecosystem governance, a topic where academics and practitioners will find plenty of insights (please see Rietveld et al., 2020; Schmeiss et al., 2019; Staub et al., 2021 as some recent examples). However, most ecosystem contributions need to be less generic and abstract to prove insights that could be transferred to industry practice. For instance, Tee (2019) delivered a conceptual framework for managing the interdependencies of complementors. Visscher et al. (2021) developed a high-level framework for strategic positioning in ecosystems. John & Ross (2022) created a highly complex mathematical value creation and capture model.

On the other hand, many contributions deal with specific questions. For instance, Dattée et al. (2018) showed how to build ecosystems in situations of very high uncertainty. Meulman et al. (2018) investigate how to find partners outside the immediate network of a firm. Finally, many contributions are devoted to new technologies and how they can be used in managing ecosystems – for instance, blockchain (Trabucchi et al., 2020; see also Schmuck, 2023 in this special issue). Thus, in addition to these exemplary research clusters, there are unanswered questions that ecosystem managers often face and that remain largely unanswered. I will discuss them in more detail in the next section. Without claiming to be exhaustive. Nevertheless, with the hope that

practitioners can better manage their ecosystem projects on this basis and, in the end, improve the probability of achieving better business model innovation.

Four Pathways for Research on Improving the Link Between Ecosystems and Business Model Innovation Based on the Unmet Needs of Industry Practice

Address organisational change and firm culture as the most significant barriers to ecosystems and business model innovation

In this sense, ecosystems are both the problem and the answer. An ecosystem is about implementing a novel value proposition that the firm could only achieve through collaboration. Whilst opening up the innovation funnel and implementing novel ideas and business models sounds promising, this endeavour is challenging from a cultural perspective. It requires a mindset shift, developing a new identity, and acquiring novel knowledge and networks (see Nielsen 2023 in this special issue). For example, in a consulting project with a leading chemical company, the firm intended to build an ecosystem for car battery recycling. This would have forced the firm to move into the area of mobility. In other words, the ecosystem approach would have allowed the firm to become a significant player in mobility. Even without building internal competencies in that field but based on partnerships with mobility players. Sounds fancy. But not for the top management of the car company. They could not accept moving away from the current ground, focusing on mobility customers, and orchestrating a mobility ecosystem based on a new business model. It was not only a matter of transforming the firm. The top management's mindset was the biggest hurdle before the firm could even develop plans for this new field of business.

In my subjective experience, such change problems are why most ecosystem initiatives in traditional companies fail or still need to be started. On the other hand, the ecosystem approach could be the

problem and the answer to this question: As Lingens, Miehé, and Gassmann (2021) show, companies do not need to take on multiple roles in ecosystems simultaneously. For example, they can act only as an orchestrator without being a customer interface or contributing a module to the shared value proposition; alternatively, they can only be a partner responsible for a specific module without orchestrating the ecosystem or being the customer interface. In this way, they can benefit from the ecosystem without involving the organisation too much. For example, if the sales department is resistant to change or busy and unable to build the knowledge needed to sell a new product, the company could forgo being the customer interface and leave that role to another ecosystem partner. Or, if top management does not understand the new logic, why not go the role of orchestrator to another company and focus on a role that requires less identity change for the managers?

In other words, the ecosystem concept would allow companies to choose their roles in the ecosystem in a way that avoids internal change barriers. In this sense, interdisciplinary research could provide answers on how to achieve this. Alam et al. (2020) have shown how companies open up to external collaboration in ecosystems and how this affects corporate culture – but at a very abstract level and without concrete recommendations on managing this transition in reality. However, other researchers could follow this path and provide answers to some highly relevant questions in this direction:

How do we define roles within an ecosystem based on the organisation's barriers to change? (see also Foss, 2023 in this issue) How do you weigh the cost of overcoming barriers to change versus the opportunity cost of not adopting a particular role? What is the cost of change required to take on a specific role versus the additional risks of depending on a partner to take on that role? Further research from a psychological perspective could also look at storytelling strategies for ecosystem managers to explain to top management and employees why the company needs to engage in a particular ecosystem or take on a specific role. However, these are just a few ideas. Suppose change is one of the biggest hurdles to ecosystem development. In that case, ecosystem

research needs to be interdisciplinary and examine the effect of ecosystem strategies with a strong emphasis on internal barriers to change!

Portfolio strategies and performance evaluation for ecosystems

Ecosystems focus on a joint value proposition – So, if a company's business is based on multiple value propositions, it could engage in multiple ecosystems in parallel. Alternatively, the ecosystem initiative may be just one of many innovation projects – perhaps there are some radical innovation projects, some collaborations with start-ups, a corporate venturing initiative, and some internal and more incremental innovation projects. The ecosystem in question is usually not a standalone project that runs in isolation from what the company is doing next to it. Thus, an understanding of how ecosystems can be embedded in a portfolio of innovation projects is missing. Initiatives should be driven by ecosystem logic: corporate venturing, intra-company innovation, etc. This also requires research on ecosystem performance measurement to compare different projects. This may prove even more challenging given ecosystems' interconnected and complex nature. How can the success of an ecosystem be measured? By looking at financials alone? Knowledge inflow from partners versus undesired knowledge transfer to partners (please see Ritala et al., 2015)? Coordination effort or additional risks due to external dependencies? Moreover, how does this compare to innovation projects driven by more traditional, in-house approaches? This would be a promising area of research that could help companies take a step forward in managing ecosystems and make this concept a widely accepted tool for innovation and strategy (see also Ricart, 2023).

Start-ups as ecosystem drivers need investors who understand ecosystems

Lingens, Böger and Gassmann (2021) have shown that contrary to previous opinions, start-ups are very well suited to take on the role of ecosystem orchestrators and be the initiators and managers of ecosystems. They have an inherent advantage in this regard, especially given the barriers to change of larger companies, as explained above. However, start-ups need funding. As an angel investor, I follow the existing beliefs of

start-up investors and stay away from ventures with too many external and internal dependencies. However, such dependence is one of the core problems of ecosystems. So, suppose we want start-ups to realise their potential as ecosystem players. In that case, we need to understand how investors' existing logic and approaches must be adapted for start-ups engaging in ecosystems.

Are there certain stages of start-up development where investors can accept more dependencies? Is there an optimum between exploiting the benefits of joint innovation and the resulting dependencies? Are there strategies for start-ups to reduce dependencies, such as using specific contractual approaches? Moreover, what are the best exit strategies for a start-up whose value creation largely depends on external partners? This opens up a new area of research, especially in entrepreneurship, that can further accelerate the growth of start-up-led ecosystems.

How do you implement an ecosystem's different roles and tasks?

As mentioned above, ecosystem research still deals with conceptual works and abstract reasoning. However, what is needed in practice is an understanding of how to initiate, build and manage ecosystems. Particularly, hands-on questions instead of conceptualisations and abstract findings are needed. Do

practitioners need mathematical models to simulate the effects of complementarities on value creation and capture? Probably not. However, do they need insights on, for instance, how to implement the different roles in an ecosystem, deal with dependencies, coordinate partners efficiently, and conduct product development in a dependency setting with external ecosystem partners? Yes, certainly! I find this an exciting idea: Innovation management can return to its roots and re-address the traditional questions the discipline started with product development, scaling, and idea generation – but in an ecosystem context.

All of this would help to implement a vision for the entire discipline: It should become a standard way of thinking about strategy and innovation. Moreover, it is a standard tool in managers' toolbox when developing novel business models. In this sense, every idea for a new business model must embrace ecosystem thinking and factor in implementing innovation in a traditional or an ecosystem setting. The multitude of roles a firm could take on in such a setting would open up many additional growth and innovation potentials. With that in mind, ecosystem thinking would be an integral part of business model innovation and a standard in the repertoire of academics and practitioners. I suspect Mr Moore would not be disappointed if his concept went such a long way.

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JOURNAL OF BUSINESS MODELS

How Regulation Affects Business Model Innovation

Abstract

Business regulation is the norms, standards, principles and rules, and their enforcement governs commerce. Firms need to be aware of the potential impacts of regulation on their business models, anticipate changes in the regulatory landscape, and adapt their business models accordingly. This article surveys seven archetypes of regulation and, from that, identifies six key regulatory trajectories affecting business model innovation. The article offers a 2-by-2 model to assist managers in coping with business model innovation reactions to both negative and positive regulatory effects.

Introduction to Types of Regulation Affecting Companies

Consider this statement:

“Why should we be bothered with regulation? After all, isn't business model innovation merely a question of altering how we conduct and improve our own business?”

A few decades ago, this perception might have been a reasonable one to make. There was relative independence from regulatory pressures in a world where the focal firm operates without much collaboration and interaction occurs primarily through contractual relationships, and consumers get what

they pay for. Of course, in some industries, such as healthcare and banking, regulations have always been present to some extent.

In a more straightforward manner, if this is your company's guiding perception, you are in for a big surprise. Today, companies are affected by many different types of regulation in their daily operations. It is reasonable to expect that their business models have been developed under the current jurisdiction. Therefore, many business owners and managers might think this will also be the legal environment they must consider going forward. Well, think again. A brief look at the types of regulation affecting companies and organisations today reveals various

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archetypes of legislation, many of which have some overlap. Therefore, this initial exploration is not exhaustive and will be used as the best possible approximation considering the article's objective.

Regulation affects business model innovation, and Serentschy (2021) provides an initial discussion of what regulators can do in their regulatory practices to foster innovation rather than stifle it. This is also the key objective of the current paper, albeit with a particular focus on business model innovation.

The first category to consider is labour market regulation, including regulation on employment contracts, notice of terminations and other regulations concerning the right to maternity/paternity leave, annual leave, work hours, etc. Tax regulation also closely relates to the labour market in considering personal salary taxes. On the other hand, is the taxation of corporate profits and transfer-pricing legislation. In terms of international law, we find antitrust regulations that encourage competition by limiting the market power of any particular firm. Another arm of labour-market regulation concerns workplace, anti-discrimination, and harassment legislation. When considering future perspectives around corporate stewardship and increased global transparency around corporations' ethical standards, legislation around modern slavery, child labour, human rights and community relations should be considered very carefully going forward.

Consumer protection regulation is a second essential category to consider. This includes consumer rights in the National Purchasing Act, as well as advertising regulations (especially concerning children), e-mail marketing, privacy and the General Data Protection Regulation (GDPR). The latter is a good example of a regulation that could sit in several categories, as it is also critical to data security regulation. As a third category, data security regulation is an area of much attention. It includes forthcoming Artificial Intelligence (AI) regulation from the European Commission, which aims to boost AI technologies while ensuring EU citizens' safety. However, we cannot talk about data security without introducing the realm of cybersecurity (NIS 2 Directive, 2022) and telecommunications regulation.

A fourth fundamental legislation category is that of property rights. These are fundamental to our societies and shape a large extent of our economy, thereby having a significant link to commercial law. Property rights are closely related to private rights and have been discussed in connection with freedom and democracy. Regarding businesses, the recent focus on asset sharing and crowdfunding has put property rights in the spotlight regarding fostering platforms for sustainable business models. Intellectual property rights are a fifth category, including copyrights, trademarks and patents. They can be utilised through licensing and other forms of permits.

The sixth category we explore is that of Financial regulation. It includes and is related to property rights, commercial laws, filing requirements to the government, Securities and Exchange Commission regulations, and accounting and auditing regulations. The latter sub-category has recently received much attention due to the forthcoming sustainability reporting and assurance standards in Europe and internationally. At the core of the international and European sustainability reporting standards is a requirement to disclose information about the business model with which the given organisation is competing.

Lastly, we consider the category of Environmental regulation. In light of the rising international focus on climate change, which, for example, has led to the European Green Deal (REF), regulation has focused on reducing Greenhouse Gas Emissions. Furthering this, the most recent international (REF IFRS S1) and European sustainability reporting standards (REF ESRS) introduce requirements for companies to assess their direct and indirect energy usage and emissions and the energy and emission used in their value chain (Nielsen, 2023a, Sust.). This will then be required to be anchored in a due diligence process (Nielsen, 2023a, Sust.) so that it can be assured. While the current legislation around environmental effects focuses on the materiality of the impacts and footprint a company has on the environment and also how environmental concerns affect the financial materiality of the organisation, there are many other potential areas where environmental regulation could kick in. Let's look at the Ellen MacArthur Foundation's (2013) work

on sustainability. Areas related to reuse, refurbishing and recycling, as well as farming, feedstock and regeneration, are areas that may be prone to further regulation for climate change.

As hinted earlier, some regulation is relatively stable, while other areas of regulation have been on the rise, particularly those concerning digitalisation. Six critical regulatory trajectories appear by crossing the seven overall regulation categories above with the themes drawn forth by the authors in this special issue of the Journal of Business Models. These are discussed in the next section, followed by a transformative discussion of utilising anticipated regulatory changes to the advantage of the business model innovation.

Key Regulatory Trajectories for Business Model Innovation

The viewpoint presented in this article is that regulation will significantly impact business model innovation, which will only increase as business model innovation for the future is driven by technological, data-driven and ecosystem-based movements. Some regulations may positively affect firms' business model innovation possibilities, while others may have negative effects. On another dimension, regulation can directly and indirectly impact business model innovation.

In an early contribution, Butenko and Larouche (2015) argue that the legal literature concerning the interplay between innovation and law is split between law and economics and law and technology. Both exist in parallel but are largely non-intersecting. In later research, Blind et al. (2017) studied the impact of regulation on innovation under different degrees of uncertainty. They found that regulation leads to lower innovation efficiency in high market uncertainty. This is confirmed by Aghion et al. (2021), who find that regulation leads to lower innovation intensity.

On the positive side are examples of direct environmental regulation creating new markets for innovative solutions due to a higher demand for clean energy technologies and intellectual property laws

encouraging firms to invest in research and development. Other, more indirect types of regulation may level the playing field by preventing established firms from using their size and power to stifle competition, thus creating opportunities for new entrants to the market with innovative business models.

Regulation may negatively affect business model innovation if it makes it more difficult for firms to experiment with new business models or removes incentives for taking risks. For example, financial regulations can make it difficult for firms to develop new financial products. Other problems could be induced by the speed of legislative institutions, whereby regulation can be slow in adapting to new technologies. For example, regulations governing the use of drones have needed to be faster to keep pace with the development of drone technology. Indirect regulation impacts business model innovation, including creating new social norms influencing consumer behaviour. Another good example is the rise of social media, which has led to greater awareness of privacy issues, creating pressures for businesses to commit to protecting user privacy.

This section discusses six critical regulatory trajectories that are expected to influence and form business model innovation in the future significantly. The first three, cybersecurity, artificial intelligence and telecommunications, are associated with technology development. In contrast, the latter three, taxation, asset sharing and crowdfunding, and accounting and environmental regulation, are primarily associated with sustainability and organisational concerns.

Cybersecurity

Given our society's greater reliance on information networks, wireless communication and information systems, and an increased cyber threat, cybersecurity regulation will majorly affect many companies' business model innovation opportunities. This will concern businesses aimed at both business-to-business segments and consumer segments. For example, the rise of social media has led to greater awareness of privacy issues, creating pressures for businesses to commit to protecting user privacy, which was in focus in the recent GDPR act.

Gisca et al. (2023) verify that in the future, cybersecurity will become even more important in the protection of users' privacy and safety. Data privacy regulations are designed to protect personal data privacy. From a business perspective, they can impact information sharing by requiring businesses to obtain user consent before sharing their data with third parties. For example, a car-sharing company may be required to obtain consent from a user before sharing their driving data with an insurance company.

On the business-to-business side, the NIS2 Directive is the EU-wide legislation on cybersecurity. NIS stands for "Network and Information Security", and the directive requires EU member states to identify entities that provide essential services and introduce new cybersecurity measures for these identified entities. It distinguishes between non-critical sectors, critical sectors and sectors of high criticality. Critical sectors are, for example, postal and courier services, waste management and manufacturing. Sectors of high criticality are vital for the economy and society and rely heavily on information and communication technology. These include energy, transport, water, banking, financial market infrastructures, healthcare and digital infrastructure.

NIS 2 will be a constraining regulation because its function is to streamline company security and reporting requirements by imposing a risk management approach. This will imply a minimum list of basic security elements that must be applied. NIS2 reaches beyond the firm's boundaries by addressing the security of supply chains and supplier relationships by requiring individual companies to address cybersecurity risks in the supply chains and supplier relationships. Companies that can operate at the highest security levels or take security levels in their sector to a new level will be preferred partners in Europe and internationally. Therefore, compliance with NIS 2 will become an important value proposition supporting business model innovation in regards to, for example, GDPR, telecommunication, 6G, blockchain and AI. Also, Van Duijvenvoorde (2020) highlights accountability requirements of related innovation and competition policy areas.

Artificial Intelligence

National government agencies and supranational agencies are currently working on legislation, formal regulation and guidance around Artificial Intelligence (AI). For example, the UK Government has announced it is taking a pro-innovation and risk-based perspective to AI regulation. This means that regulators are asked to focus on high-risk concerns and to ensure a framework that will encourage innovation and avoid placing unnecessary barriers in its way.

The European Commission's AI regulation act aims to ensure better conditions for developing and using the technology but holds a distinct consumer protection perspective. EU operates with a high-risk and an unacceptable risk category. AI systems that negatively affect safety or fundamental rights are considered high-risk. Unacceptable risk AI systems are systems considered a threat to people. They include cognitive behavioural manipulation of people or specific vulnerable groups such as children, social scoring and classification of people based on behaviour, socioeconomic status or personal characteristics, and real-time and remote biometric identification systems, such as facial recognition. AI systems found to be unacceptable are to be banned.

AI and Machine learning algorithms pose interesting avenues to business model innovation because they create efficiencies. As Haefner and Gassmann (2023) argue, AI can lead to new business models and new ways of doing business model innovation. Still, AI can also be a part of innovating existing business models. To give an example of this, the following question was asked in Bard, Google's generative AI platform:

"How can we innovate Bosch so that it becomes a more sustainable company?"

Bard answered:

- Bosch is already a global leader in sustainability, but there is always room for improvement. Here are some ideas for how Bosch can innovate to become even more sustainable:
- Accelerate the development and commercialisation of sustainable products and services. Bosch has a strong track record of

innovation in this area, but it needs to do even more to bring its sustainable products and services to market faster. For example, Bosch could invest more in research and development for renewable energy technologies, energy-efficient appliances, and sustainable transportation solutions.

- Develop new circular economy business models. The circular economy is a new economic model that aims to eliminate waste and pollution by keeping products and materials in use for as long as possible. Bosch can innovate by developing new business models that allow it to reuse, recycle, and repair its products more effectively. For example, Bosch could offer leasing and take-back programs for its products or develop new products designed to be disassembled and recycled easily.
- Use digital technologies to improve sustainability performance. Bosch is a leader in developing digital technologies, and it can use these technologies to improve its sustainability performance and help its customers do the same. For example, Bosch could use artificial intelligence (AI) to optimise its manufacturing processes, reduce energy consumption, and predict and prevent equipment failures. Bosch could also develop new AI-powered services to help its customers reduce their energy consumption and carbon footprint.
- Partner with other companies and organisations to advance sustainability. Bosch can accelerate its sustainability journey by partnering with other companies and organisations that share its values. For example, Bosch could partner with suppliers to develop more sustainable supply chains or with government agencies and non-profit organisations to support sustainability initiatives.
- Here are some specific examples of innovative sustainable solutions that Bosch is already working on:
 - Bosch is developing a new generation of electric vehicle batteries that are more energy-dense, have a longer lifespan, and are easier to recycle.

- Bosch is also developing smart home systems that can help homeowners reduce their energy consumption and carbon footprint.
- Bosch is working with farmers to develop smart farming solutions that can help reduce the use of pesticides and fertilisers.
- Bosch also invests in renewable energy technologies like solar and wind power.

By continuing to innovate in these areas, Bosch can become even more sustainable and help its customers do the same.

This is a very good answer to that question. However, of course, the answer is not much new or ingenious because generative AI feeds on existing knowledge only. This means that the ground-breaking, creative, cross-fertilized perspectives must be included. However, the test proved the point that AI can help managers, owners and business developers on the way to identifying viable solutions and business model innovations. The only regulatory requirements on generative AI concern transparency requirements, such as disclosing that the content was generated by AI and acknowledging when something is based on summaries of copyrighted data.

Telecommunication

At the core of much of business model innovation has always been information communication technology, creating reach and minimising communication costs. While 5G is being rolled out, researchers and companies are working on the next protocol, 6G, which is expected to be in action around 2030. 5G/6G local networks currently lack legitimacy, and here, regulations and regulators can act as enablers of technology dispersion. Serentschy et al. (2023) discuss how 5G and 6G will require new regulation in telecommunications.

Historically, spectrum and competition regulations have played a pivotal role in the business models that operators apply, either allowing, delimiting, or protecting/safeguarding certain business models. However, changes in the regulative and technological domains significantly impact business decisions, especially the business models employed by

the operators (Ahokangas et al., 2013). In the telecommunications sector, regulation and sustainability go hand in hand. They influence mobile operators' business models through the energy efficiency of mobile networks and the consumption of critical and rare raw materials that indirectly and directly set demands and limitations on business model innovation. Additionally, the critical role of mobile communications sets demands on developing and maintaining the security and resilience of networks to ensure societal sustainability.

According to Ahokangas (2023), 6G has massive implications for the types of business model innovation that will be possible, and 6G will be an important general platform for the technologies supporting the Metaverse (cf. Rosenstand et al., 2023). Hexa-X and 6G will likely be a technology that can create disruption because it will allow niche entrants into markets to focus on particular value propositions to customers, create strong niche positions and build the business from there.

Taxation

Tax regulation and the taxation environment can significantly impact innovation ecosystems, for example, by providing incentives for innovation activities within and across firm boundaries. Tax deductions for R&D spending can make it more attractive for businesses to invest in new technologies and products, leading to more vibrant and innovative ecosystems. On the negative side of tax-regulation is that complex tax rules can create uncertainty and make it difficult for businesses to plan for the future. This is especially true in complex ecosystem-based settings, as Lingens (2023) described. When businesses are unsure of their tax liabilities, they are less likely to invest in long-term projects. Furthermore, tax audits can be a burden on businesses and can divert resources away from innovation.

In addition to the direct impacts of tax regulation, tax regulation can also indirectly impact innovation ecosystems. For example, tax regulation can affect the availability of capital for businesses either from professional investors, business angels or banks. In periods of scarce capital, businesses tend to invest less in innovation than otherwise. BMI can

potentially prosper from tax regulations because innovation in ecosystems can avoid cash shortages by moving cash liquidity between partners and creating efficiencies around, for example, open innovation ecosystems. Professional investor networks are, therefore, expected to see a surge in activity rates in the years to come.

Asset sharing, crowdfunding and blockchain

A part of corporate stewardship is working towards better resource utilisation and creating fair access to capital, technology and knowledge. Asset sharing is one of the fundamental strategies to achieve this and is, for example, highlighted by the Ellen MacArthur Foundation (2013). Crowdfunding is also a key area that could affect business model innovation, and according to Ferrarini (2017), from a regulatory perspective, we should distinguish between loan-based crowdfunding and investment-based crowdfunding.

Crowdfunding platforms are subject to consumer protection regulations designed to protect consumers from unfair or deceptive practices. For example, crowdfunding platforms may be required to provide clear and transparent information about the terms and conditions of crowdfunding campaigns. The same goes for the terms and conditions of asset-sharing agreements. Businesses may be required to disclose the fees associated with asset sharing and the risks and liabilities involved.

There are several regulatory concerns related to asset-sharing and crowdfunding. The list below is by no means exhaustive but rather indicative of the types of regulation businesses need to be aware of:

1. Intellectual property regulations are designed to protect the rights of creators and owners of intellectual property. They can impact the sharing of assets by restricting how assets can be used and shared.
2. Competition regulations are designed to promote competition in the marketplace. For example, a business may be prohibited from entering into exclusive agreements with asset owners that prevent other businesses from accessing those assets.

3. Tax regulations are designed to ensure that businesses pay their fair share of taxes and may be required to pay taxes on the rental income they earn from sharing their assets. Also, crowdfunding platforms may be required to withhold taxes on rewards that are distributed to backers.
4. Securities regulations will affect crowdfunding platforms that offer securities-based crowdfunding. Crowdfunding platforms may be required to register with securities regulators and to provide investors with disclosure documents that contain information about the issuer of the securities, the risks of the investment, and the terms of the offering.
5. Anti-money laundering (AML) and know-your-customer (KYC) regulations are designed to prevent criminals from using crowdfunding platforms and blockchains to launder money or finance terrorist activities. The Payment Service Directives (PSD 1 and 2) is an example of this type of reform, such as those enabled by Distributed Ledger Technology (blockchains), which may require extensive legal reform in the future.

In addition to these types of regulation, crowdfunding and blockchain may also be impacted by general business regulations, such as contract law and tort law. As these technologies continue to develop, new regulations will likely be introduced. The largely unregulated market environment surrounding cryptocurrencies has been exploited for various fraudulent schemes. Public opinion and policy-makers will also affect the latter because there is often a mistaken equivalence between cryptocurrency and blockchain. Blockchain is a unanimous agreement among participants regarding the legitimacy of recorded transactions, thereby eliminating the need for a centralised authority to move money.

Asset sharing has already been a major driver of BMI for some years, and crowdfunding mechanisms have also had interest. The move to mainstream thought for these two mechanisms, as well as blockchain, can help move innovation toward sustainability and shared stewardship.

Accounting and environmental regulation

In light of the current focus on climate change, environmental and accounting regulations will affect business model innovation. Companies and organisations worldwide will be scrutinised to explain their footprint on people, the planet and society and how climate-related risks will affect their operations. These two perspectives are also in conjunction denoted as double materiality (Nielsen 2023a).

Environmentalists fear that policymakers will emphasise the latter, outside-in perspective, also called financial materiality. This would leave companies only being required by regulation to report on basic emissions, social, and governance metrics and keep a report conveying a true picture of their footprint private. This is similar to the arguments made by Nielsen and Madsen (2009) that managers will be faced with having to select which information to report. The accounting field has been down this road of argumentation before. The question is whether new communication technologies and media platforms will be able to improve corporate accountability this time.

Environmental regulation will focus on reducing emissions. In the REGS model, Nielsen (2023b) provides a list of ten essential environmental aspects to consider for the disclosure of environmental impact:

- Emissions and emission reductions, incl. GHG
- Air quality
- Energy management
- Water and waste management
- Waste and hazardous materials
- Ecological impacts
- Substitution to recycled materials
- Reusing and recycling materials
- Efficiency in materials sourcing
- Degree of green energy use

The European Sustainability Reporting Standards (ESRS, 2023) require companies to relate their metrics to risks and opportunities based on their business models, a notion that Roslender & Nielsen

(2015) pitched while arguing that this would also require a non-financial understanding of business models, including an intricate understanding of the value proposition to customers (Roslender & Nielsen 2022).

Therefore, environmental and accounting regulations are intricately connected and understanding them properly offers potential avenues towards business model innovation. For example, Montemari and Nielsen (2013) illustrate how understanding value creation flows can lead to generating new business models, while Nielsen et al. (2017) and Montemari et al. (2019) illustrate the connection between performance metrics and business models. The ten environmental aspects above are precisely positive potential business model innovation trajectories from challenges posed by regulation.

Utilising Regulation for Transformative Purposes

As argued in the six subsections above, regulation can positively and negatively affect a company's space for viable business model innovation. While spotting the negative consequences of regulation is often easy, spotting the opportunities may sometimes take a little work. From the conceptual discussions, some patterns emerge. The positive nodes are easy to identify. Some companies are provided business opportunities in new regulations because their products, services or technologies can be a part of new requirements and solving jobs-to-be-done for someone.

However, when regulation poses a challenge, a constraint or a restriction, you need to ask how this will affect the value proposition to your customer. New

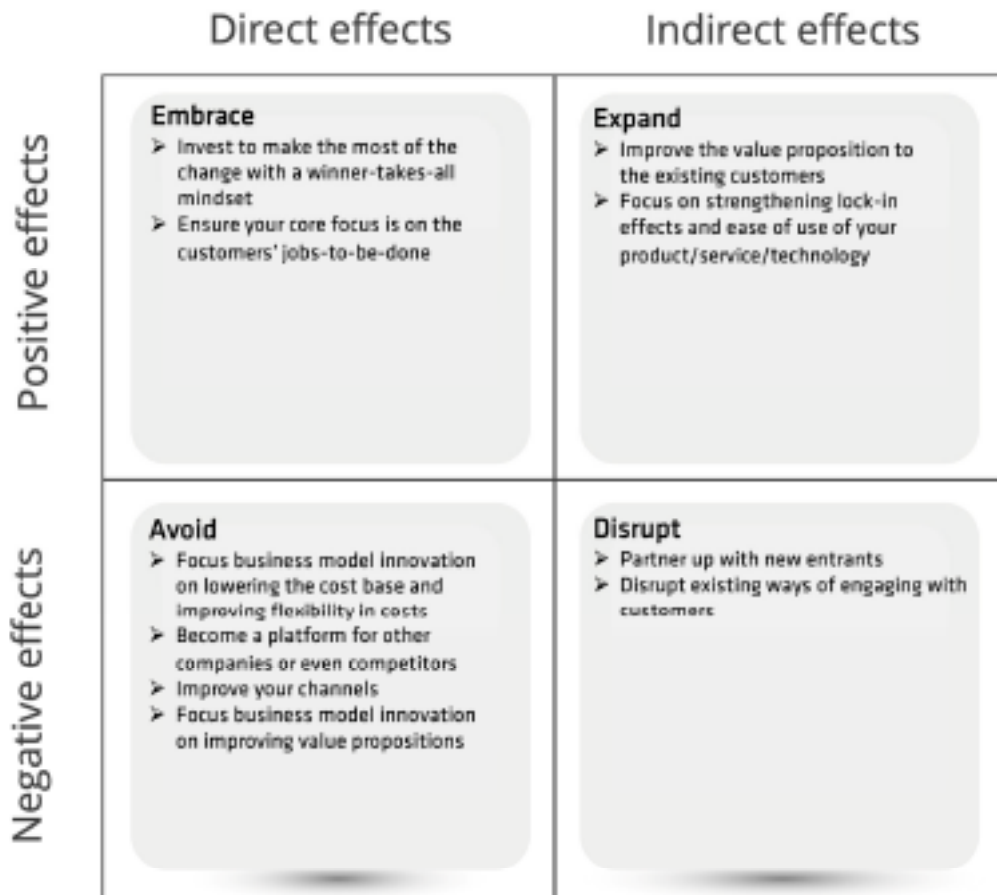


Figure 1. 2-by-2 matrix to discuss the effects of regulation on business model innovation

regulations may make some things tougher or create barriers. Relevant business model innovation questions are:

- How do you avoid the barriers or challenges, or how do you prepare a service that eliminates these barriers altogether?
- Regulation may make some activities more expensive, for example, due to excess administration. How do you share that expense burden, or how do you invite others in to share that burden (customers, suppliers or even competitors?)
- How do you utilise your competencies to beat the competition to a better value proposition under the new regulative requirements, even marginally?
- Given new regulations, which new types of competitors can enter the market and disrupt the existing industrial order? How do you partner up with them, or how do you buy a stake in their business to minimise your portfolio risk?

Faced with such uncertainties, management teams need a process from which to organise relevant information. One way of doing this is to use the two dimensions offered above, where the effects of regulation are split into positive and negative effects on the one hand and direct and indirect effects on the other. This gives the 2-by-2 matrix in Figure 1, which can be used as a starting point for discussing how business model innovation should be focused, considering the new regulatory context.

Concluding Remarks

What should be your business model innovation strategy in instances where regulation will have an effect on your business opportunities? How should you think about business model innovation, and where do you start? Forthcoming regulations on cybersecurity, AI, telecommunication, sustainability and environmental footprints will challenge companies and their value creation. The arrival of ecosystems, asset sharing and crowdfunding already have been doing so for a while.

In two other contributions to this special issue, Ricart (2023) discusses the potential of relational business models, and Lingens (2023) discusses ecosystems. Both support BMI in more digitally regulated markets, as the current outlook predicts. Successful BMI will largely depend upon innovation with partners, as was illustrated in Lund and Nielsen's (2014) seminal developments on network-based business models. Many of the negative regulatory effects we see here can be related to the constraining effects of value creation in focal firms.

Relational business models and ecosystems and the scalability mechanisms associated with network-based business model innovation (Nielsen & Lund, 2018) can help unlock value potentials in regulated settings. According to Lund & Nielsen (2018), crucial questions that foster business model innovation include:

6. Are there potential strategic partners that can offer features that enrich the existing value proposition to our customers (for free) while receiving value back themselves?
7. Are there alternative ways of generating revenue?
8. Are there alternative business model configurations that free the business model of existing capacity constraints?
9. Can the business model be changed to a platform for other businesses to buy into?
10. Is it possible to change existing stakeholders' roles and utilise them in simultaneous roles in the business model?
11. Who would pay for either access to our customer base or knowledge about our customers and their characteristics?
12. How strong are the "hard to copy", and how long are the "time to copy" attributes of our current value proposition towards customers?
13. Which mechanisms are in place to create lock-in of our customers?
14. How agile is our company towards threats from new entrants or new technologies, and how quickly would we be able to readjust?

However, as is always the case when some problems are solved – new problems appear on the horizon. Among the snags and hitches that arrive with network-based business models and ecosystem-based business model innovation are elements of building and maintaining trust among strategic partners, sharing of culture and values, and ensuring a fair dispersion of value creation and value destruction across all stakeholder groups.



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JOURNAL OF BUSINESS MODELS

Moving Business Models Forward for Positive Social, Environmental and Economic Outcomes: Managing Externalities (and Internalities) for Sustainability Innovation

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Abstract:

Purpose: Organisations are crafting business models to operate and be able to continue operating. While it is now common to mention the importance of the ecosystem surrounding a focal organisation, business models are often considered as internal configurations between resources, organisation and offers. Consequently, the ecosystem is only convoked as a matrix for value creation for stakeholders and value capture for a focal company. In this article, we contend that ecosystems are also the place where externalities of the focal business model operate, eventually destroying value for stakeholders. We suggest that a sustainable business model can only be designed and implemented with a complete account of externalities, and we propose that the business model is the key determinant between externalities and internalities.

Design/Methodology/Approach: We build on the research about business models and externalities to theorise at the crossroads of this literature. We then draw consequences from our theoretical development and advance business model recommendations for managers, consultants and researchers.

Findings: We propose to complete the concept of externalities with the symmetrical concept of “internalities” to analyse and design business models. We also offer eight policies to manage (or not) externalities and identify potential consequences of these policies for the business model of the focal organisation and its ecosystem. We conclude that business model thinking allows organisations to decide on what the externalities and internalities of their business model will be and thus induce management responsibilities.

Originality/Value: Instead of focusing on business models as an internal configuration, we contend that organisations must make decisions on externalities and internalities generated by their business model. We make propositions to design and preserve sustainable business models. Business models’ future should focus on the management of externalities.

Keywords: Business Model – Externalities – Internalities – Framework – Sustainability – Business model for sustainability – Sustainable business model – Impact

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Introduction: The Need to Go Further on Business Models and Sustainability

The role of business in sustainability and organisations' responsibility for improving society and the environment are now primarily discussed. Calls to consider sustainability emerged more than 30 years ago Field (see Brundtland, 1987; Turner, 1987), and empirical evidence has progressively led companies to implement various marketing and communication initiatives to fit stakeholders' expectations. However, when social and environmental issues take centre stage, it becomes essential to go further and progressively integrate these concerns into the core of the business model (BM hereafter) that managers and entrepreneurs design and implement.

The BM literature has, for a while, proposed concepts and frameworks to position sustainability in the processes associated with BM innovation, from purpose definition to BM design and BM implementation (see, for instance, Bocken et al., 2014; Schaltegger et al., 2016a; Schneider and Clauß, 2020; Schaltegger et al., 2016b; Attanasio et al. 2022).

Nowadays, literature refers to business models designed to ensure sustainability as "sustainable business models" (see Bocken et al., 2014; Bocken et al., 2019), "business model for Sustainability" (see Schaltegger et al., 2016a) or "circular business models" (see Boldrini and Antheaume, 2021; Fehrer and Wieland, 2021), among others. While these terms acknowledge differences in points of view, they have in common that they go beyond mere economic logic (Laasch, 2018). For instance, Schaltegger et al. (2016a) contend that a BM for sustainability should create and capture value while *"maintaining or regenerating natural, social and economic capital beyond its organisational boundaries"* (p.6).

However, the conditions to ensure this sustainability still need to be more detailed. Indeed, as discussed by Schneider and Clauß, as far as sustainability is concerned, *"we have minimal insight into the interactions of these value creation processes and related choices and consequences"* (2020, p.385). Consequently, we are convinced that the processes associated

with integrating sustainability into BMs need more research. Depletion of natural resources, climate change, social and economic precarity or pollution associated with some BMs cannot be left aside anymore, and this induces entrepreneurs and managers to consider the potential negative impacts of their activities on stakeholders (Juntunen et al., 2019; Attanasio et al., 2022). While externalities have seldom been discussed in the BM literature (exceptions include Walkiewicz et al., 2021 and El-Baz et al., 2022), it is time to consider them when considering value creation and value capture processes because sustainability reporting regulation soon will require this (Nielsen, 2023a).

In this article, we adopt a new point of view, focusing on externalities and the new status they should have in the cognitive repertoires of entrepreneurs and managers when designing and implementing a BM.

The following section describes how BMs usually operate at an original level, i.e., the extended enterprise. This should induce how the BM literature and practice considers loops of causes and consequences. Second, externalities should be included in the analysis and design of BMs. We convoke the notion of "internalities" to shed light on the role of BMs in the sustainability of organisations and their ecosystems. Third, we convoke the RCOV framework to illustrate the externalities and internalities of BM. Finally, the paper introduces several types of actions that an organisation could undertake to manage externalities.

Business Model as an "extended enterprise" Level

The "extended enterprise" (not so extended after all...)

We may wonder why the concept of "externalities" is rarely integrated into the BM literature and practices. We contend that the main reason is related to misconceptions concerning the level of analysis associated with BMs.

Organisations are crafting and implementing BMs to be able to operate, and the BM is often considered as a configuration of elements interacting to create

and capture value. Therefore, BMs are conceived from the point of view of a focal organisation while integrating various actors, including suppliers, distributors or customers. Thus, the BM has been described as an original level of analysis per se, the “extended enterprise” (Zott & Amit, 2013). However, we observe that the literature does not fully consider this original level of analysis (see also Ricart, 2023), as BMs are usually considered internal configurations. Boldrini and Antheaume (2021) were among the first-movers in treating the BM as more than at the “extended enterprise” level. The ecosystem, encompassing actors with whom the organisation is interdependent, is typically not included in the analysis or is considered another level of analysis than the BM. This may cause problems as BM-related processes may not be considered external actors.

The BM and the loops of cause and consequences

Boldrini and Antheaume (2021) noted that frameworks and reasoning to design and analyse BMs focus above all on linear material flows and need a systemic perspective. As Casadesus and Ricart (2010) and Demil and Lecocq (2010) put forward, adopting circular reasoning is essential to understanding the performance mechanisms of BMs, eventually including actors from the environment. This line of reasoning conceives a BM as composed of loops of causes and consequences. These loops are at the origin of virtuous circles or vicious circles and largely explain the performance of a given BM. For instance, scale economies, learning effects or recycling are virtuous circles within a BM.

These loops of causes and consequences (positive or negative) are internal to the focal organisation and include external actors to create inter-organisational processes (Casadesus & Ricart, 2010). Consequently, BMs are intertwined and co-evolve within an ecosystem (Lingens, 2023). A loop generated within a BM may have consequences on another organisation and initiate another loop (with positive and negative consequences) within this organisation.

Indeed, the BM of a focal organisation generate internal loops of causes and consequences within this organisation, and external effects on other actors

who become *de facto* included in the ecosystem. Indeed, as Demil et al. (2018) noted, the BM itself is enacting the ecosystem through the external effects this BM generates. Understanding these external effects is crucial to studying and designing BM.

Considering Externalities (and internalities) of Business Models

Externalities and their naturalisation

An externality “*is an ambiguous concept*” (Demsetz, 1967, p.348). In 1946, Arthur Pigou, founder of welfare economics, described non-optimal situations (i.e. situations in which the well-being of one individual can be improved without worsening that of another), highlighting the decisive role of externalities. Externalities arise when one agent’s actions impact another agent’s situation without this relationship being subject to monetary compensation. Externalities include both external costs and external benefits, i.e. costs or benefits for external actors. Positive externalities occur when an agent renders a service to other agents without being rewarded, while negative externalities occur when an agent disadvantages other agents without compensating for the damage. There can be pecuniary or nonpecuniary externalities, but in every case, one or several individuals or organisations enjoy or suffer from externalities. As Ayres and Kneese (1969) noted, externalities can be associated with production and consumption. From a BM point of view, positive externalities create value for stakeholders, while negative externalities destroy value for stakeholders.

All externalities have in common that the market does not consider them. In the presence of externalities, if everyone pursues their interests, the result will be a sub-optimal situation at the collective level. Indeed, the main effect of externalities is that the private cost differs from the collective cost or cost for society (Demsetz, 1967). For example, when a company pollutes, its private cost is lower than the cost for society since it does not include the pollution it generates in its costs. Reasoning solely based on the private cost, a company will produce more than if it considered the total cost (which includes the cost of waste treatment). The negative externality will, therefore, lead to overproduction.

Consequently, we contend that there are externalities when the price of a product or service does not include the full costs and benefits associated with its production and consumption. Thus, externalities are transfers of value without monetary compensation that depend on the choices of other agents. Most of the time, there are no transactions between the agents whose activities produce externalities and those impacted by these externalities. When an economic agent produces or consumes, there may be potential costs and benefits incurred by third parties who were not involved in the transaction.

Externalities are a complex phenomenon and a real challenge for humankind. However, we can observe several things that could be improved in using this concept in the context of management.

First, externalities are often naturalised. Entrepreneurs, managers, and analysts may consider that externalities are naturally external to the organisation's responsibilities and the realm of action. Indeed, many individuals assume that what is considered outside of the organisation's scope is not their responsibility but a consequence of the mere characteristics of their sector. On the contrary, following Demil et al. (2018), we contend that the BM defines the type and strength of externalities that will occur for stakeholders.

Second, some externalities are only considered on their positive side. It is the case, for instance, of externalities based on network effects (so-called 'network externalities'). Indeed, it is often assumed that a network effect is a phenomenon whereby new users who use a product or service increase the value of that same good or service for other agents. An example is a communications network or a social network, where each agent benefits directly from the use of the network by a new agent. Network externalities directly or indirectly benefit the user of the good or service. This benefit depends positively on the number of people who have purchased the same or a compatible good or service. However, we must remember that traffic jams are also a negative consequence of network effects.

Third, in the case of negative externalities, it is often considered primarily the State's responsibility to

manage those externalities. Indeed, public authorities may intervene through taxes and subsidies, as they may tax activities generating negative externalities and subsidise those generating positive externalities. We contend that the responsibility for managing those externalities can also be considered within the organisation's perimeter. Indeed, we propose to include the concept of "internalities" as a symmetry for "externalities". Externalities are a consequence of the choice of a BM, and the entrepreneur or the manager could have decided to internalise a given consequence or a set of consequences of the organisation's activities.

Externalities: the good, the bad, the undetermined

In a pragmatic approach, qualifying externalities as positive or negative may be challenging. In the meantime, a BM may generate both positive and negative externalities. Stakeholders may accept the coexistence of the two kinds of externalities. However, they may not accept if negative externalities are perceived as mainly exceeding the positive effects of the activity. For instance, in the case of Airbnb, positive externalities associated with the development of tourism in a given area also come with drawbacks, such as the increasing price of real estate for residents, depopulation of the neighbourhood, and noise in collective housing (Carrasco-Farré et al., 2022). Things are becoming even more complex when we consider distinctively each actor in the ecosystem. Some consequences of a BM may appear negative for some stakeholders and positive for others, depending on their own BM.

Moreover, from a dynamic perspective, the distinction between the good, the bad, and the undetermined consequences is complex, as these consequences may eventually evolve. For instance, social networks may generate positive network externalities in the first stage and then attract many adopters, among them haters and fake news producers. The success of such networks may lead, in the end, to adverse consequences on individuals (bullying...) and the whole community. Thus, positive consequences may become negative ones, or conversely.

Managing externalities and internalities through the BM

Because of the naturalisation of externalities generally observed, those externalities are usually considered the responsibility of the State or any other public or collective actor. In such a context, the stake of managers becomes more “how to externalise negative consequences for my organisation?” than “how to manage my externalities?” Organisations often seek to internalise the positive consequences of their activities and to externalise negative consequences. Thus, the performance of many organisations comes from the ability to let non-voluntary stakeholders cope with the negative consequences of their activities.

However, it is positive to see that externalities can be managed by the organisation and not only by public authority. As noted by Ayres and Kneese back in 1969 concerning the production of goods, “*residuals do not necessarily have to be discharged to the environment. In many instances, it is possible to recycle them back into the productive system*” (Kneese 1969, p.286). Thus, externalities can become internalities and become subject to management.

We define an “internality” to be a consequence of the BM that the organisation is managing. We propose that the BM of an organisation enacts if and how a consequence is an externality or an internality. Indeed, when an entrepreneur or a manager designs the BM of her company, she can decide if each of the consequences will be kept internally or externally. This arbitrage between internality and externality is defined by choices made to design the BM. However, it is also important to remember that each time an entrepreneur or a manager chooses to internalise a consequence of its activities, it implies changing various elements of the BM of its organisation, creating new loops of causes and consequences.

The RCOV Framework and Deciding Between Externalities and Internalities

Analysing or designing a BM considering loops of causes and consequences and deciding between

externalities or internalities for the consequences require a suitable framework.

Starting in 2004, we developed an analytical framework to analyse the current BM or design and implement the future BM of an organisation (Lecocq et al., 2006; Demil & Lecocq, 2010). This framework, labelled RCOV (for Resources, Competencies, Organisation, and Value propositions), combines parsimony with the capacity to account for the dynamics of relationships between components in the BM (Casadesus-Masanell & Ricart, 2010; Demil & Lecocq, 2010). Figure 1 displays the circular RCOV framework, which allows for the analysis that creates the various loops for performance and sustainability. It differentiates from other frameworks for BM innovation thanks to its ability to deal with platform business models (Cusumano et al., 2020) and ecosystems (Lingens, 2023) through the inclusion of network externalities mechanisms but also through its ability to analyse and define circular business models (Boldrini & Antheaume, 2021). RCOV integrates, for instance, the potential successive cycles of resource deployment, the potential reinforcing mechanisms of scale economies, learning or technology diffusion, and, more generally, the loop effects within the value creation and value capture processes.

Spender (2010) mentioned that rigorous frameworks are those based on theories, something that Foss (2023) also is concerned with. The RCOV framework derives from Edith Penrose’s theory of firm growth (Penrose, 1959). In this theory, the growth of an organisation involves, in particular, the interaction between resources (which can be insufficiently exploited) and managers included in organisational systems. Indeed, interactions between resources and the organisation lead to the developing of new products and services. However, the RCOV framework also allows the inclusion of other types of loops between resources, organisation and value propositions than those evoked in Penrose’s theory. For example, the value propositions can yield resources capable of generating new value propositions supported by the company’s internal and external organisations. This is the case for Google, whose search engine

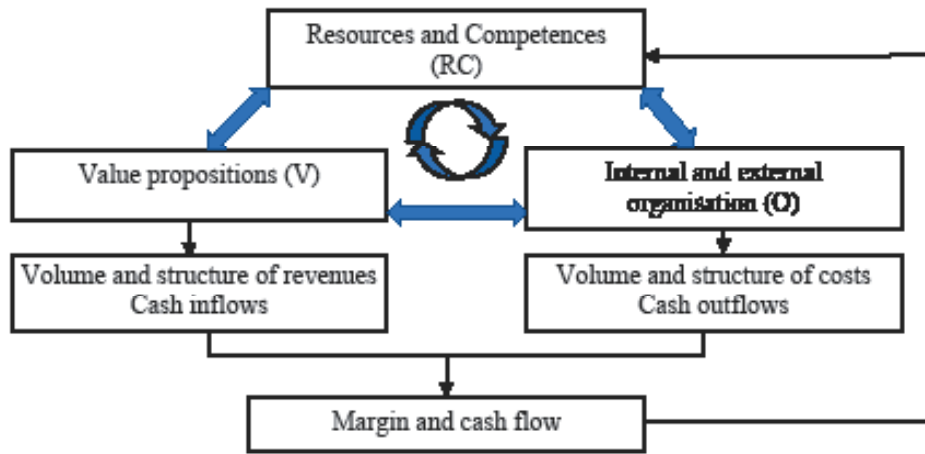


Figure 1: The RCOV framework

(value proposition) offered to the general public is used to collect data (resource) and to generate new offers for companies based on advertising or data (value propositions).

The RCOV framework comprises only three main components (Resources and Competences, Organisation, and Value Propositions) interacting together. As a consequence, it suits complex connections between components of the BM (Boldrini & Antheaume, 2021), and it is often mentioned as suitable to capture the dynamics of the BM (Casadesus-Mansanell

& Ricart, 2010; Plé et al., 2010; Gerasymenko et al., 2015; Ziaee et al., 2016; Boldrini and Antheaume, 2021) compared to frameworks based on a linear approach. Indeed, value creation and capture processes can rarely be considered linear.

The RCOV framework allows us to consider positive and negative externalities arising from a BM. Figure 2 illustrates externalities emerging from loops of causes and consequences when operating a given BM. These externalities may include natural resource depletion, pollution, or network effects.

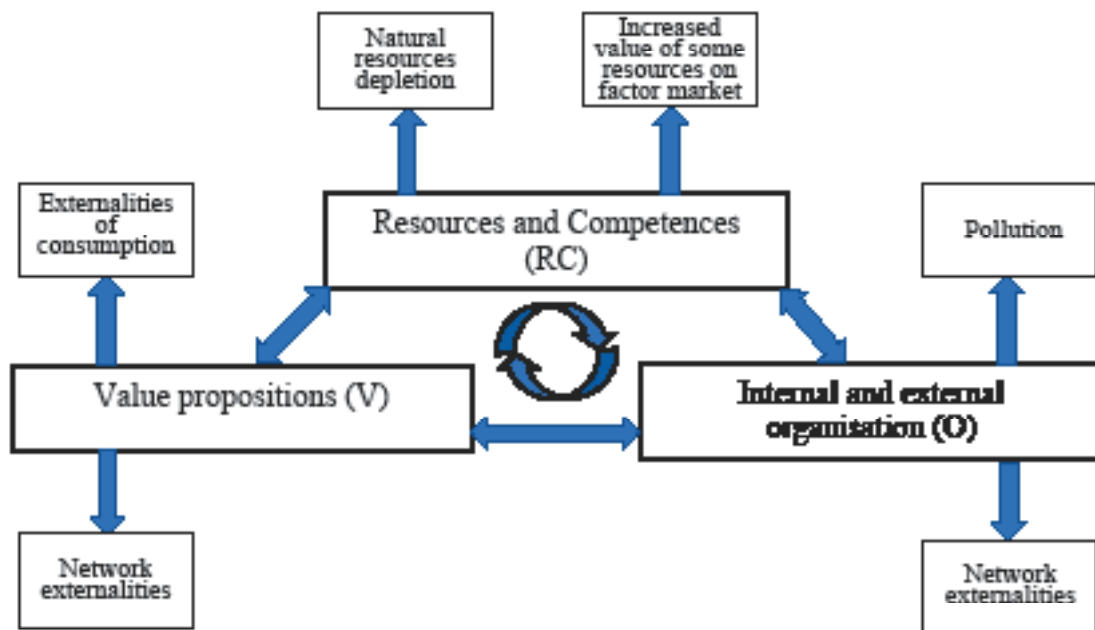


Figure 2. Examples of externalities of a BM using the RCOV framework

Beyond identifying externalities, managers may decide to change their BM to internalise some externalities, generating positive social or environmental impact. More generally, managing externalities is an essential activity for managers and entrepreneurs.

Taking Responsibilities in the Process of Business Model Design: On Consequences, Externalities and Internalities

Our preceding arguments lead us to consider that the fundamental dimension when designing and implementing a BM is the scope of responsibility it defines. This responsibility supposes the possibility of free will and the ability to do otherwise (Stanford Philosophical Encyclopedia, 2019¹). Consequently, defining the scope of responsibility depends on the entrepreneur's purpose or values.

Milton Friedman (1970) defined this scope very narrowly several decades ago. He denied the interest in the concept of social responsibility except for an individual proprietor who may act to reduce the returns of his enterprise "to exercise his 'social responsibility'". Friedman considered that "there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud." (p.17). In his reasoning, Friedman excluded externalities, letting the government use taxes and regulations to fix social and ecological issues.

In the opposite position, some managers or academics have adopted a corporate responsibility view in which business sector decisions must go

beyond the company's direct economic interests. This responsibility supposes managerial discretion and is driven above all by top managers who act for positive (e.g. attention to others) or negative motivations (e.g. threat of regulation or social control) (Swanson, 2008). Indeed, whatever their motivation, top managers define the ethical climate of the organisation.

These debates paved the way for adopting various positions concerning the scope of responsibility an organisation assumes. In this article, we propose that this scope is reflected in how a BM manages the consequences of activities through externalities and internalities. This allows us to avoid the slippery debates on moral convictions or ethical positions of managers and to focus on corporate responsiveness (Ackerman & Bauer, 1976). As Swanson (2008) points out, "Corporate social responsiveness refers to how business organisations and their agents actively interact with and manage their environments, [whereas] corporate social responsibility accentuates the moral obligations that business has to society".

Sure, it can be challenging to evaluate the responsibility of an organisation in observed negative consequences, as these may be produced by the intertwined BMs of various actors in an ecosystem and not only by the action of a single actor. Moreover, an organisation can sometimes correct these externalities. As aptly defended by Friedman in his tribune, managers or entrepreneurs are only experts in some of the social problems of society.

Adopting the view that the scope of responsibility can be apprehended by how the BM is dealing (or not) with externalities, we identify eight policies that could be adopted to manage (or not) negative consequences of a BM (See Table 1). These policies reveal the scope of responsibility an entrepreneur or an organisation accepts (or does not) to take charge. These policies display very differentiated levels of engagement from the organisation; some are unethical from our point of view. Most organisations

¹ 'Moral Responsibility', Oct 16, 2019, <https://plato.stanford.edu/entries/moral-responsibility/>

Table 1.

Policies of the focal organisation to manage the externalities of its business model	Typical actions undertaken by the focal organisation	Illustrative consequences for the business model of the focal organisation	Illustrative consequences for the ecosystem
Hiding negative externalities	Organisation tries to hide negative externalities	Delays social pressure, taxation, regulation or prohibition of the sector	Actors lack of information or suffer from mis-information
Expecting the ecosystem to manage negative externalities	De facto transfer of the negative externalities to other actors	Reduces costs	Actors have to manage the externalities of the focal organisation
Transferring the responsibility of negative externalities	Transfer of the negative externalities to other actors with their agreement	Limits risks Reduces social pressure by assuming that the externalities are managed	Actors voluntarily manage some externalities of the focal organisation
Compensating negative externalities	Inclusion of costs to compensate negative externalities	Increases cost Eventually adds new activities	Actors enter in the ecosystem as they benefit from and/or operate compensation schemes
Reducing negative externalities	Operate at smaller scale or slightly differently to reduce negative externalities	May limit the growth of the organisation	Value creation increases for some actors and decreases for others
Avoiding negative externalities	Change importantly the BM to avoid a type of externalities	Time needed to operate effectively the new BM	Value creation increases for some actors Change of the ecosystem with eventually new externalities appearing
Transforming negative externalities into positive ones	Convert by-products into a value proposition for other actors	May reduce costs, May create new sources of revenues, Increases legitimacy	Value creation increases for some actors, Reconfigures the ecosystem through inter-organisational arrangements and coordination
Internalizing externalities	Innovate the BM to develop new activities and manage internally the externalities	Increases costs on the short term, May reduce costs and/or create new sources of revenues on the long term, Increases legitimacy	Value creation increases for some actors

Table 1: A typology of policies to manage (or not) externalities and their consequences (from the less virtuous to the more virtuous actions)

will use various policies simultaneously, depending on the type of externalities.

- **Hiding negative externalities:** In this situation, the BM of an organisation produces negative externalities, and the organisation tries to hide them to avoid taxation or prohibition. The archetypal example is the tobacco industry, when it made deliberate choices for decades, trying to create addicted customers but also to foster public ignorance and cast doubt on scientific knowledge (Proctor, 2012). The industry invested a lot of money to produce scientific studies to discard opposition and lobby regulators.

This policy may delay social pressure and regulations but ultimately proves morally questionable when information spreads.

- **Expecting the ecosystem to manage externalities:** Some organisations may be aware of their externalities but transfer the consequences of their BM (at zero price) to other actors in the ecosystem. For example, the soft drink industry received harsh criticism for contributing to the obesity epidemic and *"The cost of obesity alone, in treatment and lost productivity, runs to hundreds of billions of dollars annually"* (Nestle 2015, cited in Gertner and Rifkin, 2018, p. 164). Health costs are primarily supported by public or private health insurance. This led Coca-Cola to communicate on integrating wellness and the fight against obesity as part of its core mission (Gertner & Rifkin, 2018).

This policy implies, among other things, that other stakeholders "accept" to bear the costs of externalities of the focal organisation. It also implies that it is not concerned by its negative externalities.

- **Transferring the responsibility of externalities:** An organisation may be aware of the externalities that its BM produces but may decide to externalise or transfer some activities to other actors of its ecosystem with their agreement. These actors become responsible for managing these externalities (or a part of these externalities). For example, cascading subcontracting may be viewed as an inter-organisational

practice to avoid the total liability of work-related accidents or occupational illness. As the European Trade Union Confederation argues, *"This development [to circumvent national legislation and workers' rights] is even more visible in subcontracting, which has become THE business model in certain sectors. Businesses have perfected their techniques to externalise risks and responsibilities while maximising power and profit"* (Securing workers' rights in subcontracting chains, July 2021)². The Confederation mentions some sectors, such as food and agriculture, garment industry, road transport and construction.

This policy supposes that other actors in the ecosystem formally accept the transfer of responsibility from the focal organisation. This focal organisation limits its risks and reduces social pressure by giving the impression of managing its externalities.

- **Compensating negative externalities:** The focal BM includes costs to compensate for total or partial externalities. This compensation may consist of money or actions once externalities have been observed. Referring to the "polluter pays principle" set out in the 1992 Rio Declaration, Grasso and Heede (2023) estimate the negative impact of fossil fuel producers on climate between 1988 and 2022. Their study concludes that the cumulative cost of climate damages attributed to the primary producers for 2025-2050 was about \$70 trillion. The authors consider that these companies should pay around \$200 billion annually until 2050 to compensate for the climate damages and help fight against global warming.

While attractive, this policy raises questions such as: Are the compensation schemes equivalent to the costs borne by other public or private actors? How do we distribute compensation? Can money compensate for some irremediable damages? The compensation policy is generating costs for the organisation. It may

² https://www.etuc.org/sites/default/files/2022-01/Securing%20workers%20rights%20brochure_EN.pdf

also induce new activities within the organisation. Compensation may also necessitate the inclusion of new actors in the organisation's ecosystem. Indeed, these actors may operate compensation for the focal organisation (for instance, a company that wants to plant trees is often operating with a subcontractor) or benefit from this compensation (for instance, an NGO receiving compensation from the focal organisation).

- **Reducing negative externalities:** While most human activities may present negative consequences, a BM may be designed to limit its externalities. For example, ecotourism promotes reconciliation between the conservation of nature and local cultures while providing a unique experience for visitors. Its goal is to *"generate money in an ecologically and socially friendly way than other forms of land exploitation"* (Koens et al., 2009 p. 1226) and limit tourism's impact. However, ecotourism still has drawbacks and negative social, economic and ecological consequences.

This policy may limit the growth of a company deciding to reduce its externalities with its current BM. It may also reduce the growth of suppliers, client organisations or organisations proposing complementary products or services. Other actors may observe an increase in value creation due to the reduction of negative externalities impacting their lives or activities.

- **Avoiding negative externalities:** Organisations may try to avoid wholly or partially generating negative consequences of their BM. To do so, they have to innovate and change their BM. For instance, it is the case when car manufacturers try to reduce the pollution generated by the consumption of oil engines by producing electric cars or hybrid electric cars (Helmers & Marx, 2012).

This policy requires most of the time to design a new BM radically different from the previous one. It implies spotting and analysing existing externalities to propose alternative solutions. However, value creation tends to increase for the actors that used to suffer from these externalities. Other externalities may appear due to

the implementation of a new BM. For instance, while electric vehicles decrease the carbon footprint associated with the use of cars, the production and lifecycle of batteries to power electric cars have generated new environmental consequences (Lave et al., 1995). Indeed, electric cars' batteries make them more carbon-intensive to manufacture than gas cars.

- **Transforming negative externalities into positive ones:** An organisation can design relationships with actors in its ecosystem to transform negative externalities into positive ones. For instance, the approach of industrial ecology or circular economy promotes specifically connections between companies located in the same area to recycle by-products of an industrial or an agricultural process in another company's process (Jambou et al., 2022). In this case, the negative externalities (pollution or waste) become positive externalities, as by-products of an organisation are used as inputs by another.

This policy improves the management of material and energy flows by encouraging cooperation between different actors, such as companies or households, and potentially reduces the costs of a BM. It may decrease a BM's social or ecological footprint and decrease the costs borne by some actors in the ecosystem. Nevertheless, it requires the alignment of different actors' BMs in the ecosystem with formal or informal arrangements to implement virtuous inter-organisational loops.

- **Internalising externalities:** Organisations may explicitly internalise what used to be their externalities or those of other stakeholders in their ecosystem. **Internalising** externalities can be the function of some actors in the ecosystem, such as companies specialised in recycling or re-using products. However, a company may also choose to internalise the negative consequences of its BM, which would have become externalities if not taken seriously into account. For example, the 'extended producer responsibility' principle tries to solve the piles of clothes that end up in local landfill sites or are shipped in bulk to countries in the South.

Fashion companies may fund textile recycling programs by setting up recycling programs (Fortune.com, 5/31/2023)³.

Such an internalisation policy increases costs (to internalise the management of the BM consequences). However, it may also decrease other costs or create new sources of revenue in the long term by generating new virtuous loops within the BM of the company. For instance, internalising externalities in the above fashion industry creates new costs as clothes need recycling. However, it also increases the cost of overproduction for producers. It thus incites companies to evaluate production quantities better and to move towards high-end products as they are concerned about recycling products in surplus.

The policy of internalisation requires the acquisition of new assets and the development of new competencies. Establishing new relationships with existing actors or extending the current ecosystem to find innovative solutions may also be necessary. Internalising externalities renders potentially the activity of some actors in the ecosystem useless.

Conclusion

The BM approach (Lecocq et al., 2010) brings an extended view of organisations by considering that a BM defines the ecosystem in which an organisation evolves and interacts (Demil et al., 2018; Lingens, 2023). This ecosystem is traditionally considered from the standpoint of value creation for stakeholders and value capture for the focal company. In this article, we adopt a different perspective by considering that the ecosystem is also where the externalities of a focal BM operate, eventually generating value destruction for stakeholders. While managers cannot constantly evaluate the full consequences of their BM (whether on the production side or the consumption side), the perspective introduced here gives a central role to their responsibility. Indeed, an organisation may take several stances concerning

its externalities and ultimately decide to internalise some negative effects of its activities. Consequently, this perspective enables participation in the debate on environmental and social responsibility from a BM perspective, giving a pragmatic account of corporate responsibility.

To conclude, we can draw several implications from our developments.

From a normative point of view, designing a business model should be motivated by a potential increase in revenues or profit and by sustainability for its ecosystem (and not only for the company itself). For managers or entrepreneurs, this implies reviewing the externalities produced by the BM of their company and adopting a responsible stance, considering that managing these externalities is a central issue within their perimeter. Moreover, we suggest that some externalities only appear in the long term and that some unanticipated negative externalities may occur over time. This implies that managers and researchers should adopt a dynamic view of these phenomena.

Theoretically, we argue that externalities should not be reified and depend, above all, on the BM design. The design of a BM reveals choices made to assume (or not) responsibilities, first deciding between externalities and internalities and second deciding how to manage the externalities once they are generated. This enables them to adopt a pragmatic approach of responsibility that is not only based on the ethical principles supported by managers, nor on the discourses of these managers, but on the analysis of the externalities generated by their BM and the choices made to manage these externalities. Conceptually, it is important to realise that negative externalities that are appropriately managed may end up (in the case of the most virtuous policies to manage externalities such as 'Avoiding negative externalities', 'Transforming negative externalities into positive ones' and 'Internalize externalities') not being negative externalities any more (and eventually not externalities).

From a pragmatic point of view, the responsibility of managers or entrepreneurs is engaged when they

³ <https://fortune.com/2023/05/30/fashion-waste-recycling-programs-epr-proposed-laws/>

decide to accept (or not) some of the consequences of their BM and then manage these consequences internally or externally. In this article, we provide a typology of policies to manage (or not) externalities and discuss their consequences on the business model of the focal organisation and its ecosystem. These policies are more or less virtuous (some are immoral and very negative for the environment and society). Our typology identifies the type of actions organisations may undertake and allows managers and stakeholders to work together to implement virtuous practices, creating progressively better business models.

Sure, virtuous practices for managing externalities are not easy to implement, as they are supposed to question the externalities produced by a given BM and consider its impact on environmental, social and economic outcomes. For instance, internalisation may cause a competitive disadvantage (on some business dimensions) if one company internalises some negative effects, whereas its competitors do not. To avoid this competitive disadvantage, an organisation could try to impulse best practices at the collective level (with competitors) or could incite public actors to regulate some business practices. Managers should be aware that current and forthcoming regulations may also influence the public's perception of externalities and internalities (Nielsen, 2023b).

Finally, considering externalities in a BM perspective could change the rules of the competitive game. In most sectors, some BMs are competitive vis-a-vis more responsible BMs only because they externalise responsibility for the consequences of their operations. In other words, they are competitive because they do not bear the cost of their externalities. Considering these externalities could give responsible business model innovation a chance to flourish.

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