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## The Cambridge Business Model Innovation Process

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### Abstract

Organisations increasingly understand that meeting their sustainability ambitions does not only require new technologies, but innovation on the business model level. To facilitate the design of more sustainable business models, a range of new tools and techniques have been developed. While this resulted in the design of a wide range of promising business models, only very few are successfully implemented. The Cambridge Business Model Innovation Process is a framework developed to guide organisations' business model innovation efforts and map the necessary activities and potential challenges. In this paper, we introduce the framework and present an exploratory attempt of applying it to a social start-up. The preliminary result of this experience led us to build a comprehensive research agenda that aims at developing tools and processes to help organisations in bridging the design-implementation gap in sustainable business model innovation.

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### 1. Introduction

While economic development has been improving, for instance, life expectancy and access to new products and services, the current economic system is increasingly widening social inequalities [1] and stressing the environment beyond its natural ability for self-recovery [2].

If industrial patterns and social behaviour do not change, longevity and profitability of industries will face severe constraints [3], [4]. Improving economic performance, environmental resilience, and social inclusion requires coordinated action between

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companies and their stakeholders to generate products, processes, services, technologies, and business models that are capable of simultaneously benefitting the economy, the environment, and society at large [5].

In the field of innovation, this implies a shift in scope beyond economic performance to incorporate social and environmental aspects. This includes, for example, theories on sustainable innovation [6]; eco-innovation [7], [8]; and innovation at the bottom of the pyramid [9]. Most studies were initially focussed on product or process innovation, with business model innovation for sustainability being a rather new area of interest. The rapid increase in research activity is accompanied by considerable interest from industry. A key reason for this is that it becomes increasingly clear that realising organisations' sustainability ambitions will often not only require the development of new products and technologies, or incremental refinements in the companies' operation, but a holistic value system changes through business model innovation, resulting in sustainable business models (SBM) [10]-[12].

A SBM can be defined as a simplified representation of the elements, and the interrelations between these elements, that an organisation employs to create, deliver, capture, and exchange sustainable value for, and in collaboration with, a broad range of stakeholders [14]. To assist companies in the setup of or transition to SBMs, researchers and practitioners have developed tools and processes to facilitate their design; for instance, the Design of Flourishing Enterprises approach [15], the Triple-Layered Business Model Canvas [16], the Value Mapping Tool [17], [18], or the Value Ideation concept [14]. Although these tools helped with the conceptualisation of a wide range of promising business models, only a few of these concepts are actually implemented [19].

The lack of implementation is due to what we call the design-implementation gap. Interviews conducted with experts in SBM innovation show that there is a gap between conceptualisation and implementation that leads to promising ideas not being further investigated, concepts not being implemented, and implemented business models failing in the market.

This paper first aims at presenting a framework, the Cambridge Business Model Innovation Process (CBMIP), which addresses the different stages of business model generation, from early conceptualisation to implementation. The framework aims at providing better guidance through the business model innovation process with its different phases and activities and to map the potential challenges of the design-implementation gap for companies. This framework was developed through an extensive literature review, with the contribution of academic experts who were interviewed to reach a theoretically robust framework. Subsequently, the CBMIP was applied with the sustainable start-up Favalley, to reveal insights about potential improvements to the framework, as well as to help creating a comprehensive future research agenda.

The remainder of this paper is structured as follows. Section 2 described the theoretical background of the research, and section 3 illustrates the research method. Section 4 introduces the results from this research, that includes the CBMIP framework, followed by its application with the case study Favalley. The paper concludes in section 5 with a discussion about refinements of the framework and a future research agenda to expand its contribution to academics and practitioners.

## 2. Theoretical background

Most of the multidisciplinary studies connecting innovation to industrial sustainability focus on new products or processes – business models are relegated to the periphery. However, over the last years, business models have raised increasing attention among scholars [20]-[23]. An annual survey carried out by the Boston Consulting Group and BusinessWeek identified that business model innovators had an average premium that is four times higher than product or process innovators [24]. Accordingly, a global survey on innovation – conducted by IBM with over 750 corporate and public sector leaders – found that companies whose operating margins were growing faster than their competitors were also twice as likely to highlight business model innovation in contrast to product or process innovation [25].

There are several definitions of the term *business models* (e.g. by [12], [26], [23], [27]-[29]), with a variety of descriptions on what the components are, how they are interlinked, and how they create value. While [23] state that “scholars do not agree on what a business model is”, other authors [30]-[32] identified several similarities across the definitions – such as the focus on “value” and the focal role of a clear value proposition. Based on this, this paper understands a business model as a simplified representation of the elements of an organisation and the interaction between these elements for the purpose of its systemic analysis, planning, and communication in face of organisational complexity.

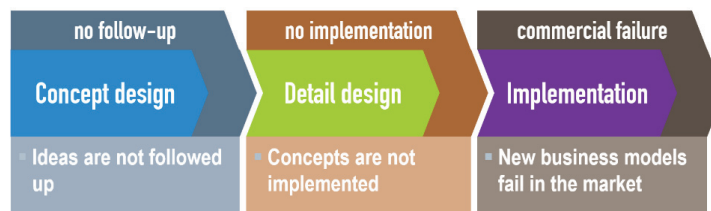
The notion of *sustainable business models* derives from the qualification of “business models” with concepts usually raised by theories on corporate sustainability [33]-[36]. This particularly includes theories on stakeholder management [37]-[39] and sustainable value creation [17], [18]. Consequently, a SBM is a business model that incorporates pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders, and a long-term perspective.

The expected outcome of sustainable value creation is improved performance in economic, environmental and social aspects. This comprises a diverse range of outputs for the benefit of the company and their stakeholders; including, for example, resource efficiency, resilience to external shocks, better relationship with employees and communities, and higher profitability [40]-[42].

Several tools and processes have been developed to facilitate the design of business models and assist innovative endeavours. Tool development for sustainability is a relatively recent phenomenon, which was primarily focused on products or took a broad view on eco-innovation [43]-[45]. Even more recent is the development of tools that aim at using business model innovation as a leverage to help companies to meet their sustainability ambitions [14]-[18]. These approaches are focusing on single phases of SBM innovation, with the exception of the sustainable business model process of [17], which combines different tools into a more comprehensive process. These tools have helped with the design of a wide range of promising business model concepts, but offer only little guidance through most of the remaining business model innovation process.

As a result, in practice, only a very small subset of SBM concepts are actually implemented [10]. We summarise the reasons for this under the term design-implementation gap, which is represented in Fig.1. The term covers all challenges arising in the business model innovation process of organisations that prevent the successful and sustainable implementation of business models.

Fig. 1. The design-implementation gap of sustainable business model innovation.



### 3. Method

This paper, addresses the following research question: *How can organisations bridge the design-implementation gap of sustainable business model innovation?* In an attempt to answer this question, we employed different methodological techniques. First, we carried an extensive systematic literature review, which was followed by interviews with experts, to create a framework, the CBMIP, to clarify the design-implementation gap by identifying and illustrating the phases, activities, and challenges of organisational business model innovation. Subsequently, this framework was applied with a start-up to gain additional and deeper insights and identify potential improvements to the framework, as well as to help creating a comprehensive agenda for future research.

The CBMIP was developed based on a comprehensive literature review, followed by interviews with experts in the field of business model innovation and industrial sustainability. The literature review was based on a systematic approach, that not only covered the body of literature that authors were already familiar with, but also a literature search with the search string, “*business model\**” AND *sustainab\** in ‘title’ and “*business model innovation*” AND *sustainab\**; “*business modelling*” AND *sustainab\**, and “*business model design*” AND *sustainab\** in ‘topic’, searching for reviews and articles in English that were published from 1950 onwards on the Thomson Reuters Web-of-Science database. The literature review process yielded 142 non-mutually exclusive results, which were also combined with articles proposed by twelve interviewed experts, and a cross-reference search in the identified papers. The resulting body of literature was subsequently scanned for relevant information about business model innovation process phases, its activities, problems, and challenges as well as characteristics and actions that make the process suitable for incorporating sustainability considerations.

The case study method consists on the intensive investigation – both in depth and width – of the object of analysis, in order to provide the most complete understanding possible [46]. This method is particularly relevant for this research, as we aimed at exploring in-depth the application of a framework based on literature and expert knowledge.

This research design consists of a single-case inductive study. This method is capable of generating new concepts through the unravelling of empirical events that were not observed by previous theories. Theories emerging from single case studies might benefit from the provision of a clearly bounded setting for investigation, with better control of variables and contextual influences. By contrast, it has the limitation of not being generalisable, due to its high degree of specificity. As this is a first

attempt of testing a framework, we consider that a single, in-depth case study was better suitable to unpack a variety of phenomena that can, in future research, be tested in other corporate settings.

Moreover, as a business modelling framework was deployed for the first time, it was also critical to choose an early-stage start-up as our case study. We understand that the choice of the case study was particularly critical, as it was capable of contributing with clear observations of the topic of research, while simultaneously providing the deployment of the tool since the ideation phase of the start-up. Triangulation of information observed in the case study was also an important tool to increase accuracy and as a means of avoiding misinformation and improving the reliability of the study.

#### 4. Results

This section presents the results of this research, first the developed theoretical framework, the CBMIP, and then the case study Favalle.

The CBMIP, illustrated in Fig.2., is both descriptive, in showing how business model innovation happens in practice, and prescriptive, in providing guidance on how sustainable business modelling should ideally be carried out in organisations. The process is typically cyclical or repetitive, i.e. once completed, most organisations will repeat it at some point to adapt or to react to changes in their industry and environment [27], [28]. The approach consists of eight sequential but iterative phases or steps; which means that while the organisation is roughly following the process step by step, it may also go back and forth in the process, repeating and omitting stages according to its requirements and limitations. The steps are:

1. **Ideation:** The purpose of the business model innovation and its key stakeholders are defined, and the value proposition and first conceptual ideas are ideated.
2. **Concept design:** A first rough conceptualisation of the key business model elements is developed and documented.
3. **Virtual prototyping:** A range of prototypes is generated and revised to refine and communicate the business model concept. The phase also comprises benchmarking with solutions and concepts from other parties.
4. **Experimenting:** Key assumptions and variables of the concept are tested in simulations and field experiments, ideally through randomised controlled trials.
5. **Detail design:** An in-depth analysis and detailing of all the elements of the business model and interactions between these elements is conducted.
6. **Piloting:** The entire concept is tested by running a first limited version of the business model in a subsection of the target market.
7. **Launch:** The business model is rolled out across all responsible organisational units and the target market.
8. **Adjustment and diversification:** The business model is revised according to initial plans, expectations, and strategic fit. Based on this evaluation, adjustments and diversifications are made and, depending on the comprehensiveness of the necessary changes, the entire business model innovation process may be repeated.

Due to its descriptive and prescriptive qualities, the process can be used in two ways to address the design-implementation gap. First, the CBMIP was created to provide a more comprehensive framework than the ones existing in literature, capable of extensively covering different stages of business modelling, including their main characteristics and components, their main activities, the transitions between different phases, and the potential challenges that may arise. Thus, the framework can inform planning and execution of business model innovation in organisations. Second, this model is also particularly relevant for the identification and integration of new and existing tools into a structured and synergistic portfolio capable of addressing challenges and helping business modelling in organisations of different industries, sizes, and operating in different contexts.

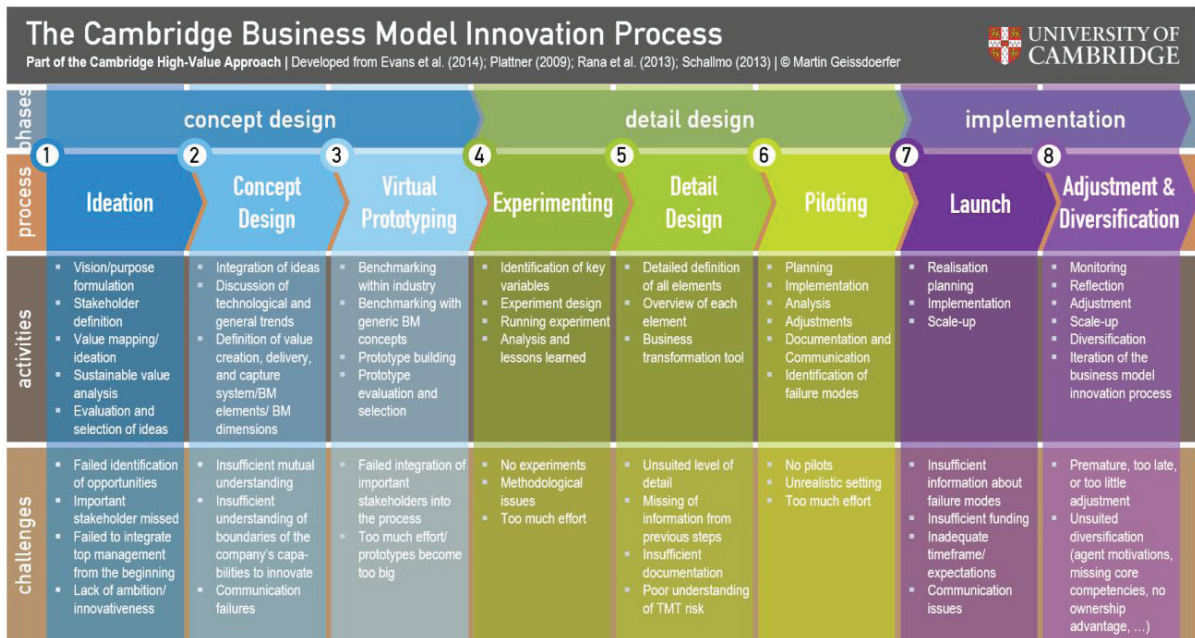


Fig. 2. The Cambridge Business Model Innovation Process, developed from [8], [31]-[33]

To test the CBMIP framework and identify opportunities for improvement, we applied it with Favalley Ltd through a series of workshops from the very early beginning of the start-up. This section first presents a short introduction of the company, which is followed by an explanation of how the process was implemented with the organisation.

Favalley is a social start-up based in Cambridge, United Kingdom, that aims at offering 1) a free tutored online coding course for youth living in slums and 2) the subsequent matching of the youth with hiring companies, based on their acquired qualification and a portfolio of coding projects created during the course. Favalley's revenue stream is based on recruitment commissions from customer companies, which will be reinvested to improve and expand the programme.

The organisation is focused on creating positive socio-economic impact by pro-actively working with and aligning the resources, capabilities, and needs of multiple stakeholders to generate monetary and non-monetary sustainable value. According to [14], it can therefore be described as a SBM, which is employing a 'repurpose for society' model [47], where revenue is used to cover costs and invest into increasing the social impact.

Favalley has followed the CBMIP process since its inception, and is planning to implement it and its refined versions in the future. The company started with a vision to use the unmet demands for coding labour force to improve the lives of vulnerable youth living in slums and favelas. The founders have had previous discussions and sketched some ideas on how to address this challenge, but the ideas were rather fragmented and based on each of the founders' subjective perceptions of the challenge and its potential solutions.

Based on the CBMIP, a workshop was conducted with the founders that covered the first three phases of the framework: (1) ideation, (2) concept design, and (3) virtual prototyping. Each of the stages was carried out in an individual session in different days, following a modified procedure of the Value Ideation approach [14] that was expanded by the Business Model Canvas [49]. The overall process was finalised within one week.

After (1) defining the purpose and identifying the key stakeholder groups of the organisation, the value created, missed, and destroyed by the current ideas were mapped, before new value opportunities were ideated and documented with the guidance of the Value Mapping Tool [17]. Based on the ideated value proposition, (2) the founders were discussing ideas individually, as well as the relationship between them, narrowing down to the most promising ones and allocating them to the default categories of the Business Model Canvas [49]. This discussion also incorporated a brief analysis of the interrelations between the elements and the stakeholders that should be involved. This was followed by the (3) prototyping of the concept, using handicraft and office materials, which stimulated further discussions about the categories of the business model and how they



interact with each other. The design of the prototype also demonstrated to be inspiring for marketing purposes, as the founders came up with ideas to make their model more attractive to different sets of stakeholders.

These workshop sessions were broadening up the scope, while at the same time closing down into a subset of directions that would be investigated in detail. The results were collected and compiled and served as the primary source in the process of writing the venture's business plan.

The organisation is now facing a typical situation described by the design-implementation gap: a promising business model concept was generated that receives positive feedback from experts, but to move forward considerable resources are necessary. As a result, the venture is currently refining the concept and is trying to raise seed funds, before it can elaborate the conceptual details further and embark into the experimentation phase of the CBMIP

## 5. Discussion and conclusions

As demonstrated in the previous section, the CBMIP covered Favalley's concept design phase, comprising ideation, concept design, and virtual prototyping activities. The process has proven to be very valuable for the founders, providing a more systemic approach for the generation of its SBM.

Although a workshop was conducted to structure and facilitate the process of business model conceptualisation, the overall process was far from linear. Multiple iterations and feedback loops to previous stages happened during and after the workshop. Fig.3a illustrates these observations and points to the circular nature of the entire process. In Favalley, as in most companies, a business model innovation process is not a singular event but will be followed by another one to address the challenges and opportunities [50] of its environment and identify new or underutilised resources and capabilities [51], [52].

However, only the outcomes of the concept design stage of the framework were analysed in this paper. The following stages – namely the detailed design and the implementation – as well as their interactions will be better understood throughout the development of Favalley, as the unfolding of its future processes will be further investigated. The robustness of such observations will also increase substantially as we observe and contrast Favalley's experiences with the ones from other organisations that are innovating their business models and have strong sustainability ambitions – both from similar and different sectors – in order to gain detailed insights about common patterns and contextual differences.

Our hitherto conducted study allowed us to formulate a research agenda to further address the question of how we can help organisations in bridging the design-implementation gap of SBM innovation. The research agenda is derived from the following five research sub-questions:

1. *What phases does a sustainable business model innovation process undergo in organisations and what are the associated activities?*
2. *What are the challenges that an organisation faces in this process?*
3. *What tools are available for each phase of the sustainable business model innovation process?*
4. *How can internal or external process managers or consultants develop additional tools to support this process?*
5. *How can organisations use these tools to solve the challenges that arise during the business model innovation process?*

To answer these questions, three research cycles, illustrated in Fig.3b, were developed, based on [46], [53], and [54], each consisting of an exploratory and confirmatory part.

The first research cycle gives continuity to the results presented in this paper. It has established phases, activities and failure modes of SBM innovation processes in organisations, by first undergoing an exploratory part with extensive literature research and interviews with academic experts, resulting in the CBMIP. This framework will then be tested with a variety of companies in the confirmatory part. The only test carried out so far was with Favalley and to conclude this stage we aim to test with other companies, with different characteristics, sizes and sectors. Interviews and workshops with practitioners will be employed to shed light on the description of phases, activities, and failure modes in business model innovation practice [18]. The second research cycle focuses on a tool development framework. The framework will be developed from previous work [14] by interviewing academic experts and management consultants before it will be tested by applying it with companies through action research techniques. The third research cycle then applies the tool development framework. The exploratory and confirmatory phases of this cycle will follow the framework to develop workshop-based management tools to address the challenges arising from the design-implementation gap of SBM.

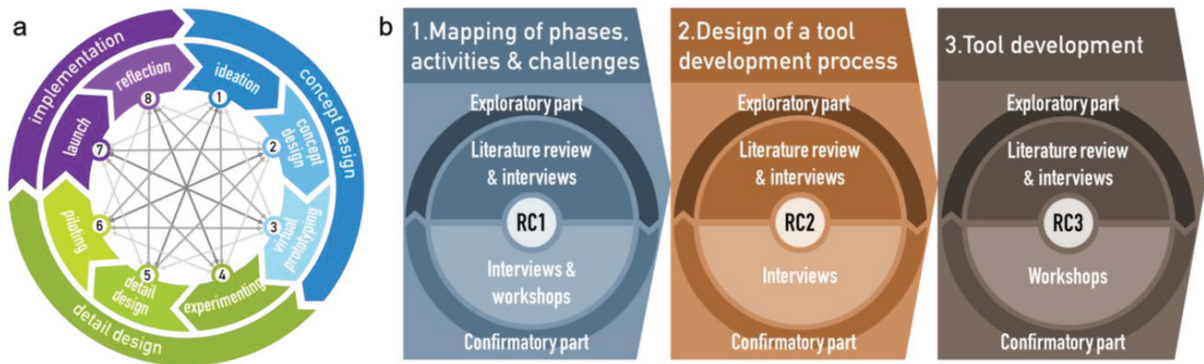


Fig. 3. (a) The circular and iterative nature of the CBMIP (b) The research agenda

Besides its contributions to knowledge in the fields of business model innovation and corporate sustainability, each of the planned research cycles is expected to deliver a theoretical framework with practical application.

The first deliverable is the CBMIP, a first version of which is presented in this paper. After further refinements and tests, this framework will guide companies through their business model innovation process and map their activities and potential failure modes. The second expected deliverable is a tool development framework for the development of a complementary and synergistic management toolbox that supports organisations in mitigating the failure modes that cause the design-implementation gap. This allows to develop individual tools and combined and potentially synergistic toolboxes to be implemented in either internally or externally facilitated meetings and workshops. The third research cycle will deliver customised management tools that respectively address a set of pressing challenges and activities of business model innovation for each of the eight CBMIP phases.

Together, the frameworks will provide a template for the development of tools to address challenges that companies are faced with and thus contribute to address the design-implementation gap. The CBMIP allows the integration of existing and newly developed tools into the business modelling process and indicates gaps in the toolbox. These gaps can be filled by using the tool development process, which provides a structured approach to design missing tools and enables their combination into toolkits and workshop packages.

Besides its broader contributions to knowledge in the fields of business model innovation, corporate sustainability, and the emerging field of sustainable business models, this work will benefit managers and society at large. Managers will benefit from the provided guidance and the anticipation of challenges related to sustainable business model innovation. This leads to better business models, generating more customer benefit, shareholder value, and economic growth. Consequently, it would also create more social, economic, and environmental value for a broader set of stakeholders [17], [55].

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