Business model innovation or Business model imitation–That is the question

Montemari, Marco; Taran, Yariv; Schaper, Stefan; Nielsen, Christian; Thomsen, Peter; Sort, Jesper

Published in:
Technology Analysis and Strategic Management

DOI (link to publication from Publisher):
10.1080/09537325.2022.2034780

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Publication date:
2022

Document Version
Early version, also known as pre-print

Business Model Innovation or Business Model Imitation – That is the Question

Abstract

This paper explores the phenomenon of intra-industry Business Model (BM) imitation through the concept of BM configurations and sheds light on how it relates to BM innovation. The analysis focuses on similarities and deviations of BM configurations among 80 companies operating in the industry sector related to Phantom Limb Pain (PLP). Leveraging a questionnaire-based mapping tool, the results show that companies operating within the area of PLP treatment apply relatively similar BM configurations. This indicates that companies mostly imitate the successful BMs of their main competitors in the industry as a whole and in their specific sub-groups, thus potentially ignoring the opportunity to also compete on a BM level. The contribution brought by the paper is twofold. First, it adds to the research stream on BM configurations by showing that this concept can be used not only to analyze and foster cross-industry BM imitation, but also to explore and examine intra-industry BM imitation (or differentiation). Second, the article contributes to the research stream on intra-industry BM imitation by going beyond prior anecdotal evidence and empirically testing the existence of the phenomenon of intra-industry BM imitation and hence, the potential innovation space on a BM level.

Keywords

Business model imitation, business model innovation, business model configurations, value drivers

1. Introduction

For many years, researchers have strived to discern and frame the dimensions of competition to understand key factors under given market conditions (Porter, 1980).Modes of innovation have also been explored and extensively developed to provide better insights into how businesses can remain competitive (Robbins and O'Gorman 2015).

Crucial to the success of innovation is not just the actual invention process, but also the successful commercialization of the new product, technology, or value proposition (Chesbrough and Rosenbloom 2002). To this aim, the Business Model (BM) has arisen as an important concept: a unique way to design the mechanisms through which companies deliver and capture the created value (see Osterwalder and Pigneur 2010).

Research has shown that BM innovation is a key leverage for performance (Kim, Ku, and Lee 2020), and it has been analyzed from many different angles (Wirtz et al. 2016), including: types of innovation (Taran, Boer, and Lindgren 2015); BM innovation processes (Taran *et al.*, 2022; Holtström 2021); and enablers and barriers to BM innovation (Mateu and March-Chorda 2016)). Therefore, the questions are: To what extent are companies experimenting with new ways to design their BM? Do companies make full use of the BM innovation space available to them or do they tend to adopt BMs with similar features?

Nevertheless, the discussion around BM imitation, and especially its relationship to BM innovation, remains an open research area (Casadesus-Masanell and Zhu 2013; Frankenberger and Stam 2020). While scholars have acknowledged that "imitating", "replicating", "copying" successful BMs from other industries may offer novelty benefits for the imitating company (Enkel and Mezger 2013),research has also shown that cross-industry imitation can temporarily achieve competitive differentiation through the introduction of novel and distinctive BMs (Enkel and Gassmann 2010). This differentiation can lower the competitive pressure on the imitating company and help it grow by

locking into a unique constellation of offerings, technology, customers, and partners (Zott and Amit 2008). Furthermore, this kind of imitation can lead to shorter development cycles (Moules 2012) and limit development risks (Gassmann and Zeschky 2008).

Within such a BM imitation context, the concept of BM configurations plays an increasingly important role, as it illustrates the many ways of organizing and constructing a given BM for differentiation. Thus, BM configurations can be used as "recipes" to inspire companies to pursue unlike value creation, value delivery and value capture design patterns (see Gassmann, Frankenberger, and Csik 2014; Remane et al. 2017; Taran et al. 2016).

Contrary to what is observed for cross-industry imitation, research has shown that replicating direct competitors' BMs might have detrimental effects for the sector and for the companies operating therein. Intra-industry BM imitation increases rivalry between companies, as they target the same market with similar logics to create, deliver, and capture value (Casadesus-Masanell and Zhu 2013; Posen, Li, and Yi 2013). It might also encourage companies to adopt efficiency-centered BMs, focusing on competing on price and lower costs and thus, inevitably decreasing the industry's level of novelty (Zott and Amit 2008). This, in effect, might result in mediocre performance outcomes (Porter 1991). The literature shows that cross-industry BM imitation has been extensively investigated, primarily through BM configurations, whereas intra-industry BM imitation merits additional analysis (Casadesus-Masanell and Zhu 2013), especially given its potentially negative effects. Borrowing from Lieberman and Asaba (2006, p. 382), more research is needed to investigate "imitation in specific contexts in order to better anticipate situations where imitation is likely to prove detrimental". Indeed, there remains a gap in understanding what intra-industry BM imitation means, what applying such a strategy implies, and how the concept of BM configurations can contribute to this research stream.

The main objective of this study is to explore the phenomenon of intra-industry BM imitation through the concept of BM configurations and to shed light on how it relates to BM innovation. This may help to clarify the extent to which companies experiment with different BM configurations within the same industry to achieve differentiation. To this end, we analyze the similarities and deviations in companies' BM configurations across three industry sub-groups of the Phantom Limb Pain (PLP) treatment industry. In line with Frankenbergen and Stam (2020), we define intra-industry BM imitation as the active or passive behavior that leads a company to share, purposefully or coincidentally, BM features with another company operating within the same industry.

In the remainder of the paper Section 2 provides a theoretical background on BMs, i.e., BM configurations as well as BM imitation, differentiation, and innovation. Section 3 overviews the empirical foundation of this paper and describes the chosen methodology. Section 4 presents the findings and discussion. Section 5 highlights the main contributions of the study, acknowledges its limitations, and suggests areas for further research.

2. Theoretical Background

2.1 Business Model Configurations

Different types of BMs entail different strategy execution processes (Nielsen and Montemari 2012), thus embedding dissimilar value creation, delivery, and capture logics and requiring distinct sets of value drivers to be activated (Remane et al. 2017). A value driver refers to any factor able to influence the total value created, delivered, and captured by a company, i.e., a key attribute that is considered critical for the success of an organization and perceived to be relevant by managers (Ferreira and Otley 2009). Thus, value drivers represent a source of differentiation from competitors and provide the BM with distinguishable traits (Amit and Zott 2001).

Consistent with these notions, BMs are now increasingly being used as a basis for company classification to provide an alternative perspective from which to analyze the patterns of development within an industry (Lambert and Davidson 2013). For this purpose the concept of BM configurations has revealed itself to be particularly suitable. Gassmann, Frankenberger, and Csik (2014) and Taran et al. (2016) argue that BM configurations are distinct "recipes" for doing business that exemplify how the company creates, delivers, and captures value. For example, in the BM configuration called "channel maximization" (Linder and Cantrell 2000), the offering is distributed through as many channels as possible in order to create a broad distribution of the product. Prominent examples of companies using this BM configuration are Coca-Cola and Nestlé.

BM configurations guide the identification and analysis of a company's value drivers (Montemari and Chiucchi 2017), thus helping to clarify how it competes in the market. To date, the BM configuration approaches by Gassmann, Frankenberger, and Csik (2014) and Taran et al. (2016), who analyze 55 and 71 BM configurations, respectively, appear to be the most complete.

In particular, Taran et al. (2016) develop a framework that aims to help companies redesign, select, and implement new BM configuration possibilities and which includes a comprehensive set of BM configurations classified according to five categories:

- Value Proposition: embeds the features of a company's offering that can satisfy customers' needs and, therefore, the features they are willing to pay for.
- Value Segment: includes the segment of customers that a company targets and the type of relationships that it establishes with them.
- Value Configuration: includes the mix of key resources needed and the key activities performed to create the value proposition, as well as the channels used to deliver it to the target segment and the costs that a company incurs to configure and deliver that value.

- Value Network: includes the network of partners who can cooperate with a company to achieve mutual benefits.
- Value Capture: describes how and how much customers pay to obtain the value proposition, i.e., the share of the value created that a company can capture.

The framework assumes that every real-life company is a combination of different BM configurations. For instance, Dell presents a "mass-customized commodity" in the value proposition; "disintermediation" in the value configuration, with a "have it your way" value proposition delivered to customers with no intermediaries; a combination of "long tail" and "upfront payments" in the value capture with a wide range of customized products sold in low quantities and customers pay faster than the time it takes to pay suppliers for the purchased goods; a predominantly "outside-in" value network with competences and electronic components gathered from external parties; and access to "breakthrough markets" in the value segment by using a novel value configuration model.

2.2 Business Model Imitation, Differentiation, and Innovation

Imitative practices can take many forms and concern different issues, like entry into new markets (Haveman 1993), market position decisions (Greve 1998), and implementation of new organizational forms (Ritala and Sainio 2014).

Imitating other organizations can help avoid falling behind rivals (Garcia-Pont and Nohria 2002), face environmental uncertainty (Lieberman and Asaba 2006), and preserve competitive status quo (Chen and MacMillan 1992). Conversely, imitation may potentially lead to more intensive competition and, over time, a greater risk of disruption (Porter 1991).

From a BM perspective, research has shown that imitation may be cross- or intra-industry (Casadesus-Masanell and Zhu 2013; Enkel and Mezger 2013; Frankenberger and Stam 2020).

Drawing on previous degree of newness research (Garcia and Calantone 2002), the concepts of cross-, intra-industry BM imitation, and BM innovation can be linked in three categories of newness:

- **New to the world**: includes radical innovations at a magnitude that creates marketing and technological discontinuities, at both macro and micro levels, resulting in a new market infrastructure. Given the first-mover initiative and the level of newness, no BM imitation activities are present.
- **New to the industry**: occurs when the firm is the first to adopt a certain innovation in its own industry, but not necessarily new to the world. Any combination of marketing and/or technological discontinuity is possible, such as extending an existing line with new technologies or entering new markets using existing technologies. Here, cross-industry BM imitation is taking place.
- **New to the company**: involves incremental, and often radical, innovations to a company. Many such initiatives concern improvements or refinements of existing or new value propositions, processes, and markets. Although new to the company, these innovations have already been implemented by others within the same industry. Here, intra-industry BM imitation is taking place.

This classification scheme shows that BM innovation and (both cross- and intra-industry) BM imitation are intertwined concepts built into one another. The lower the degree of BM newness, the higher the degree of cross- and intra-industry BM imitation, and vice versa.

Zooming in on cross- and intra-industry BM imitation, research has shown that these phenomena may occur sequentially and stagger the life cycle of a given industry and, consequently, of the BMs adopted within that industry.

Cross-industry BM imitation takes place when a company borrows and adapts features of successful BM components of other industries (Enkel and Mezger 2013). For example, a BM configuration used

by Gillette in the razor blade industry, i.e., low priced razor holders and high-priced replacement blades, inspired Hewlett-Packard to adopt the same business logic within the printing industry, i.e., inexpensive printers and expensive ink cartridges (Gassmann, Frankenberger, and Csik 2014). However, at this stage, the cross-industry imitator must reflect strategically when adopting another industry BM; it either reveals it to incumbents, running the risk of being imitated, or it competes through an established BM in that industry, then falling within the practice of intra-industry BM imitation. In fact, if the new BM is revealed, incumbents may react by replicating the entrant's BM tout court or by adopting a hybrid BM consisting of new elements from the entrant's BM and elements from the original model. Thus, even cross-industry BM imitations may quickly become intra-industry imitations; once the new BM is implemented, its main elements become quite transparent and, in theory, easy to replicate. In just a short time, imitative efforts can mean successful BMs are adopted by multiple competitors (Casadesus-Masanell and Zhu 2013), thus generating the detrimental effects of intra-industry imitation, i.e., competition density, lack of differentiation, and/or mediocre performance.

Hence, it becomes crucial to design not only successful, but also hard-to-imitate BMs. Teece (2010) argues that replicating a successful BM may look easy, at a superficial level. However, three barriers may occur when a company tries to copy a competitor's BM. First, it may be difficult to identify the precise features of the BM that needs to be imitated or how it should be implemented. Second, even if those features and the execution mechanisms are easy to identify, the actual implementation process of this imitation may require resources, assets, and competencies that are difficult (or impossible) to replicate, or to obtain on the market. Third, incumbents may be reluctant to replicate the innovator's BM if it involves cannibalizing existing sales and profits or upsetting other important business relationships.

3. Method

3.1 Research Context

Following Yin (2014, p. 51) and his argument to select "a critical case," this research focuses on a circumscribed sector within the med-tech industry. The chosen focal point is the competitive landscape surrounding product development for Phantom Limb Pain (PLP) treatment. Because PLP is a complex disorder, it feeds several innovative and technology-intensive solutions for treatment. A first glance at the PLP-related industry reveals a very diverse set of competitors, in terms of both organizational size and product offerings delivered to end-users.

At the time of this study, the PLP industry sample was comprised of 80 companies with product and/or service offerings ranging from alternative treatments, medicines, and prosthetics to invasive technologies. This sample was identified during the EU-project "EPIONE"[1] – a consortium of 12 partners from Europe (EU) and the United States (US) involving clinical, industrial, and academic institutions – that aims to challenge the status-quo of PLP treatment and to launch new technological solutions. The companies were chosen through interviews with professional experts and scholars in the area of PLP, pain treatment, and neurological treatment, as well as desk-based research.

The companies were clustered according to the type of PLP treatment offered[2]. Subsequently, we investigated the following sub-groups:

1. Digital (14 companies: 18 percent): includes companies offering non-invasive, technological treatments that make extensive use of digital technologies and big data, such as 3D glasses and related software or multi-sensor brain stimulation and activation.
2. Medical non-invasive (29 companies: 36 percent): comprises companies that use orthopedics, prosthetics, and pharmacological products to reduce an amputee's phantom pain.

[1] https://cordis.europa.eu/project/rcn/109345/reporting/en

[2] The categorization based on the offering is created to allow a more in-depth observation of sub-group specific peculiarities.

3. Medical invasive (37 companies: 46 percent): includes companies that are not only highly technological but also very focused on the medical applications of using central and peripheral nervous system stimulation or biorobotics approaches.

Although the goal of alleviating PLP is common to all the companies, the identified sub-groups are subject to an increasing degree of medical regulation, from lowest (1- digital) to highest (2- and 3- medical).

3.2 Research Design

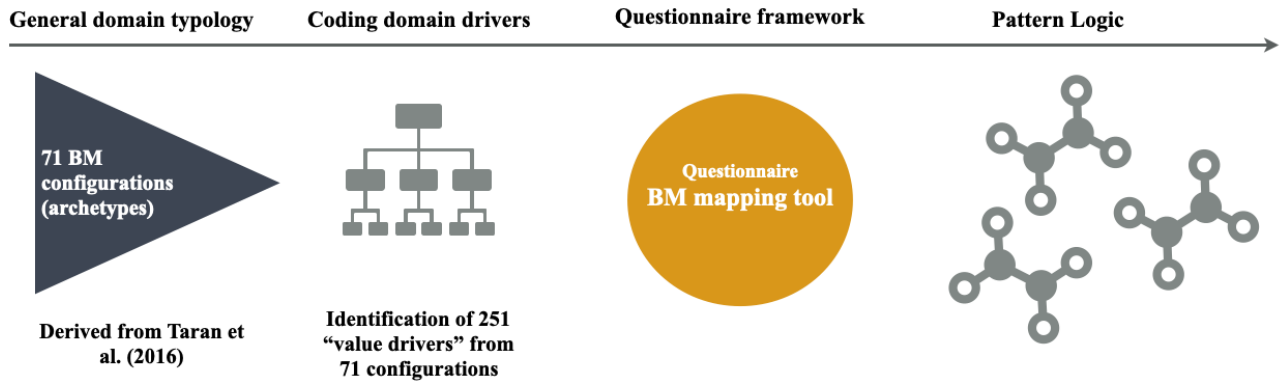
Background and Foundations of Data Analysis

Given our main objective, our research endeavor calls for data comparability; we opted to use measures for BM configurations, as suggested by Nielsen, Lund, and Thomsen (2017). Thomsen (2020) later advanced and outlined the so-called Business Model QUANT method (BMQ) for ensuring consistent mapping of BMs. This method has also been successfully used in other studies, e.g. by Simoni, Schaper, and Nielsen (2021) who construct company-specific BM disclosure indexes for quantifying BM disclosure of their annual reports.

Specifically, Nielsen, Lund, and Thomsen (2017) and Thomsen (2020) suggest an approach to code the value drivers of a BM. In addition to the notion of value drivers, the BMQ method draws inspiration from traditional content analysis as proposed by Krippendorff (2004), whereby the researcher operationalizes a coding tree as an analytical construct to extract meanings from readily available texts. The BMQ method alters this approach with further inspiration from Benaquisto (2008) and thus suggests a questionnaire structure comprising essential domain- and/or topic-specific questions to guide the researcher towards meaningful inferences from multiple sources. Hence, the BMQ method aims to build data by collecting answers as opposed to coding for words/terms as seen in traditional content analysis.

Based on this background, this study is informed by the BMQ method and applies a four-step process, as illustrated in Figure 1 and briefly described below.

Figure 1. Four-step research design informed by the BMQ method



Source: Adapted from Thomsen (2020)

Step 1. General domain typology

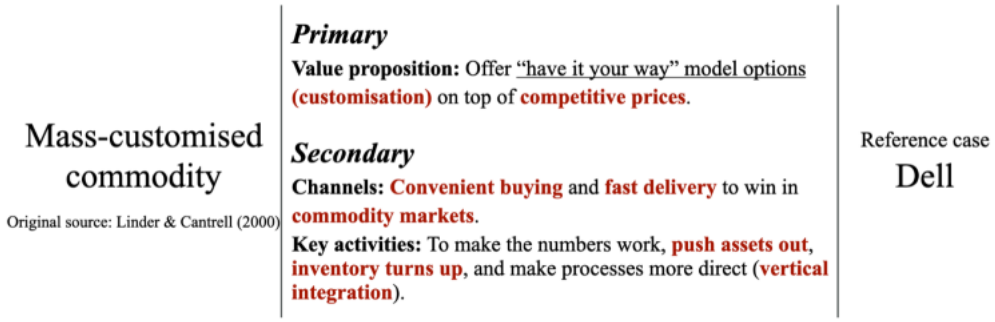
Over time, several BM typologies have been derived, seemingly with diverging viewpoints and consequently different outputs (e.g. Johnson 2010; Linder and Cantrell 2000;). For this research, we opted for high levels of inclusiveness to secure maximum width for coding the value drivers, eventually selecting as a foundation the typology identified by Taran et al. (2016), which comprises 71 so-called BM configurations, derived from a comprehensive literature study.

Step 2. Coding value drivers

In order to transform the typology into a questionnaire, Nielsen, Lund, and Thomsen (2017) and Thomsen (2020) coded each configuration from Taran et al. (2016) and the appertaining descriptions corresponding to the nine building blocks of the Business Model Canvas (Osterwalder and Pigneur, 2010). In addition, original descriptions for each configuration were sourced and advanced

distinctions for primary and secondary value drivers were provided by classifying them according to the relevant building block (see Figure 2).

Figure 2: Coding value drivers of BM configurations



Source: Thomsen (2020)

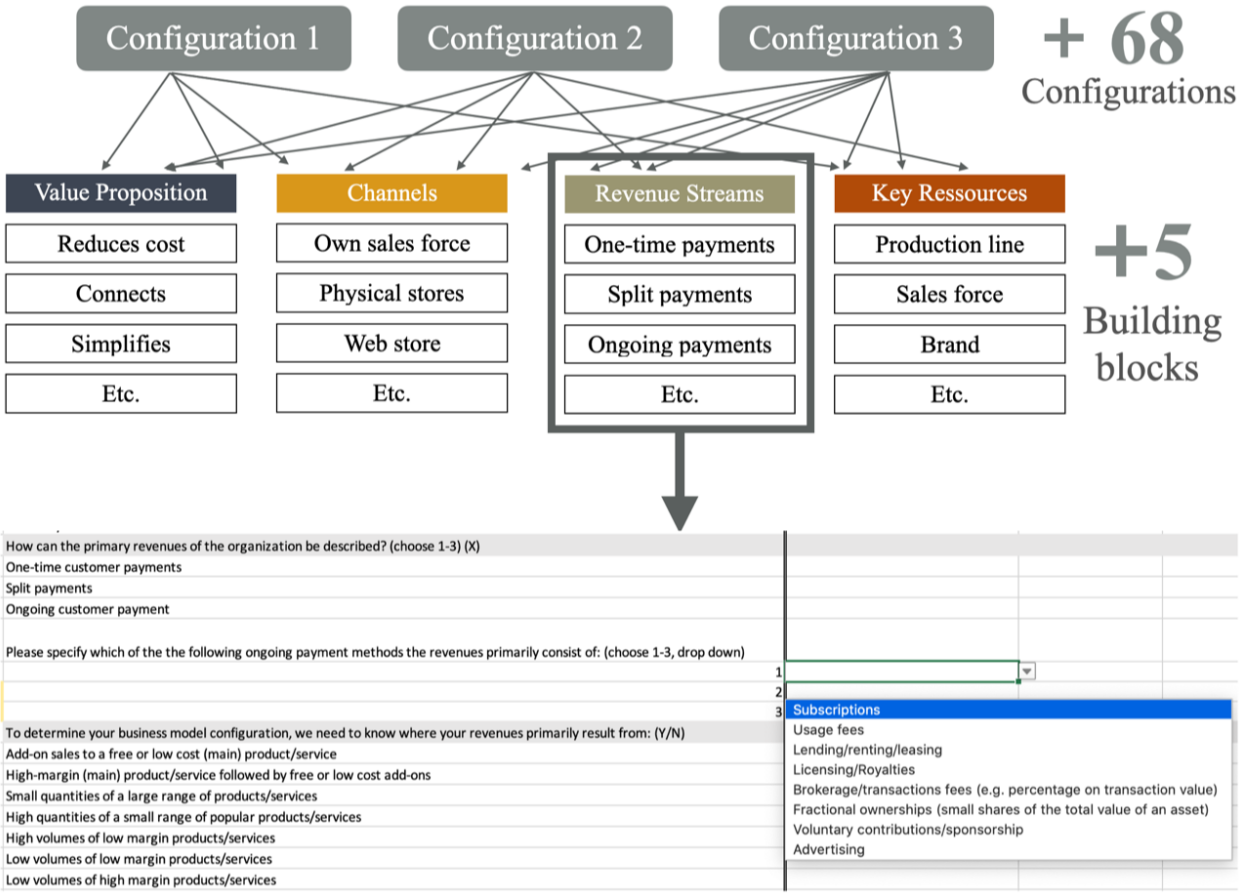
Based on this procedure, the BMQ method compiles 251 value drivers in total, thus representing a comprehensive "vocabulary" within the research domain (Nielsen, Lund, and Thomsen 2017; Thomsen 2020).

Step 3. Applying a questionnaire coding framework

According to Nielsen, Lund, and Thomsen (2017), identifying these value drivers represents the basis of the questionnaire for mapping BMs. Value drivers are sorted further into groups based on the building blocks of the Business Model Canvas and eventually formulated into a final set of 56 main questions with additional subsets of questions. Furthermore, in order to guarantee criterion validity, the questions developed were first tested within a group of case companies (outside of this research sample) that are well known for the traits to be measured (e.g. the "Bait and Hook" configuration by Gillette). Once the list of 56 questions was robust and sufficiently valid, it was applied as a coding frame (Benaquisto 2008) and a guiding conceptual scheme to classify and interpret the data collected

through document analysis (Thomsen 2020). Figure 3 exemplifies how the questionnaire was constructed from the derived value drivers.

Figure 3: Example of BM QUANT questionnaire construct from value drivers



Source: Thomsen (2020)

In sum, the 56 questions aim to capture the full essence of the 71 BM configurations included in the framework proposed by Taran et al. (2016). It includes an example of questions and subquestions belonging to the building block of the revenue streams aimed at exploring the value drivers connected to the revenue logics and timing of a given company.

Step 4. Pattern identification

The final step concerns the consistent identification of BM configurations adopted by companies. According to Thomsen (2020), the BMQ method prescribes an approach, similar o personality testing in which complex structures (humans) can be generically framed, that can be translated into "business personality traits" through the lens of the BM and developed answer patterns for all the BM configurations from Taran et al. (2016). Ultimately, this last step allows us to pair our "expert mappings" (described in the next section) of the 80 PLP companies with the pre-defined patterns and to identify the combinations of BM configurations.

3.3 Data Collection and Analysis

Following a document analysis approach (Bowen 2009), similar to that used by Simoni, Schaper, and Nielsen (2021), data on the 80 case companies was gathered from annual reports, integrated reports, sustainability reports, and company websites. The research team made systematic use of data triangulation to cross-check and verify the information gathered from different data sources.

Operationalized from the BMQ questionnaire described in the previous section, we investigated the most important features of the BMs adopted by the case companies, such as the offering portfolio, the nature of the markets served, or the channels used to reach the target market. We note, however, that the questionnaire applied to analyze the data did not involve any direct contact with company respondents, an approach that is increasingly being used in management studies (MacCormack, Verganti, and Iansiti 2001) and BM research (Frankenberger and Stam 2020; Zott and Amit 2008). We chose this approach because it allowed us to utilize an expert mapping procedure and avoid distortions related to the subjective understandings of individual respondents, who are not as familiar with the BM literature as the research team is.

Four members of the research team conducted the mapping process. In order to ensure a high standard of inter-rater reliability, the researchers individually mapped five pilot cases from different sub-groups by filling in the questionnaire and then compared the mapping outcomes during four preparation meetings. During these meetings, a code consistency check was carried out, incongruities were highlighted, and the underlying reasons were discussed to reach an agreement.

Once appropriate inter-coder reliability was established, the research team divided the remaining cases. As a quality check, however, several more companies were coded by at least two researchers and the results of all mappings were subsequently cross-checked in a set of follow-up meetings to discuss minor disagreements and to ensure alignment. Gradually, this iterative process allowed the research team to determine the BM configurations of the 80 companies.

4. Results

The results were interpreted in two successive steps, ranging from an aggregated level of the PLP industry to the specific sub-groups.

4.1 Overall Industrial Context

Taran et al. (2016) argue that every real-life company can adopt several BM configurations simultaneously to create, deliver, and capture value. Table 1 presents the BM configurations adopted within the PLP industry.

Table 1: BM configurations and the related value drivers within the PLP industry

BM configuration	Description	Value driver	%
Full service provider	Provides complete coverage of services in one particular area (e.g. financial services, healthcare)	Value Proposition	12.05%
Trusted advisor	Stays on top of the information loop and provides customers with answers to complex questions	Value Proposition	11.88%
Customer focused	Focuses on customer needs and decentralizes infrastructure management and product innovation activities	Value Segment	7.57%
Trusted operation	Provides predictable operations that carry big consequences for failure	Value Proposition	7.40%

Quality selling	Sells high-quality products at premium prices	Value Proposition	6.02%
Core focused	Focuses on the company's core competencies (e.g. customer relationship activities) and outsources all others (e.g. R&D, manufacturing, logistics activities)	Value Configuration	6.02%
Multi-sided platforms	Creates value by facilitating interactions between two or more distinct but interdependent groups of customers	Value Segment	5.68%
Incomparable products/services	Exploits proprietary technology to offer unique products/services that command high margins	Value Proposition	4.99%
Integrated	Routinely utilizes external sources to fuel BM and unused ideas are allowed to flow outside to others' BMs. The company becomes a system integrator of internal and external technologies	Value Network	4.13%
Outside-in	Gathers value (e.g. information) from external sources like innovation partners and research communities	Value Network	3.44%
Trusted product/service leadership	Ensures long-lasting customer relationships through platforms with continuous upgrade paths	Value Proposition	2.93%
Channel maximization	Distributes product through as many channels as possible to create the broadest distribution possible	Value Configuration	2.58%
The long tail	Sells a wide range of products in low quantity	Value Capture	2.24%
Breakthrough markets	Invests in opening new markets to gain at least a temporary monopoly	Value Segment	2.07%
36 configurations at under 2% each	-	-	21.00%
21 configurations not used at all	-	-	0.00%
TOTAL			**100 %**

Studying the BM configurations applied within the PLP industry shows that the five most recurrent ones are:

- *Full service provider*.
- *Trusted advisor*.
- *Customer focused*.
- *Trusted operations*.
- *Quality selling*.

Consistent with the features of the above-mentioned BM configurations in the PLP industry, the competition among companies is very intense and seemingly dependent on only a few value drivers,

such as the portfolio breadth, customer trust, ad-hoc solutions developed for customers, decentralized product innovation activities, safety, and high-quality products.

The results of the analysis also suggest that, on an aggregate level, most PLP treatment companies apply BM configurations that are linked to the value proposition dimension, whereas BM configurations linked to value segment, value configuration, value capture and value network are adopted (far) less frequently. Of the entire BM configuration portfolio, fourteen BM configurations (19.71 percent) account for 79 percent of the whole industry, and only six BM configurations (8.45 percent) account for 51 percent of the whole industry. We also identify an additional 36 BM configurations with a less than 2 percent occurrence rate. Moreover, 21 out of the 71 BM configurations, equaling about 30 percent of the entire BM configuration portfolio, are not used in the PLP industry at all[3]. This indicates a high level of concentration around just a few BM configurations.

On the whole, our findings suggest that the phenomenon of BM imitation is clearly present within the PLP industry, and the degree of experimentation with different configurations, e.g. presenting dissimilar revenue streams, partners, and/or value chain constellation types, is low.

4.2 Zooming into Sub-Groups

Moving from the aggregate level of the PLP industry to the specific sub-groups, our analysis reveals an increasing concentration around a few "core" BM configurations primarily linked to the two dimensions of value proposition and value segments. Table 2 compares the BM configurations across the three sub-groups.

[3] The configurations that are not presented as part of our findings are described in Taran et al. (2016, pp. 504-514).

Table 2: The BM configurations (and related value drivers) across the three sub-groups

DIGITAL			MEDICAL NON-INVASIVE			MEDICAL INVASIVE		
BM configuration	**Value driver**	**%**	**BM configuration**	**Value driver**	**%**	**BM configuration**	**Value driver**	**%**
Multi-sided platforms	Value segment	13.27%	Quality selling	Value proposition	10.94%	Full service provider	Value proposition	16.49%
Core focused	Value configuration	9.18%	Trusted advisor	Value proposition	9.90%	Trusted advisor	Value proposition	15.46%
Outside-in	Value network	9.18%	Customer focused	Value segment	9.38%	Trusted operation	Value proposition	9.62%
Incomparable products/services	Value proposition	7.14%	Full service provider	Value proposition	9.38%	Customer focused	Value segment	8.25%
De facto standard	Value network	6.12%	Incomparable products/services	Value proposition	7.29%	Core focused	Value configuration	7.56%
Trusted advisor	Value proposition	5.10%	Multi-sided platforms	Value segment	6.25%	Integrated	Value network	5.50%
Trusted operation	Value proposition	5.10%	Trusted operation	Value proposition	5.21%	Quality selling	Value proposition	3.78%
Channel maximization	Value configuration	4.08%	Trusted product/service leadership	Value proposition	4.17%	Incomparable products/services	Value proposition	2.75%
Full service provider	Value proposition	4.08%	Breakthrough markets	Value segment	3.65%	Multi-sided platforms	Value segment	2.75%
Integrated	Value network	4.08%	Branded reliable commodity	Value configuration	2.60%	The long tail	Value capture	2.75%
Value chain service provider	Value proposition	4.08%	Channel maximization	Value configuration	2.60%	Trusted product/service leadership	Value proposition	2.75%
Breakthrough markets	Value segment	3.06%	Inside-out	Value network	2.60%	Integrator	Value configuration	2.41%
Quality selling	Value proposition	3.06%	Mass-customized commodity	Value proposition	2.60%	Outside-in	Value network	2.41%
15 BM configurations at under 3% each	-	22.45%	The long tail	Value capture	2.60%	Channel maximization	Value configuration	2.06%
43 BM configurations not used	-	0.00%	White label	Value configuration	2.60%	24 BM configurations at under 2% each	-	15.46%
			14 BM configurations at under 2.50% each	-	18.23%	33 BM configurations not used	-	0.00%
			42 BM configurations not used	-	0.00%			
TOTAL		**100.00%**			**100.00%**			**100.00%**

Zooming into the *Digital* sub-group, six BM configurations (8.45 percent of the entire BM configuration portfolio available) account for 50 percent of the whole sub-group. Another 15 BM configurations are present, each with a less than 3 percent occurrence rate, while 43 BM configurations (roughly 60 percent of the entire BM configuration portfolio) are not used in this sub-group at all.

In the *Medical non-invasive* sub-group, our findings show that six BM configurations account for 53 percent of the whole sub-group segment; 14 BM configurations are present with a less than 2.5 percent occurrence rate, while 42 BM configurations (approximately 60 percent of the entire BM configuration portfolio) are not used in the sub-group at all.

Finally, in the *Medical invasive* sub-group, we find six BM configurations that account for 63 percent of the whole sub-group; 24 BM configurations are present with a less than 2.5 percent occurrence rate, while 33 BM configurations (about 50 percent of the entire BM configuration portfolio) are not used in the sub-group at all.

In sum, a high degree of imitation can be observed at the sub-group level, albeit with varying intensities. Given the dominant BM configurations within the digital sub-group, BM imitation clearly leads those companies to compete in similar value drivers, such as: newness; customer network construction and management; partner network construction and management; and supply chain excellence. Similarly, the analysis of the dominant BM configurations of medical non-invasive and medical invasive treatment companies reveals that they compete with these value drivers: high quality; customer trust; safety; portfolio breadth; and developing customized solutions.

Despite the similarity between the medical non-invasive and medical invasive sub-groups, it merits underscoring that the relevance of the value drivers changes depending on the sub-group. For example, within the medical non-invasive sub-group the emphasis on high quality is stronger than within the medical invasive sub-group whereas the opposite is true for portfolio breadth.

Also, the importance of the value proposition-related BM configurations appears to increase as the PLP treatment moves towards more medical-oriented sub-groups. This could also be due to the increasing degree of regulation, which demands a strong focus on value proposition-related value drivers, such as safety and customer trust; nevertheless, we should also add that regulation compliance does not, and should not, anchor the innovation space into following solely imitative strategies for BM innovation.

5. Discussion and Conclusion

The objective of this study was to explore the phenomenon of intra-industry BM imitation through the concept of BM configurations and to shed light on how it relates to BM innovation. To this end, we contrast and compare the BM configurations of companies across three industry sub-groups of the PLP treatment industry.

The results show that, on the aggregate level of analysis, companies operating within the area of PLP treatment apply relatively similar BM configurations; most of these fall within the value proposition category, but only a limited number of BM configurations are implemented by companies. The expectation was to see a higher degree of differentiation among the BMs adopted, given that current research indicates intra-industry BM imitation as having detrimental effects.

As the analysis zoomed in on the sub-group level, the homogeneity of the BM configurations applied by competing companies became clearer. This indicates that companies mostly imitate the successful BMs of their main competitors in their specific sub-groups.

5.1 Theoretical Contribution

The contribution of this paper is twofold. First, it enriches the stream of literature on BM configurations. Previous research has shown that BM configurations can be used by managers as a source of inspiration to renew their company's existing BM, thus supporting BM innovation activities through cross-industry BM imitation (Gassmann, Frankenberger, and Csik 2014; Remane et al. 2017; Taran et al. 2016).

This study adds value to prior research by illustrating how the concept of BM configurations can also be suitable for assessing the degree of intra-industry BM imitation (or differentiation). More in particular, the study shows that BM configurations toolkits could be applied:

- at the single company level, in order to facilitate firms even further with their intra-industry differentiation strategy, i.e., to support companies in rethinking a new constellation of BM configuration patterns, that are currently limited (or unknown) in their industry;
- at the industry analysis level, in order to reveal whether, and to what extent, companies make proper use of the BM innovation space available to them.

Second, this paper contributes to the intra-industry BM imitation literature. To the best of our knowledge, this is one of the first empirical studies that maps the BMs adopted within a particular industry, explicitly tests the existence of the intra-industry BM imitation phnenomenon, and provides a suitable concept, that of BM configurations, to explore such a phenomenon. Therefore, this study goes beyond the anecdotal evidence that has been offered, to date, within the research stream of intra-industry BM imitation (Casadesus-Masanell and Zhu 2013; Teece 2010). Moreover, as an add-on to already well known industry competitive analysis models and tools, such as Porter's Five Forces (Porter 1980), or the Strategy Canvas (Kim and Mauborgne 2014), the analysis performed in this study is of value for further assessing the attractiveness and health of a given industry by providing information on how far the industry lies from the detrimental effects of intra-industry BM imitation. The present paper adds to prior research on the negative sides of intra-industry BM imitation (Posen, Lee, and Yi 2013; Zott and Amit 2008) and intra-industry imitation in general (Lieberman and Asaba 2006; Porter 1991), as these previous studies provide only partial parameters for assessing the degree of existing imitation and for anticipating situations where imitation itself is likely to prove detrimental.

Moreover, the analysis performed in this study offers a snapshot of the life cycle of the industry and of the BMs adopted within that industry, thus extending the research by Teece (2010) and Casadesus-Masanell and Zhu (2013). A high level of intra-industry BM imitation may indeed signal that:

- cross-industry BM imitators have revealed their innovation and have already been imitated, so cross-industry BM imitation has already been converted into intra-industry BM imitation;
- barriers to BM imitation are weak or absent; therefore, few or not "superior" BMs are adopted within the industry.

Several lines of reasoning may explain this intra-industry BM imitative behavior. One could be that companies might want to compete within just a few established parameters to avoid the risk of

competitors' reactions that could result in unanticipated consequences. Thus, and in accordance with Casadesus-Masanell and Zhu (2013), similar BMs rather than completely new BMs are typically introduced within an industry. Surprisingly, given the negative effects, companies prefer to compete through intra-industry BM imitation rather than through cross-industry BM imitation.

An alternative, possibly more probable explanation for the prominence of intra-industry BM imitation activities, is that these companies are unconsciously imitating each other's BMs. Expanding on the notable work of DiMaggio and Powell (1983) – who suggest that companies' limited understanding of new practices cause mimetic behaviors – it could be plausibly argued that, given the innovative nature of this industry, companies predominately focus on achieving product innovation and not necessarily by experimenting with new BMs. In terms of technology, product innovation in this industry is already considered "hard enough", so no novel or distinctly different BM configurations are even considered.

However, by overlooking the BM's potential as a source of differentiation, companies may lack the capabilities to fully exploit the potential value of their new product innovation. Although somewhat speculative, this statement challenges existing assumptions regarding imitation strategies, which posit that all imitations are rational, intentional, and purposeful (Lieberman and Asaba 2006).

Finally, it bears underscoring that imitation practices, on the level of cross- or intra-industry BMs, pose very different challenges compared to other forms of imitation, such as product, organizational, or technological imitations (Markides 2006). We argue that BM imitation should be treated as a distinct imitation phenomenon.

5.2 Practical Contribution

From a practical point of view, our findings raise a "flag" for the analyzed companies to realize that hardly any differentiation is currently taking place amongst competitors' BMs in this industry. Given the effects on competitiveness, it is important that managers understand that BM imitation occurs and

why, and that they grasp the advantages and disadvantages of adopting BM imitation/differentiation strategies. In this sense, the findings challenge managers to reflect on their future innovation intentions by questioning the degree of imitation in the company's planned activities, that is, where do they stand on the imitation-differentiation BM innovation scale?

Implicitly, we offer an additional practical contribution by arguing that the BM configuration mapping process is useful not only for visualizing the "as-is" BM configuration of a given company, or for envisioning potential BM configurations "to-be", but also as an imitative industrial benchmark analysis, so managers might perceive the extent of their differentiation (if any) from their competitors. This could then sharpen their future BM innovation intentions.

5.3 Limitations and Future Research

The findings presented in this paper have some limitations, a few of which are intrinsic to the research design. First, although encompassing 80 companies, the sample contains cases from several industry sub-groups and, in some of these, the number of companies is rather small. Second, and similarly to Frankenberger and Stam (2020), although a series of precautions have been taken to minimize the researchers' subjectivity, this study is affected by the applied data collection and analysis methods. It may be argued that the results would have differed, but not necessarily been more valid, if the managers of the case companies had answered the questionnaire.

Concerning further research, several avenues present themselves: a major aspect to address is whether companies knowingly or unknowingly imitate other intra-industry BM configurations. The strategic decision-making logics of managers choosing to imitate or (further) innovate should be delved into. This avenue entails investigating the reasons why BM imitation practices take place.. Finally, more qualitative and quantitative studies are needed in order to: 1) evaluate the positive and negative aspects of intra-industry BM imitation, also through longitudinal case studies; 2) investigate the interplay between cross-industry and intra-industry BM imitation, and; 3) conduct a broader analysis

to consider not only intra-industry BM imitation logics and effects, but also those of product, process, and technology imitation behaviors.

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