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Business Model Innovaiton in Healthcare

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This paper is an academic working paper

Why this paper might be of interest to Alliance Partners:

Healthcare is a fast evolving sector, where global trends force healthcare providers to adapt quickly their business models. This article focuses on the recent business model innovation of healthcare providers in Belgium and discusses their drivers, charactoeristics and the effect they have on these firms and the sector as a whole. Alliance partners interested in understanding the recent trends in healthcare and how companies adapt to them may find this article to be of interest.

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Business Model Innovations in Health Care

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Abstract

Health care is a fast evolving sector, where global trends shape industry architecture. Healthcare providers are starting to innovate their business models in order to respond to new trends, which are also redrawing the industry architecture of the sector. This article focuses on the recent changes regarding healthcare providers in Belgium and discusses their drivers, characteristics and the effect they have on the sector as a whole. The obtained empirical insights are explained by the constructs and theory of business model innovation, where the activity system perspective (Amit & Zott, 2010) proves to be particularly helpful in explaining the changes. The recent business model innovations of Belgian healthcare providers reveal that incremental innovations, such as within-discipline grouping, aim for conservative forms of value gains such as cost reductions and efficiency and rely on strong forms of grouping, such as mergers and acquisitions, to accomplish this. On the other hand, more radical business model innovations, such as competitor-groupings, are incited using value drivers like novelty and innovation potential, and these innovations are implemented through more novel and less stringent governance mechanisms.

Keywords: Business model innovation, health care industry architecture

1. Introduction

Health care offers indispensable services to citizens and represents an important source of employment. Health care is also a complex and, in most countries, heavily regulated sector. Government regulation – in order to ensure sufficient supply – can slow down or boost the innovative character of the sector by manipulating the parameters of organisational structure or financial flows, such as imposing a minimum bed capacity of 150 beds for hospitals, for example. In the last couple of years health care has been subject to a number of pressuring trends. An ageing population and an increasing prevalence of lifestyle diseases, such as obesity, are just some examples. As a consequence of these trends, health care is likely to be dominated by expansion of demands in the market and subsequently increasing healthcare expenditures. Innovative solutions are required at government level as well as sector participants to ensure good quality of service, while at the same time managing cost increases.

At the same time, health care is not the only sector going through such a turmoil (Visnjic and Neely 2011). And while governments and regulators are traditionally looking for innovative solutions at sector level as a whole, recent studies have shown that at company level, business model innovations seem to be company responses to changes in underlying market conditions. Indeed, numerous high-tech companies like Dell, and manufacturing companies operating in other sectors, such as Zara, are prominent examples of industries in which business model innovations have reshaped their industry landscapes.

And while the term 'business model' seems to be very popular in the business press, its academic and theoretical underpinnings are less established. One of the most prominent streams of relevant literature defines business model as the structure of the value chain, i.e., 'the set of activities from raw materials through to the final consumers with value being added throughout the various activities' (Amit & Zott, 2010). The activity system is described as a set of interdependent organisational

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activities centred on a focal firm, and encompasses activities that are either conducted by the focal firm or by partners, customers or vendors (Amit & Zott, 2010).

When it comes to the healthcare industry, the definition of business model as an activity system is a useful theoretical lens with which to analyse the latest changes. Applying business model thinking on the example of Belgian healthcare providers, we arrived at the three main business model innovations, all of which represent a liaising or coupling between firms. While the liaising may vary in its extent or nature, all the linkages remain horizontal and consist of cooperation between different healthcare providers, located at the same level of the value chain. We haven't noted any vertical links, i.e. integrating activities from other levels of the value chain.

Three main archetypes are distinguished by this research: within-discipline grouping, across-discipline grouping and competitor-grouping. In our research we compared the main characteristics of these groupings, containing design elements – content, structure and governance mechanism – with value drivers that underpin the design theme – novelty and efficiency-driven business models. On the one side, we found that modest changes in content were associated with very concrete and tangible gains in efficiency. In order to capture this, value groupings relied on the strongest liaison mechanisms, i.e. mergers and acquisitions. On the other side, the most controversial changes to the content were aiming for the least tangible, most innovative and creative gains, such as new knowledge and practice creation. These gains were accomplished, however, with very loose governance mechanisms, such as associations and alliances.

The article is structured as follows. First, we will present the underpinning literature on business models that helped us to analyse and frame the innovation practices of healthcare providers. The article proceeds with the research methodology section, which discusses the approach taken in the collection, analysis of case-study and secondary data. In the results section, we will present the practices of healthcare service providers analysed using the theoretical lens of business models described earlier. Finally, we will conclude by summarising the findings and discussing the implications for healthcare academics and practitioners, as well as for the theoretical developments of business model literature.

2. Literature Review

The expression 'business model' has gained prominence in the last two decades. While no generally accepted definition of the term has emerged, several scholars have put forward their characterisation and description of a business model. Amit & Zott, Magretta, Johnson & Christensen, Teece, Weil, Chesbrough & Rosenbloom and Giesen are the most prominent examples. One of the most widely cited definitions, by Amit and Zott (2001), frames business model as *'the design of transaction content, structure and governance so as to create value through the exploitation of business opportunities'.* The business model can also be seen to define the structure of the value chain, i.e., 'the set of activities from raw materials through to the final consumer… with value being added throughout the various activities' (Amit & Zott, 2010). Further to their earlier work, where they point to the content, structure and governance as being core design factors of the model, in their more recent work, Zott and Amit (2010) see business model as the activity system. An activity is defined as a focal firm's engagement of human, physical, and/or capital resources of any part of the business model to serve a specific purpose toward the fulfilment of the overall objective. The activity system is described as a set of interdependent organisational activities centred on a focal firm, and encompasses activities that are either conducted by the focal firm or by partners, customers or vendors.

Content, structure and governance, hence, become the design characteristics that refer to the activity system. Activity system content refers to the selection of activities required to deliver the service or product. For example, in addition to the typical activities of a retail bank, Bancolombia decided to offer special microcredit to more than 60 per cent of Colombians who did not have access to banking services. To offer this new service, the bank needed to train its top management, hire and train new staff, develop new capabilities, and link the new activity to its existing system (platforms, applications,

and channels). Activity system structure describes how the activities are linked and it also captures their importance for the business model, for example, in terms of their core, supporting or peripheral nature. Activity system governance refers to who performs the activities. Franchising, for example, represents one possible approach to activity system governance. (Amit & Zott, 2010)

An activity system can also be characterised through design themes, which hint at the dominant value creation driver for which business model is optimised. The design themes identified by the research to date are novelty, lock-in, complementarities and efficiency (Amit and Zott 2001). The essence of novelty-centred activity system design is the adoption of new activities (content), and/or new ways of linking the activities (structure), and/or new ways of governing the activities (governance). A prominent example is Apple, since they were the first consumer electronics manufacturer to include music distribution as an activity (content novelty), link it to the development of the iPod hardware and software (structure novelty), and digitise it, consequently pushing many sub-activities of legal music downloads to its customers (governance novelty). Activity systems can also be designed for lock-in, i.e. their power to keep third parties attracted as business model participants. Lock-in can be manifested as switching costs, or as network externalities that derive from the structure, content and/or governance of the activity system. For example, in eBay's activity system, most of the marketing and sales activities are performed by the customers (sellers). Complementarities are present whenever bundling activities within a system provide more value than running activities separately. For example, in commercial banking, deposit activity is an important source of funding that complements the banks' lending activity. Efficiency-centred design refers to how firms use their activity system design to aim at achieving greater efficiency through reducing transaction costs. For example, a focal firm may decide to integrate vertically to avoid being 'taken hostage' by its trading partners, who may have an incentive to exploit a co-dependency situation (Zott and Amit, 2010).

While we found Amit and Zott's work to be of most use in the context of the healthcare sector, and will therefore use their theoretical lens in the analysis, it is worthwhile noting another, complementary, definition that is gaining prominence. Teece (2010) sees the essence of the business model as defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit.

In brief, business model construct describes how firms set up and organise their activity systems to compete in their market; and while business model has been traditionally used to describe the activity systems at firm level, a related set of principles and constructs have been developed to describe how industry sets itself up to compete and how firms position their business models within the industry. Industry architecture has been used as a term that describes the nature and degree of specialisation of industry players, or 'organisational boundaries', and the structure of the relationships between those players (Jacobides, 2006). Firms can benefit more from innovation by organising their business models so as to become the bottleneck in the industry's architecture and occupy the segments where there is limited mobility and softened competition (Jacobides, 2006). Industry architecture can be seen as a macro perspective on business models and we will therefore use it to understand how healthcare providers position their business model within the industry architecture as well as how their business model innovations shape the industry architecture.

The application of business model innovation in other sectors, such as high tech and production, has increased in recent years. In particular, authors have been focusing on business model innovations that lead to better commercialisation of the product and technological innovations (Gambardella, 2010; Chesbrough, 2007). At the same time, business model innovation is more limited in service sectors and, in particular, in health care. The purpose of this article is to breach this research gap, given that business model innovation seems to be a plausible approach to tackling recent healthcare issues; while at the same time understanding that the use of business model innovation within an industry architecture that is as complex as that in the healthcare sector can potentially add value to the business model literature.

3. Methodology

In order to disentangle complex interdependencies of the changes that healthcare providers underwent in recent years, while at the same time making use of the wealth of data available from secondary sources, we have combined case-study research methodology with desktop research. While desktop research was very useful in the first stage to understand the analysis of global trends appearing in the industry, as well as the creation of a clear view of the landscape of the healthcare industry, case-study research was required for the in-depth analysis of business model innovations of healthcare providers in particular.

Regarding our case-study research, we opted for the research of five cases. The limited number allows the performance of in-depth investigation, while the use of multiple cases increases external validity and reduces observer bias (Voss, 2002). The interviews were conducted with multiple respondents to enhance understanding of the dynamics at play, as well as to reduce subjectivity, since asking the 'why' questions can easily lead towards a multitude of answers. Respondents were selected by means of purposive sampling to ensure unity and comparability on some case characteristics, while enabling maximum variation on others (Voss, 2002)

A thorough collection of data was necessary to be able to draw the right conclusion. The research method in this paper employed semi-structured interviews. In order to acquire a thorough overview, data gathering was guided by a data-collection protocol (Yin, 1989). The research protocol contained a set of questions that were the same for each interviewee in order to be able to draw certain patterns afterwards. At the same time, the majority of questions were created during the interview, allowing both the interviewer and the interviewee the flexibility to probe for details or specific issues. After each interview was conducted, notes were made in order to facilitate subsequent analysis. Notes enabled us to summarise the 'characteristics of the change' for each of the cases, apply the business model analysis and then compare them with the other respondents.

In the case-study research performed for this article, several measurements were taken to ensure the validity of the analysis. First, multiple case studies were conducted in order to increase external validity as well as reduce observer bias. Second, a research protocol was designed and reported to participants before the interview in order to increase reliability and give the participant the opportunity to prepare for the interview. Third, each interview was tape-recorded and transcribed afterwards in order to capture as much information as possible and in order to be able to ask questions related to answers given by the respondent. Since the interviewer did not have to make notes, posing additional questions was possible. Finally, in order to increase the validity of the interview, each respondent received a final version of the part of the thesis that dealt with the interview in which they participated. The respondents were able to comment and propose suggestions, and parts of the thesis they did not agree with were rewritten.

The second methodology approach used in this article was desktop research. With the purpose of developing a superior knowledge of the healthcare industry, a number of sources were meticulously screened. The main sources consisted of reports written by the Organisation for Economic Co-operation and Development (OECD) or the World Health Organization (WHO), combined with existing articles and books on the subject. Specific sources for Belgium comprised articles from Gerkens & Merkur (2010) and Corens (2007), as well as an interesting book by Daue & Crainich entilted *De toekomst van de gezondheidszorg: Diagnose en remedies* (2008). A detailed literature research made it possible to obtain a clear view of the healthcare sector in general.

Organisation	***Contact person***
Emmaus	Dr Ennekes (CEO)
Jessa Hospital	Jocelijn Coenegrachts (CFO) Pieter Willems (Master BBL Six Sigma) Sofie Smeets (Executive)
Medipolis	Koen Faes (CEO)
Leuven Flemish Hospital Network	Marge Lavaerts (Administrative Coordinator) Hugo Castelijn (Strategic Coordinator)
Hospital Network Antwerp	Renee Willems (Communication Manager)

Table 1. Overview of respondents

4. Results

4.1 Healthcare industry

The healthcare ecosystem is an essential, complex sector that revolves around end-to-end healthcare provision within the boundaries of a given country or region. Over a relatively short period of time, healthcare sectors have become one of the fastest-growing sectors. Besides the growth in scale of the services offered, services of the healthcare ecosystems in developed countries are also expanding in scope; healthcare provision is no longer limited to the focus on curative treatments, but is redefining itself to focus on the prevention and the long-term well-being of the population.

The healthcare system consists of patients, providers, payers or administrators who represent a basic set of actors, which may be supplemented by some additional actors, depending on the country. The differentiation among countries starts to appear at a level lower – within the main actor categories. In Belgium, for example, healthcare providers can be divided into three groups: healthcare professionals providing ambulatory care and services, hospitals and social-care facilities for the elderly and other groups with special needs. While Belgium uses categories of healthcare providers, the United Kingdom applies a strict hierarchy between providers. The use of a gatekeeper system is one of the main differences between the UK and Belgium concerning health care. The most important similarity between Belgium and the UK consists in the field of payers, administrators and government, since they all provide universal coverage through mandatory insurance. This is unlike the fragmented system used in the United States, where, consequently, a large proportion of the citizens still do not have health insurance.

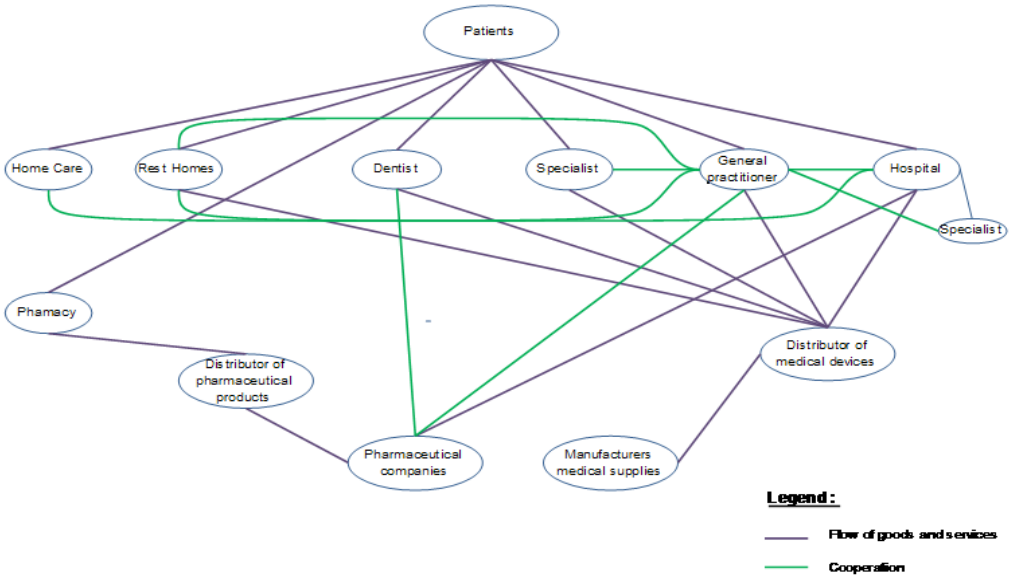

Figure 1. Flow of goods and services in the healthcare industry in Belgium.

Healthcare expenditures are extremely high in most of the world, creating important questions about the sustainability of healthcare provision. During recent years the question of how to provide the most cost-effective healthcare services has been of increasing interest to healthcare managers, health insurers, providers, patients, and governments. Healthcare finance systems and provider-payment systems, in particular, have been central to this discussion.

The shape of a country's healthcare finance system is determined by two major choices: a funding model or a payment mechanism for healthcare providers. In Belgium universal coverage is obtained through a compulsory system of health insurance with a very broad benefits package. The Belgian ecosystem applies a multi-payer model, frequently referred to as two-tier, more specifically, a Bismarck model. In Belgium, payment mechanisms are mainly characterised by fee-for-service payments, since patients receive a bill each time they visit a healthcare provider. There are two main systems of payments consisting of a direct payment system, used for consultations of general practitioners and dentists, combined with a third-party payer system, mainly used for hospital consultation.

In recent years, the financial sustainability question appears to drive governments to take measures all over the world. In the US a system reform is being discussed and mandatory insurance is even on the agenda. In Belgium, many organisations, such as KCE, have as their main purpose to drive down health expenditure. Government interventions, such as limiting the bed capacity of hospitals, appear in Belgium as well as in the US to cut healthcare costs and to force providers to cooperate. The healthcare landscape is changing in order to face recent trends and evolutions.

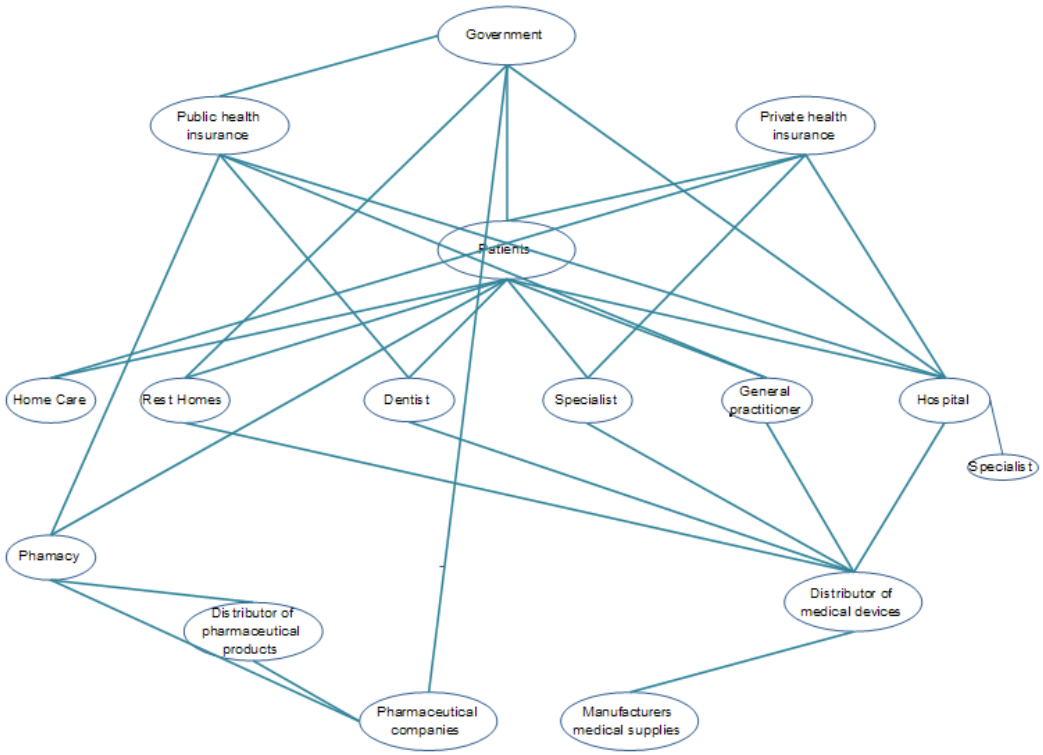

Figure 2. Money flow in the healthcare industry in Belgium.

4.2 BMI in the Belgian Healthcare industry

Besides the changes in the industry architecture introduced by governments and regulators, the healthcare sector is subject to changes coming from the level of other industry actors. Nearly all of the changes that we have noted in our research can be described as different types of networking in the form of liaising or coupling between different providers. Three main types of groupings can be noted: within-discipline grouping, e.g. mergers between hospitals and group practices; across-discipline grouping, e.g. multi-disciplinary centres; and competitor-grouping or 'coopetition', e.g. hospital networks and knowledge networks. These three types of grouping differ with regard to content, structure and governance mechanisms. Across-discipline grouping and coopetition, for example, rely on loose government mechanisms, such as alliances and associations, while within-discipline groupings rely on strict government mechanisms, such as mergers and acquisitions.

The similarity between these three changes is that each is a type of liaising and, in particular, liaising between actors situated at the same position in the value chain. Interestingly, it seems that healthcare providers are choosing to accomplish their goals by working together, but without including other levels of the value chain, such as suppliers, distributors, etc. The three different changes will be discussed in detail in the following part.

5. Grouping mechanisms

5.1 Within-discipline grouping

The most visible change in the healthcare sector is grouping within the same discipline. Mergers between hospitals are the most standard accompanying governance mechanism, even though there are other types, such as associations of hospitals and group practices, for example. In recent years, these types of cooperation between healthcare providers have emerged, partly stimulated by government regulation and partly driven by the sector itself. The best example to illustrate within-discipline grouping represents hospital groupings through mergers.

Three hospital mergers will be studied in detail, focusing on motivations and implications. The three hospitals that participated in the study were Jessa Hasselt, General Hospital (GH) St Maarten, member of the Emmaus group, and Hospital Network Antwerp (HNA). The merger that led to GH St Maarten consists of two independent mergers. The first merger occurred between St Norbertus Duffel and St Jozef Mechelen, and the second merger between GH St Maarten and Dodoens Hospital Mechelen. HNA was created through a merger of nine hospitals in Antwerp and offers all medical services in at least one of its locations.

Drivers

The government has played an important role in the wave of mergers in recent years. In Belgium, as well as elsewhere, the government has shown its authority, for example, by means of measures, stimulating the realisation of economies of scale. Over the past years, the Belgian government has intervened in several ways in order to stimulate high concentration in the healthcare sector. In 1993, for example, the Belgian government imposed a minimum bed capacity of 150 beds per hospital. Several other initiatives to stimulate cooperation between healthcare providers of the same discipline, such as partnership possibilities, were introduced in an attempt to control supply and reduce healthcare expenditures. These initiatives combined with other market forces resulted in several mergers in Belgium.

Within-discipline grouping can have multiple different motivations at company level. Since the sector is under financial pressure, nearly all types of grouping are inspired by cost-cutting motivations. A merger between hospitals can be a necessity, as in the case of the second merger of GH St Maarten and HNA, or it can be a mutual decision that is beneficial for the parties involved, as in the case of the first merger of GH St Maarten and Jessa. Nearly all mergers in recent years, including those in the case study, have benefited from special regulations emanating from the government to stimulate a higher concentration in the healthcare sector. Nevertheless the hospitals in the case study indicate that those regulations were not the main driver, merely an additional motivation.

The merger of HNA, as well as the second merger of GH St Maarten, was necessary for the survival of the participating hospitals. The hospitals in the HNA group were nearly bankrupt and in order to ensure employment and availability of care in Antwerp, the city, in collaboration with the hospitals, decided to create the HNA group. HNA is a merger of nine hospitals and there is no intention to create a central location. The separate entities remain geographically dispersed over the city, providing patients with basic care at every location. Nevertheless, specialised services are offered at only one, or a maximum of two locations, and consequently the HNA hospitals have become complementary for specialised treatments and utilise patient referrals between them.

In contrast, there were other mergers that were driven by the creation of value added and, as a consequence, reinforcement of the financial situation. The first merger of GH St Maarten consisted of two hospitals that were more or less complementary regarding services and therefore a perfect match for a merger. The merger occurred in a period characterised by government stimulation for higher concentration in the healthcare sector and consequently GH St Maarten took those regulations into account when deciding upon the merger. The merger between Virga Jessa Hospital and Salvator Hospital, on the other hand, was primarily driven by efficiency reasons, i.e. avoiding geographical overlap. Both hospitals were in good financial shape and active in Hasselt. A merger would increase value added mainly because of a more efficient use of funds. Before the merger both hospitals needed to provide the same services, i.e. both hospitals had to have an emergency department, a paediatric ward, etc., requiring the same investments, and a merger could reduce double investments and enable the group to increase both efficiency and quality. After the merger Jessa maintained only one emergency department enabling it to save money and use that money to invest in other departments, such as cardiac surgery, for example.

Drivers	Norbertus + Jozef = St Maarten	St Maarten + Dodoens	Jessa	HNA
Financial drivers - Financial necessity - Creation of value added	Not essential No Yes	Essential Yes	Not essential No Yes	Essential Yes
Efficiency drivers - Complementarities of discipline - Geographical overlap - Geographical complementarities - Efficient use of funds - Complementarities of capacity	Yes No No / No	Yes Yes No / Yes	No Yes No Yes Yes	Yes No Yes / No
Government stimulation	Yes	Yes	Yes	Yes
Specific drivers - Ensure employment - Ensure care for patients	/ /	Yes Yes	No No	Yes Yes

Table 2. Drivers of within-discipline grouping.

Implications
In order for grouping to be successful the benefits should outweigh the disadvantages. The case-study research indicates that the positive effects are generally larger than the negative effects.

Financial benefits are the most important benefit of mergers, as a means to accomplishing within-discipline grouping. These benefits can be purely financial or operational. Economies of scale are an example of operational financial benefit. An increase in the scale will in many ways lead to cost reductions, for example, due to joint purchases. A hospital with a larger scale and a considerable number of patients is often an interesting partner for suppliers, as well as for cooperation, because a large-scale hospital has increased bargaining power, enabling it to obtain beneficial conditions. An increase of scale can also have several beneficial side effects. The possibility of converting a number of beds into another specialty is one of them. As a consequence, hospitals are frequently able to offer a larger range of services to patients after the grouping. GH St Maarten faced excess capacity after the two mergers, forcing it to sell a number of beds to competitors and converting a number of beds into other services. After the merger, GH St Maarten was able to offer alternative care programmes to patients.

Sub-specialisation is by far the most important side effect of a larger scale. An increase in the number of doctors offers them the possibility to specialise further in their domain and instead of being a general specialist they can become a super specialist. ‘Super specialisation’ will only occur if the demand is high enough, requiring a large number of patients. The increase in the number of doctors after a merger is partly necessary to fulfil increased demand but partly redundant since a hospital does not require multiple doctors specialised in the same field. Therefore specialists will further segment their specialisation and focus on one segment, where they can become a super specialist.

Super specialists are able to provide basic care to each segment and specialised care to their preferred segment. Hospitals with super specialists are able to offer the latest medical treatments and technology, since super specialists retrain in order to remain a specialist in their preferred field. Small regional hospitals are able to benefit from the specialisation of large hospitals, since they can cooperate and refer patients.

The efficient use of support services is another example of an operational benefit. After the merger nearly all hospitals centralised their support services in order to improve efficiency and reduce costs. There are different degrees of centralisation of services. GH St Maarten strives towards a high level since it wants to centralise all support services including reception. The objective is to have one location within five years, enabling people to work with one reception, one accounting service, etc. HNA intends to maintain different locations and therefore the degree of centralisation will be less. Nevertheless, some considerable efforts have been made to use the support services as efficiently as possible. It is impossible to centralise the reception, but HNA has been able to centralise its telephone central office for all hospitals. ICT and Human Resources are two further examples of services that have been centralised.

Next to operational benefits, mergers also create pure financial benefits, since mergers are likely to improve the financial performance of participants. Two mergers in the case study, driven by financial necessity, were able to improve their financial performance due to the merger. Mergers that do not appear to be due to financial necessity can have financial benefits as well, because mergers are likely to create large investment possibilities. Since there is a reduction of duplications, the budget increases, creating room for extra investments that were not possible before the merger. Patients and society benefit from those new financial opportunities, since the investments usually improve the quality of care. All hospitals in the case study indicated that they intend to realise some ambitious investments in the future, which will enable them to offer the latest medical technology and treatments to patients.

After financial and operational benefits are reaped, hospitals can go into value-added or secondary benefits. The HNA group, for example, has indicated the general benefits, as well as three specific benefits, related to its own situation. The first benefit is the facilitating of brand awareness. Due to the merger HNA is present in each corner of Antwerp. Since it strives for conformity and uniformity of image and services, the group has become better known to customers. Each hospital in the HNA group is required to use the same company logo for internal as well as external communication and each hospital aims to offer the same structure to patients. The bills, as well as information brochures, for example, are identical in each hospital, in order to ensure optimal geographical coverage. A second benefit is financial solidarity between healthy disciplines that are performing well and disciplines that are underperforming. Most hospitals offer only the services that generate the most money. The HNA group, on the contrary, in order to fulfil its social role, offers all services. The merger enabled it to use money from well-performing disciplines, such as cardiology, to finance underperforming disciplines, such as psychiatry. The final specific benefit for HNA is the creation of horizontal employment opportunities. The employees of HNA can benefit from multiple horizontal prospects of advancement. Within each discipline specialisation is possible and within the group transfers can occur between its different locations. Doctors are able to organise consultations at all locations, creating the possibility of enlarging their patient base.

Mergers between hospitals generate many benefits; nevertheless, disadvantages may also occur, especially during the implementation process. The disadvantages indicated by the hospitals in the case study were mainly case specific; nevertheless one general disadvantage could be observed in relation to the chosen governance mechanism. During the implementation process of a merger, many hospitals face adaptation issues. GH St Maarten mentioned that cultural issues were the most important disadvantage. The merger combined employees and patients from different hospitals and

created one new hospital, which had its own culture, and it took time for all parties involved to acclimatise. Most mergers require restructuring in order to make the merger financially feasible, including some lay-offs and clean-ups. Since most of the disadvantages are case specific, disadvantages for one hospital can be turned into advantages for other hospitals. The geographical dispersion, for example, is perceived as an advantage for HNA, but as a disadvantage for Jessa and GH St Maarten.

Positive effects	**GH St Maarten**	**Jessa**	**HNA**
Operational benefits			
Economies of scale	Yes	Yes	Yes
Increase in bargaining power with suppliers	Yes	Yes	Yes
Interesting partner for cooperation	Yes	Yes	Yes
Larger range of services can be offered	Yes	Yes	Yes
Sub-specialisation	Yes	Yes	Yes
Efficient use of support services (centralisation)	Yes	/	Yes
Cost reductions due to centralisation	Yes	/	Yes
Pure financial benefits			
Improved financial performance	/	Yes	Yes
Larger investment possibilities	Yes	Yes	Yes
New financial opportunities	Yes	Yes	/
Secondary benefits			
Geographical dispersion	No	No	Yes
Facilitating of brand awareness	No	No	Yes
Financial solidarity between rich disciplines and poor disciplines	/	/	Yes
Creation of horizontal employment opportunities	/	No	Yes
Negative effects			
Adaptation issues	Yes	Yes	Yes
Cultural differences and issues	Yes	/	/
Competitors become colleagues	Yes	/	/
Restructuring	Yes	/	/
Clean-ups	/	No	Yes
Geographical dispersion	Yes	Yes	No
Costs	/	Yes	/

Table 3. Implications of within-discipline grouping.

5.2 Across-discipline grouping

Across-discipline grouping is the second type of liaising that has been present in the healthcare sector. Hospitals are the oldest and most mature examples of this type of grouping – they group different disciplines at one location and make it possible for different specialists to work together and share patients in order to provide patients with a total solution. Next to changes within-hospital, the emergence of multi-disciplinary groups can be seen as another example of this type of change. And while the number of multi-disciplinary groups in Belgium is still limited, the figures are increasing and this specific example is becoming more important.

In our case-study research, two different groups were interviewed: a private initiative and a public initiative. The first group, Medipolis, is a multi-disciplinary health centre focusing mainly on practices that are non-refundable by the mandatory health-insurance companies. Therefore Medipolis can be categorised as a private initiative, since there is no government regulation for their activities or government funding. The second group, Emmaus, is a group of 25 healthcare providers, containing hospitals as well as rest homes and nursing-care facilities. In contrast with Medipolis, Emmaus VZW is not a private organisation, implying that there is government regulation for the institutions of the Emmaus group.

Drivers

Medipolis and Emmaus are two different groups and therefore their motivations differ to a certain extent. The main trigger for the establishment of the Emmaus association was the merger between St Jozef Hospital and St Norbertus Hospital in 1997. The promoters of both hospitals share the same vision about care and their concepts of health care and other care are very similar. In 1998 the Emmaus association was established using as a mechanism of the grouping joint control of all associations. This mechanism allows each association to function separately with regard to daily activity, while large decisions having influence on structure and the financial situation, for example, are made at the highest level and are intended to apply to all group members. In the years after its creation the group has enlarged and seen the emergence of small institutions that wanted to relate themselves to the large group. Joining the Emmaus association made it possible for little players to professionalise and by becoming a member of the group they could benefit from its large scale.

Medipolis, on the other hand, arose as a side effect of the enlargement in capacity of the practice of Dr Mertens. The ophthalmic practice needed to expand its capacity due to high demand. Dr Mertens found the location for Medipolis, which was too big for his practice alone, and decided to share it with other private disciplines. Medipolis was created and served as an umbrella organisation for different group practices, such as opticians, a hair clinic, ophthalmic practices, dentist practices and a hearing centre, remaining as separate entities. The umbrella organisation supports the practices in terms of a central organisation of support services, such as administration, financial management, HR management and procurement management.

Drivers	**Emmaus**	**Medipolis**
Shared vision	Yes	/
Professionalise	Yes	/
Ensure position	Yes	/
Benefits from large scale	Yes	Yes
Share capacity	No	Yes

Table 4. Drivers of across-discipline grouping.

Implications

Emmaus and Medipolis both group different healthcare providers; nevertheless, they are extremely different concerning organisation and structure. The effects of grouping different healthcare providers depend for a large part on the organisation and structure of the group and therefore the effects discussed are rather case-specific. Nonetheless some shared effects can be identified.

The Emmaus groups creates added value for its members in two main domains. The first domain is care, where the sectoral and inter-sectoral cooperation of the organisations leads to added value. Within the group there is the possibility to exchange know-how, enabling members of the group to increase their performance, since they can compare different methods and choose the most efficient ones. The group can offer individually tailored care pathways and care circuits across disciplines to patients and there is substantive cooperation for sub-target groups that need care from different disciplines. Families with children, for example, can turn to Emmaus for day care as well as for support and for general care. Their files are shared across all institutions. A second domain is the financial, economic domain. In the same line as hospital mergers, Emmaus VZW is able to realise efficiency as well as financial benefits.

Medipolis, on the other hand, is a multidisciplinary centre grouping different non-refundable disciplines at one location. At Medipolis, the non-medical services are centralised, leading to large cost reductions because some fixed costs are spread over several parties, allowing the different disciplines to reduce their expenditures. It also enables non-medical services to become specialists themselves and increase their efficiency significantly. They can become super specialists in their activities. While grouping between the same disciplines enables performers of the core activity to super specialise, grouping between different disciplines also enables performers of non-core activity, such as support services, to super specialise.

The specific benefits indicated by Medipolis are primarily the existence of different kinds of complementarities. The different disciplines grouped at Medipolis are complementary on the basis of costs, infrastructure and target groups. Patients can be shared across disciplines and new patients can be attracted through existing disciplines, since patients that are interested in, for example, the special services of dentists at Medipolis are the same patients that could be interested in esthetical surgery. Multi-disciplinary centres are able to realise cross-pollination between disciplines. Since publicity is not allowed in the Belgian healthcare industry, healthcare providers have limited ways of gaining market share, including the distribution of information and mouth-to-mouth publicity. Patients that visit one discipline of the group can be informed about other disciplines, for example, through brochures and posters in the waiting room. The cross-pollination that is created through across-discipline grouping is a new way of gaining market share for providers.

Comparing the effects indicated by both groups in the case study, the general effects of across-discipline grouping can be observed; besides the economies of scale described in the previous section, cross-pollination is the most crucial effect. Across-discipline grouping tends to create the possibility of cross-pollination. Patients can be shared between disciplines and new patients can be obtained through existing disciplines. Since most groups of different disciplines are complementary on the basis of patients and services, patients that are interested in one of the group services might also be interested in other services of the group. As shown above this is definitely the case for Medipolis, but in the short run it is less likely for Emmaus. In the long run, cross-pollination will also be possible for Emmaus, since patients will become older and require increasing levels of care, creating the possibility of appealing to other disciplines of the Emmaus group, such as rest homes and home care.

Effects	Emmaus	Medipolis
Efficiency improvements	Yes	Yes
Financial benefits	Yes	Yes
Super specialisation of support services	/	Yes
Highly developed operational benefits		
Exchange of know-how	Yes	No
Individually tailored care pathways	Yes	/
Cross-pollination	Long run	Short run

Table 5. Implications of across-discipline grouping

5.3 Competitor-grouping (Coopetition)

The most pioneering type of liaising is cooperation between competitors, also called 'coopetition'. The Leuven Flemish Hospital Network is an example of a grouping where competitors cooperate in order to improve quality for hospitals in the network. Coopetion is similar to within-discipline grouping, but with looser government mechanisms in contrast to mergers. Competitor-grouping happens with regard to specific topics and the enforcement of cooperating is not possible. In Belgium, this type of networking is primarily organised around university hospitals at a regional level. In recent years the international competition has increased, and in particular competition from the European Union has increased and started to enter the Belgian Market. To face this new competition and to meet international standards, several hospitals have created networks to share knowledge and indentify the most appropriate methods and procedures.

In 2002 a network around the university hospital of Leuven – the Leuven Flemish Hospital Network (LFH Network) – was created, with its main goal being patient referral. The university hospital provides highly specialised care and requires a large volume of patients in need of this specific care in order to make its services economically viable. Cooperation with other regional hospitals for referral was the solution.

In recent years the vision of the network has changed, since regional hospitals have become able to provide specialised care themselves. Over the years the number of treatments referred to university hospitals decreased significantly. Regional hospitals only referred patients to a university hospital for treatments they could not provide themselves and therefore the number of those treatments decreased significantly. Consequently the network changed its goal of knowledge-sharing and valorisation, more specifically improving quality and efficiency and learning to improve financial performance. The hospitals share knowledge on core activities as well as on support activities in order to determine the most efficient procedures. Hospitals share performance indicators to determine the most effective and least costly procedures. The LFH Network facilitates cooperation between members of the network, enabling competitors to share critical information in order to create benefits for all network members. Members can improve their financial situation, quality, organisational structure and several other factors by identifying the most efficient ways of working. An acquisition strategy was not useful for interregional cooperation between autonomous high-quality hospitals; therefore they opted for transparency, regular consultation and coordination with respect to one another's autonomy.

Drivers

Multiple aspects provide motivations for cooperation at the highest possible level. First, medical programmes have become increasingly multidisciplinary and interdependent, sometimes requiring new forms of cooperation, such as associations, consultant shelves and even the exchange of medical staff. Rare conditions, for example, may require different opinions and views in order to find solutions or pandemics may require the cooperation of many hospitals and other institutions in order to cope with a disease. Second, training in non-university hospitals can certainly benefit from the relevant patient-care programmes when coordinated between the applicable regional hospital and university hospital of Leuven. Third, there is a growing importance for telematic-infrastructure for the coordination of care programmes, training and research and it is clear that agreements and standards must be established for communication of patient records, images and training seminars. Patients have free choice concerning their healthcare provider in Belgium; however, this choice is currently limited. Patient data is not shared by all providers, which creates administrative costs (time and effort) if patients seek to change healthcare providers. Finally, competition evolves and the locus of competition has moved several times. In the beginning competition was mainly local, i.e. competition in the same region. The mobility of people was limited and therefore their choice for healthcare providers mainly depended on the distance they needed to travel. As the mobility of people increased, competition became national, i.e. within one country. Borders between countries were strongly defined and the target group of the healthcare sector mainly existed among nationals, since the sector was not receptive to immigrants. Currently, borders within the EU have blurred and the EU strives for cross-border health care. The competition has become international. In order to face this new type of competition, networks that share knowledge and try to improve quality as well as structure, are a possible solution.

Drivers
Medical programmes became multidisciplinary and interdependent
Grouping
Education and training
Evolution towards Telematic-infrastructure
Face increasing competition

Table 6. Drivers of competitors-grouping.

Implications

The hospitals in the LFH Network evolved from a competition model towards a cooperation model. The hospitals share knowledge on core activities, such as surgery techniques, profits and which equipment is most cost-effective, as well as on support activities, for example, by means of performance indicators, in order to determine the most efficient procedures. All hospitals in the network can share information about how they run their reception, for example, more details about their telephone central office. Some hospitals perform this in-house, while others may outsource it. Advantages and disadvantages based, for example, on costs, reliability and efficiency may be provided. Each hospital can, based on this analysis, decide if it will keep it in-house or outsource it. Thereby the LFH Network enables competitors to share critical information in order to create benefits for all members of the network.

The members of the network share critical information in order to learn from one another and to improve their functioning. Since healthcare providers in Belgium do not publish any information, this is the only type of benchmarking that can be found in Belgium. Benchmarking can be good for industry performance, since players are confronted with other players that do better and they will try to

improve themselves. Stimulating benchmarking in the healthcare sector could be a first step towards better industry performance in Belgium.

6. Discussion

In recent years, global trends such as globalisation, population ageing, technological advancements and patient involvement have significantly influenced national healthcare ecosystems, prompting them to innovate their industry architecture in a quest for financial sustainability and a shift towards a more encompassing and long-term view towards health.

Our study started with an understanding of global trends and their impact on the industry architecture, evolved towards the implications and actions of Belgian regulators, as ecosystem representatives, to respond to these trends, and finally focused on the responses of healthcare providers. Here, we identified groupings of a different nature and extent to be the main response practiced by Belgian health providers.

The three main groupings that we have identified represent within-discipline grouping, usually practiced through mergers and acquisitions, across-discipline grouping, through the formation of the 'alliances' and competitor-grouping or 'coopetition' through very loose grouping that can be described as 'association'.

Within-discipline grouping was the first type of grouping to be examined in our research. Mergers and acquisitions are the most prominent mechanisms to obtain these groups. Parties involved in this type of grouping are primarily driven by efficiency reasons and therefore require strict government mechanisms. Efficiency improvement will allow both parties to improve financial as well as operational positions, but only if they cooperate, combine and work together 100 per cent. In order to protect themselves against free-riding of the other parties, members are likely to strive for mergers and acquisition, i.e. they want all the other parties to engage as much as possible.

Across-discipline grouping was the second type of grouping discussed in this article. This type of grouping requires less strict government mechanisms since the different parties involved are mostly driven by the benefit from cross-pollination. Alliance is one of the most useful mechanisms to obtain a looser, but still tight, government mechanism. Members of the alliance benefit from other members, but do not need to cooperate as much as members of same discipline grouping. Members of different discipline groups can already benefit from being in the same room, because, for example, patients will be informed about all the members. Across-discipline grouping also benefits from increased efficiency, but in order to obtain them, mergers and acquisitions are not necessary.

The third and most complex type of grouping consisted of competitor-grouping. Coopetition, i.e. competitor-grouping, can occur with loose government mechanisms. All the members of a network will form an association. Loose government mechanisms are possible because members will cooperate only on some aspects and the main goal is knowledge-sharing and service innovation. Members benefit from sharing information, but the goal is not to oblige them to work together. Members have no direct efficiency gains from being part of the association; nevertheless, they are able to improve their performance, for example, by learning from other members of the association.

The summary of the three types of changes that appear in the healthcare landscape in Belgium resonates well with the business model innovation view from the perspective of activity systems (Zott and Amit 2010). Within-discipline, across-discipline and competitor-grouping clearly represent different types of the content expansions; extension in scale between the same activities, extension in scope between different activities and extension in scale and scope between different and the same activities, respectively. One may expect the complexity of the structure connecting the same versus different forms of activities to increase as well. Further to that, it is interesting to note that these groupings are accomplished through different governance mechanisms that again have an increasing

extent of novelty as well as a decreasing level of integration. They range from traditional mergers and acquisitions, alliances and, finally, associations, for each of the groupings respectively.

	Within-discipline grouping	**Across-discipline grouping**	**Competitor-grouping**
Value driver	Strong efficiency (Scale economies)	Mild efficiency (scale economy) Mild novelty (Cross-pollination)	Strong novelty (new procedures, knowledge-sharing and consultations)
Content	Same-service activity types	Different service activity types	Same as well as different
Governance	Mergers and acquisitions	Alliance (super hierarchy)	Association (cooperation)
Structure	Limited number of members	Limited number of members	Unlimited number of members

Table 7. Design elements of the innovative business models.

Besides interesting insights into the characteristics of the design elements, healthcare business models have an interesting logic associated with the design themes. The value driver, which may as well be the motivation for the grouping, differs as well. Starting from the mainly efficiency-driven within-discipline groupings, business model innovations evolve towards pure novelty-driven business model innovations.

Within-discipline grouping is mostly efficiency-led since the main goals are scale economies, efficiency improvement and cost reduction. Across-disciplines grouping and coopetition are more novelty-centred innovations, since they require the adoption of new activities, a new structure and a new governance mechanism. The degree of novelty differs between the two innovations. Across-discipline grouping represents a combination of existing systems to create a bundle of two, while coopetition is more than the combination of multiple existing systems. Coopetition tries to create synergies by combining multiple existing systems and reshaping them into one new system. Grouping different disciplines at one location enables parties to share costs, infrastructures and even patients. Cross-pollination is almost the most important benefit for different discipline grouping. Different discipline grouping can even lead to the discovery of new applications of medical equipment, for example. In Medipolis, different disciplines share infrastructure, which indicates that several medical devices are applicable in different disciplines. Coopetition mainly tries to create synergies, in contrast with across-discipline grouping, where they occur accidently by means of multiple uses of infrastructure. Coopetition tries to collect different procedures, techniques and methods, identify advantages and disadvantages and create new procedures, techniques and methods that are better than the ones currently used by most providers.

The innovative, newly created business models, which have been the subject of our research, differ significantly in content and in governance. Nevertheless a link between content and governance can be found, as illustrated by Figure 2. Loose governance mechanisms allow networks to become more innovative and thereby create synergies for the members in the network. The graph also indicates that novelty seems to be associated with looser coupling.

	Within-discipline grouping	Across-discipline grouping	Coopetition
Novelty		X	X X
Efficiency	X X	X	

Table 8. Design themes of the innovative business models.

While this parallel progression towards novelty in the design theme and the novelty of all the elements of design seem intuitive, the logic behind association of more novel design themes with looser governance mechanisms is less evident. This can even be seen as going against conventional wisdom that would suggest a more stringent form of government for less tangible – and, hence, outcomes that are more difficult to share. One potential explanation may be that the uncertainty of innovative benefits does not warrant the costs of more stringent restructuring (e.g. merger is usually more costly than the formation of an association). Another reason may be that there is no 'sharing' as the benefits realised through innovation are accessible to all partners and multiplied rather than divided.

All cases we have examined support this interpretation. For several cases, which became more innovative in recent years, an evolution can be identified using the graph. The Emmaus group, for example, has made an innovative evolution over the past years. The first business model innovation took place in 1997 and contained the merger of two hospitals. The second business model innovation took place in 1998 and consisted of the creation of Emmaus VZW, a group of healthcare providers active in different segments. The third business model innovation took place in 2005 and involved joining the LFH Network.

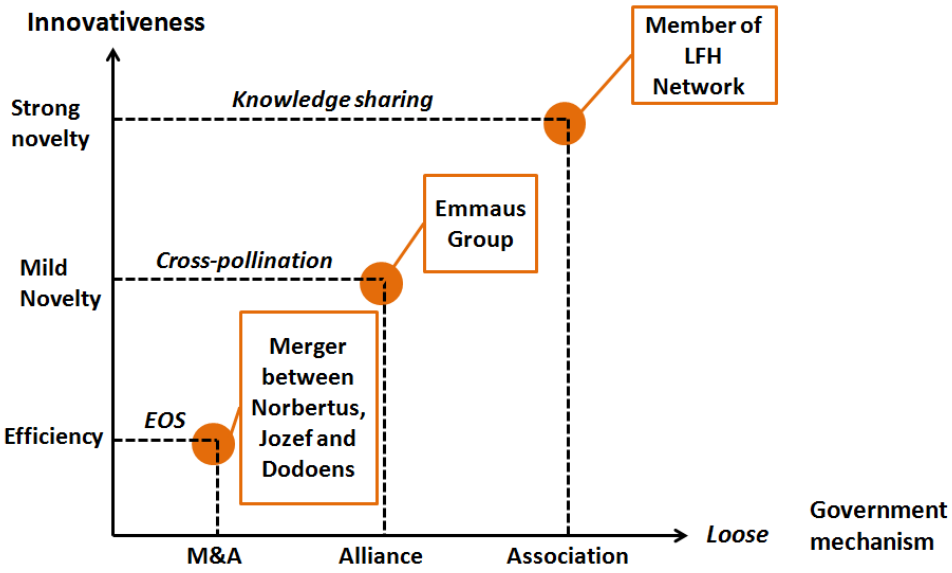

Figure 2. Innovative evolution of the Emmaus group.

7. Conclusion

The healthcare industry is facing multiple challenges. In order to deal with those new arising problems, restructuring by means of industry architecture redesign, as well as business model innovations, may be an answer. To contribute to our understanding of how business model innovation may help redesign health care, innovations by healthcare providers in Belgium were examined. Our study identified horizontal grouping to be the underpinning characteristics of all prominent changes in

healthcare providers' business models. Furthermore, we noted that they vary with respect to nature and the extent of liaison and we distinguish three main archetypes: within-discipline grouping, across-discipline grouping and competitor-grouping. When comparing the main characteristics of these groupings – design elements (content, structure and governance mechanism) with a value driver that underpins the design theme (novelty and efficiency-driven business models –_we noted the following logic. More modest changes in content, such as within-discipline grouping, were associated with very concrete and tangible gains in efficiency. To capture this value they seemed to be relying on the strongest liaison mechanisms – mergers and acquisitions. On the other side of the spectrum, the most controversial changes to the content, such as competitor-groupings, were aiming for the least tangible and most innovative and creative gains, such as new knowledge and practice creation. Contrary to what one may expect, these gains were accomplished using very loose governance mechanisms, such as associations and practice exchange.

Business model innovation has already proven to be successful in many other industries and regions. While business model innovation, as we see appearing in Belgian health care, is only at the early stages, it has been proven to bring several benefits to the companies involved. Furthermore, looking at the Belgian healthcare system as a whole indicates high standards of healthcare delivery; with the right business model innovations in place, Belgium may well be positioning itself to respond to the EU goals for cross-border health care and potentially even present itself as an interesting location for medical tourism.

Our research on business model innovation has a number of shortcomings. We have only five case studies, while more case studies, especially with regard to competitor-grouping, would strengthen external validity. Our focus was on Belgium alone, and research on different healthcare ecosystems may be required to establish whether these types of business model innovations appear in different contexts as well. Furthermore, the research was qualitative; it would surely be interesting to conduct quantitative research that shows whether there is a clear statistical and economical association between the business model innovations and the performance of the healthcare providers. Other extensions for the research may go in the direction of understanding the business model innovations of payers, for example, contributing to an integrated understanding of how the innovations function beyond the firm level and affect the performance of the healthcare ecosystem as a whole.

8. References

Amit R. & Zott C., 2001, 'Value creation in E-Business', *Strategic Management Journal*, vol. 22, pp. 493–520.

Amit R. & Zott C., 2010, 'Business model design: An activity system perspective', *Long Range Planning*, vol. 43, no. 2–3, pp. 216–26.

Chesbrough H. & Rosenbloom R., 2002, 'The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies', *Industrial and Corporate Change*, vol. 11, no. 3, pp. 529–55.

Chesbrough H., 2007, 'Business model innovation: it's not just about technology anymore', *Strategy & Leadership*, vol.35, no.6, pp. 12–17.

Corens D, 2007, 'Belgium: Health system review', *Health systems in transition*, vol.9, no.2, pp.1–172.

Daue F. & Crainich D., 2008, 'De toekomst van de gezondheidszorg: diagnose en remedies', *Uitgeverij ASP*, Brussels.

Gambardella, 2010, 'Business-Model Innovation: General purpose technologies and their implications for industry structure', *Long Range Planning*, vol. 43, pp. 262–71.

Gerkens S. & Merkur S., 2010, 'Belgium: Health system review', *Health systems in transition*, vol.12, no.5, pp. 1–266.

Giesen E. et al., 2007, ‘Three ways to successfully innovate your business model’, *Strategy & Leadership*, vol.35, no.6, pp. 27–33.

Jacobides, 2006, ‘Benefiting from innovation: Value creation, value appropriation and the role of industry architectures’, *Research Policy*, vol. 35, pp. 1,200–21.

Johnson M., Christensen C. & Kagermann H., 2008, ‘Reinventing your business model’, *Harvard Business Review*, pp. 59–68.

Magretta J., 2002, ‘Why business models matter’*, Harvard Business Review.*

OECD, 1999, ‘The healthcare system: Belgium’, *OECD Economic Surveys.*

Teece D., 2010, ‘Business models, business strategy and innovation’, *Long Range Planning*, vol. 43, pp. 172–94.

Visnjic and Neely, 2011, ‘Business model Innovation of Complex Service Providers: A Quest for Fit’, Working paper.

Voss C., Tsikriktsis N. & Frohlich M., 2002, ‘Case research in operation management’, *International Journal of Operations & Management*, vol.22, no.2, pp. 195–219.

Weil P., Lai R. & Malone T., 2006, ‘*Do business models matter?*’

Yin R., 1989, *‘Cas*