Business Model Canvas: Mapping to Health and Social Care
with a Focus on Telehealth and Telecare

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Contents

Figures

1   Introduction

This document has been developed by EHTEL as background literature for an EHTELconnect educational workshop on business modelling.

The workshop starts with the standard description of the Business Model Canvas prepared by Strategyzer, the company formed by Alex Osterwalder and Yves Pigneur, the original co-authors of the business model canvas materials[1]. It then maps the canvas to the (**public**) **health and social care system** (see in particular pp5-8 of this report). The ultimate purpose is to present a business modelling tool that can be used when developing innovative Technology Enabled Care (TEC) services i.e. telehealth and telecare services. Hence, this document also describes in detail the telehealth and telecare contexts.
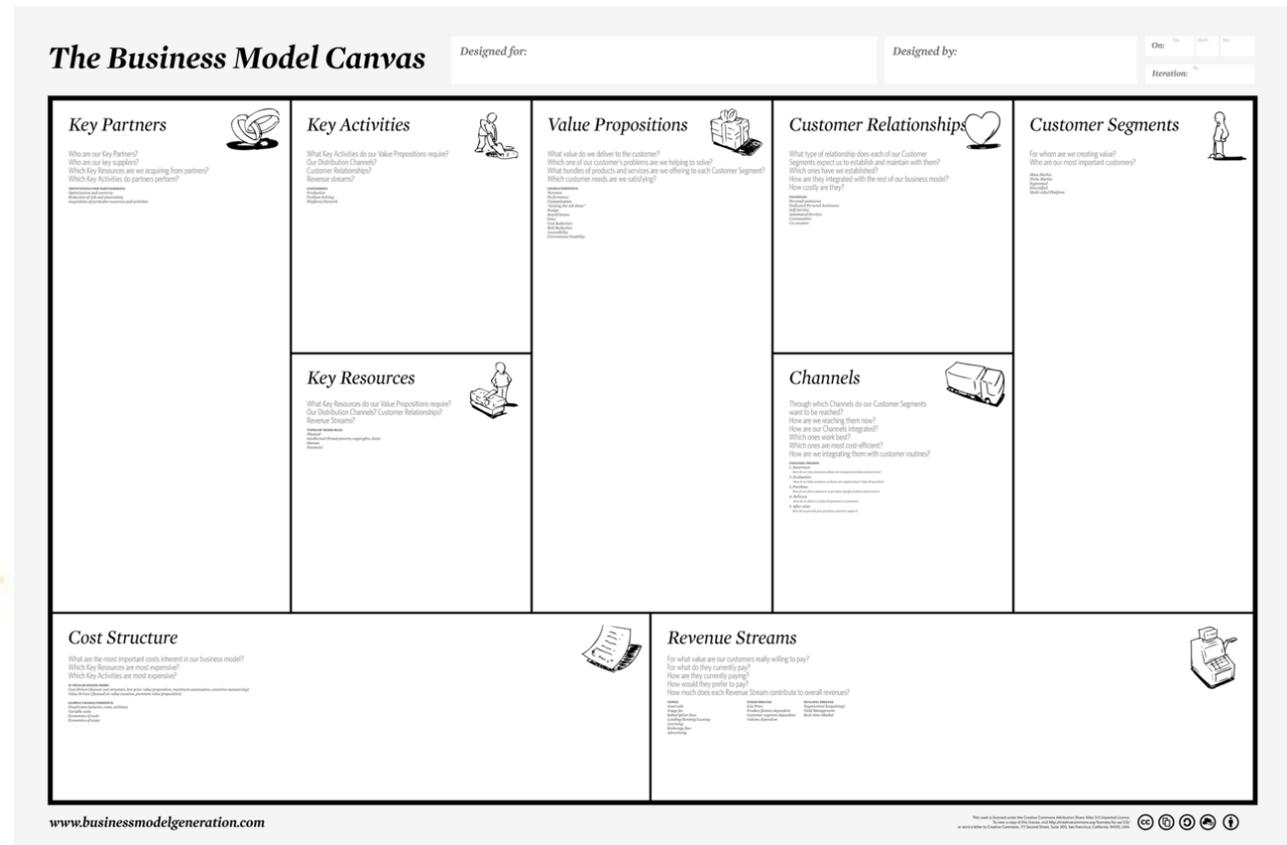
Figure 1: The Generic Business Model Canvas © Strategyzer (www.strategyzer.com)

In the Business Model Generation book, Strategyzer defines the Business Model Canvas as "*a strategic management and entrepreneurial tool. It allows to describe, design, challenge, invent, and pivot a business model*".

The canvas is a popular business model called a "blueprint" (i.e., a tool) which covers the whole rationale of value creation. The canvas can be used to consider a range of strategic choices that determine this rationale. It concentrates on nine different topics or domains, including the value proposition, customer segments, market analysis and stakeholder needs' assessments.

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[1] Alex Osterwalder and Yves Pigneur (2010) "Business Model Generation. A Handbook for Visionaries, Game Changers, and Challengers", Wiley. ISBN 9789013074086. See also newer books available on www.strategyzer.com, accessed 5 October 2015.

Because the conditions under which strategic choices are originally made may change, the canvas can also be used as a tool to review an organisation's strategy or to adapt its business model.[2]

Business modelling is an exercise that can be repeated on a regular basis. It can be used both with people who are new to the notion of business modelling or people who have more experience.

While it is important to apply the model to the setting, it is vital to focus on the 'big picture' or the 'helicopter view' rather than on all the small details.

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[2] Adaptations of the model are feasible, i.e., it can be used to create baseline analyses or to look forward prospectively. Analyses will change based on the use cases selected, i.e., in some, patient stratification may be an important action to undertake.

2 Telehealth and telecare business modelling in health and social care - background, the model and its design, and key concepts

In healthcare innovation, the focus is on four notions: quality improvement, in a way that is sustainable and empowers the people involved, through going digital. It requires blue skies thinking.[3]

Historically, 75% of all eHealth programmes have failed during the operational stage according to research by Chen and colleagues[4]. Failures have occurred for a variety of reasons: lack of professional involvement in the design process; information technology (IT) vendor lock-in; and, because only pilot funding was secured, the people concerned did not see 'the big picture' and instead were short-term in their focus. What is therefore needed is a comprehensive business model that can be used during the conceptualisation phase, can reduce risks and costs, and can raise the probability of success. A business model will help to understand and create value for both the organisation and patients; expand practice in an economically viable way; and enable comparison and contrasting of experiences.

The model

While the business model canvas (hereafter, 'canvas') was initially developed as a tool for organisations planning to offer goods or services on a commercial basis, it is versatile enough to be used in broad range of settings including the public sector. Included in this sector are health care and/or social care.

A small number of publications cover the notion of business model use cases in telehealth and telecare[5,6]). Existing publications indicate two trends:
1) *Ad hoc* or "lightweight" applications of the canvas in telehealth and telecare provide limited insights into business models specific to health and social care.
2) More sophisticated adaptations are dedicated to non-European Union healthcare systems.

The application of the notion of business modelling in the domain of eHealth has particularly been reported in European Commission-funded research[7]. Recently, the canvas was cited in the 2015 final management report related to the Momentum blueprint project (with its 18 critical success factors (CSFs) to deploy telemedicine in routine care successfully[8]).

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[3] Cf. The focus placed on new market space in the work by W. Chan Kim and Renée Mauborgne on *Blue Ocean Strategy* https://en.wikipedia.org/wiki/Blue_Ocean_Strategy, accessed 5 October 2015.

[4] Shengnan Chen, Alice Cheng, and Khanjan Mehta (2013) "A Review of Telemedicine Business Models", Telemedicine and e-Health, April 2013, 19(4): 287-297. doi:10.1089/tmj.2012.0172. http://online.liebertpub.com/doi/abs/10.1089/tmj.2012.0172, accessed 5 October 2015.

[5] Shengnan Chen, Alice Cheng, and Khanjan Mehta (2013) "A Review of Telemedicine Business Models", Telemedicine and e-Health, April 2013, 19(4): 287-297. doi:10.1089/tmj.2012.0172. http://online.liebertpub.com/doi/abs/10.1089/tmj.2012.0172, accessed 5 October 2015.

[6] "A Business Model Analysis of Telecardiology Service" by Shu-Hsia et al, M.D., Ph.D. - Mary Ann Liebert, Inc., Vol. 16, No. 10, December 2010, Telemedicine and e-Health, 1067.

[7] Valeri, L., Giesen, D., Jansen, P., Klokgieters, K. (2010) "Business Models for eHealth. Final Report" prepared on 28 February 2010 by Rand Europe and Cap Gemini Consulting for the European Commission https://www.myesr.org/html/img/pool/business_models_eHealth_report.pdf, accessed 5 October 2015.

[8] www.telemedicine-momentum.eu, accessed 5 October 2015.

The Scottish Technology Enabled Care Programme Board and associated team supported the application of the CSFs from the Momentum blueprint in its strategic work on identifying its strengths, and future areas for development for Technology Enabled Care (TEC) in Scotland. As an outcome of an April 2015 exercise, the TEC Programme concluded that "*Sound business models in telemedicine ... could be developed in a workshop to be held in September 2015*". This conclusion materialised in an educational workshop on business modelling with a focus on telehealth and telecare (TEC) held on 15 September 2015 in Edinburgh.

This document is designed to support educational workshops, like the 15 September workshop on TEC in Scotland. It fine-tunes the **transfer of the canvas to its application in the health and social care sectors, with an emphasis on telehealth and telecare**. This enables workshop participants to concentrate right from the start **on re-designing health and care services by implementing telehealth and telecare for the purpose of modernisation**. It also helps them to use the same vocabularies and expressions: i.e., to meet certain standards.

Front end, back end and economic dimension of the model

The business model canvas has three main areas to it, called the front end, the back end and the economic dimensions. The front end groups together issues related to the value proposition, customer segment, customer relationship, and (communication) channels. The back end brings together the key resources, key activities, and the key partners. The economic dimensions contain just the cost structure and the revenue stream.

Three key concepts

For the purpose of a workshop business modelling exercise, three concepts that are highly specific to the health and social care sectors have to be borne in mind. They relate to the implicit business model(s), resources and reimbursement:

1. **Business models for delivering care**: In the health and social sectors, the term "business model" may strike people as unusual. It is a common perception that the sectors focus just on the costs that are covered by public money (e.g., through tax and/or insurance). However, implicit business models already exist that cover the delivery of health and care. Doing a business modelling exercise is, first, about making the existing model(s) explicit and, second, about supporting the re-design of the care delivery process (which often has the introduction of technology associated with it).

2. **Resources**: From a resource point of view, TEC has to enable the overall budget for health and/or social care to do either of the following: either, it helps to do more for less or to do more with the same overall budget. If additional resources are needed, they often need to be delivered from outside the health or social care sectors.

3. **Reimbursement**: The reimbursement mechanism in health and social care is the "patient - health professionals - payer" triangle (cf. figure 2 below). While care is provided by a team of professionals to an individual patient or citizen, the payment or the reimbursement of that care is made by a third party known as the payer. In some countries or regions, a small financial contribution is also made by the individual him or herself.
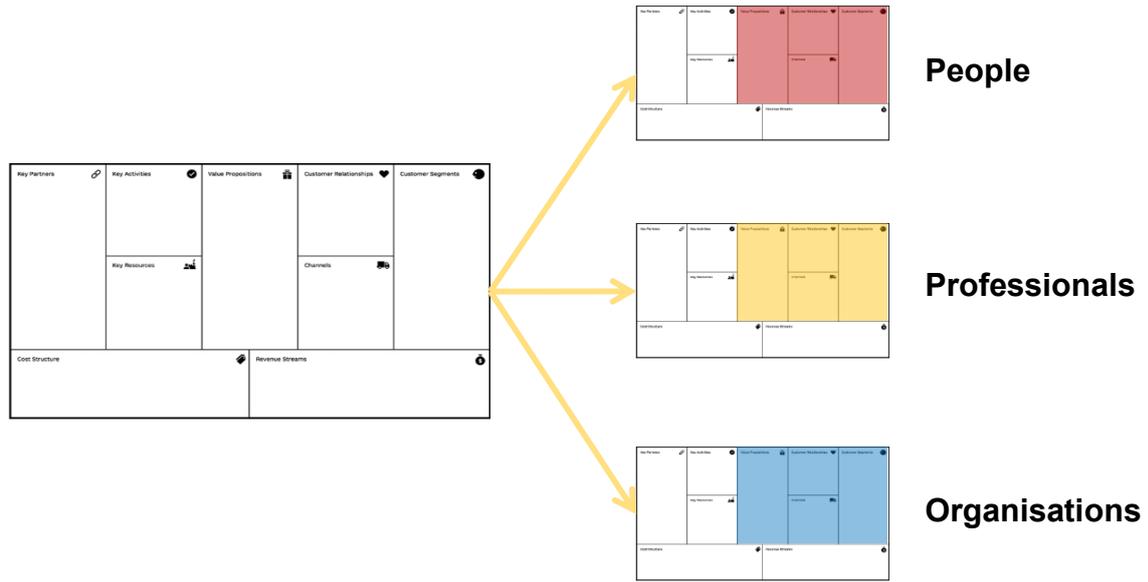
Figure 2: The Business Model Canvas adapted to health and social care

3   Mapping the canvas to telehealth and telecare services in health and social care

Before starting any business modelling exercise, clarity is needed about the organisation for which the business model is being designed. Table 1 (below) consists of three columns. The table is classified into three fields: who, what and why. For each of these fields, it describes the classical business situation; the health and social care situation; and the telehealth and telecare situation. The table therefore helps to compare the profile of a health and social care organisation with one in a classical business situation.

Information and communications technology (ICT) (or what Scotland refers to as technology-enabled care (TEC)) can act as a driving force for the full potential of integrated care. In particular, the attention of workshop attendees is drawn to the use case of the redesign of health and social care services with the support of telehealth and telecare (i.e., TEC).

Table 1: Key Dimensions from the Canvas:
Generic, health and social care and telehealth/care mapping

	CLASSICAL BUSINESS SITUATION	**MAPPING TO HEALTH AND SOCIAL CARE**	**ELEMENTS RELEVANT TO TELEHEALTH AND TELECARE**
WHO	A business supplier/service provider	A local government or a government agency, and its health and/or social care organisations, provides services to patients while the financing comes from tax and/or insurance funds	A care organisation or specialised provider organisation initiates the redesign of a care delivery service with the support of telehealth/telecare
WHAT	Creates value for its potential customers to acquire, and keep, them as customers	Looks to create value for its user groups and beneficiaries, i.e., it improves services and outcomes as well as optimising the workload of the professionals involved	Providers and health professionals adopt telehealth and telecare services for their patients – often as just one component of a re-designed service
WHY	Seeks to obtain revenue in return.	Safeguards the well-being, health and wealth of the respective beneficiaries while managing costs within allocated budgets and maintaining a sustainable service delivery system.	Seeks to reach the objective it is pursuing in re-designing the service through telehealth and telecare.

4   The business model canvas adapted to telehealth and telecare

Value Proposition	*Generic definition[9]:* *Describes the bundle of products and services that creates value for a specific Customer Segment.*
	Generic information on the Value Proposition ⇨ What core value do you deliver to the customer? ⇨ Which customer needs are you satisfying? Background: The Value Proposition is the reason why customers turn to one company over another. It solves a customer problem or satisfies a customer need. Each Value Proposition consists of a selected bundle of products and/or services that caters to the requirements of a specific Customer Segment. In this sense, the Value Proposition is an aggregation, or bundle, of benefits that a company offers customers.
	In a health and social care context: *Company or organisation?* While the original business model refers to "a company", in the health and social care field, this is often another form of organisation (for example, one that operates in the public sector). *Values:* The Value Proposition is the main focus of the Business Canvas Model. It is especially important in highly personal(ised) healthcare fields. Michael E. Porter defines value in healthcare as the health outcomes achieved per dollar spent[10], a value that should always be defined around the customer/beneficiary. One can equally well refer to "pounds spent" or "euros spent". The Value Proposition covers a wide range of potential values: it can help to improve quality, access, usability, price, risk management, accuracy or design. Equally well, one can refer to these four simple values, such as:

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[9] Under the terms "generic definitions" and "generic information", the authors refer to the text provided by the Business Model Generation book referenced earlier.

[10] Michael E. Porter (2013) What is Value in Health Care? *N Engl J Med* 2010; 363:2477-2481, December 23, 2010, DOI: 10.1056/NEJMp1011024 http://www.nejm.org/doi/full/10.1056/NEJMp1011024, accessed 5 October 2015.

⇨   Improvement in health (or social) outcomes.

⇨   Maintenance or improvement of Quality of Life.

⇨   Cost containment.

⇨   Sustainability of health and social care provision.

Economics versus social value: Value is provided by the healthcare or social care system to the customer/beneficiary (or by both systems working in an integrated way together). The value provided includes both economic/financial value and social value.

Motivations for customers/beneficiaries to keep using the service: In the context of a public health and care service, the motivation is often not about ensuring that a customer "comes back" (in the words of Valeri et al (2010))[11], but either that customers/beneficiaries continue to use the service or reduce a dependency on the service by enhancing their own independence/autonomy.

What keeps the customer/beneficiary using the service? Do they have any alternative? Many individual and group motivations may operate in the health and social care context.

Overall: The main challenge throughout is to ensure the building of a consensus around the Value Propositions that underpin the provision of bundles of products/services.

In a telehealth and telecare context:

Value is especially important in fields such as telemedicine, telehealth and telecare. It is the telehealth and telecare systems that provide value to the customer/beneficiary. The value provided encompasses both economic value and social value. The values covered in the health and social care context are vitally important to telehealth/telecare.

On the patient side, the value provided by telehealth and telecare could be health (and social) outcomes and quality of life improvements. For health professionals, it could be about enabling sustainable services in health and social care provision. On the payer side, the value could be cost containment or it could be ensuring the continuity of a publicly-expected service. In some countries or regions, the notion of putting the patient at the centre is core.

In addition, values such as safety, security and standards may also count.

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[11] [11] Valeri, L., Giesen, D., Jansen, P., Klokgieters, K. (2010) "Business Models for eHealth. Final Report" prepared on 28 February 2010 by Rand Europe and Cap Gemini Consulting for the European Commission https://www.myesr.org/html/img/pool/business_models_eHealth_report.pdf, accessed 5 October 2015.

Customer Segments	*Generic definition:* *Defines the different groups of people or organisations an organisation aims to reach and serve.*

Generic information on Customer Segments

⇨ For which classes of customer are you creating value?

⇨ Which is your most important customer?

Background:
Customers comprise the heart of any business model. Without (profitable) customers, no company can survive for long.

In order to better satisfy customers, a company may group the customers into distinct segments with common needs, common behaviours, or other attributes.

A business model may define one or several large or small customer segments.

An organisation must make a conscious decision about which segments to serve and which segments to ignore. Once this decision is made, a business model can be carefully designed around a strong understanding of specific customer needs.

In a health and social care context

While in a business context, the customer is the individual or the organisation paying for a good or a service, in the health and social care context the term "customer" covers much more. Customers can include: (1) the recipients of care (such as patients[12], users, beneficiaries or citizens), (2) the providers of care (e.g., health professionals, social workers and carers), and (3) those who pay for the care (payers). The term "customer" can be replaced usefully by beneficiary[13]. **See the sub-section of the report on Revenue Streams for a wider consideration of customer segments.**

In a telehealth and telecare context

The "beneficiary" is the person who – or the organisation that – intends to use the telehealth or telecare service, and hence benefits from the advantages (or value) it offers.

The successful deployment of telehealth and telecare depends considerably on the adoption of the service by its beneficiaries.

Telehealth can create value for different people/organisations and do so at the same time. Only the value perceived by the particular

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[12] Alternative terminology to patients may also be appropriate in social care or care settings.
[13] In other settings, alternative terminology to customer/beneficiary may be used. For example, in Alaska (United States), the services refer to the terms customer/owner or co-owner.

customer segment matters. In particular, the profile of the recipient of care is defined by the eligibility criteria in the so-called "enrolment process".

Customer Relationships	*Generic definition:* *Describes the types of relationships an organisation establishes with specific Customer Segments.*

Generic information on Customer Relationships:

⇨ What relationship does the target customer expect you to establish?

⇨ How can you integrate the relationship into your business in terms of cost and format?

Background:
A company should clarify the type of relationship it wants to establish with each Customer Segment.

Relationships can range from the personal to those which are automated.

Customer relationships may be driven by the following kinds of motivations: Customer acquisition, Customer retention, Boosting sales.

In a health and social care context:

Many contemporary service Improvements in health and social care are taking place in a period of socio-economic difficulty. In this context, service design and re-design is often crucial.

Customer relationships/relationships with beneficiaries are to be developed with a wide range of stakeholders e.g., patients, other clients, health and social care providers/professionals, and payers. Patients, in particular, may include very vulnerable or frail individuals.

Customer/beneficiary relationships may be direct or may be mediated by other individuals, people or organisations: some may act as "gatekeepers". Some relationships may be delegated to third parties and/or contracted out. Of importance here are: guarantees; service agreements; and the quality of contractual relationships.

Generating a positive relationship between a provider and a customer/beneficiary very much depends on the customer segment, the interactions, the expectations, and the services provided.

Customer relationships are likely to change (and change rapidly) over the next several years, both as customers/beneficiaries change and as technologies change.

In a telehealth and telecare context:

Telehealth and telecare services have a huge potential to change communication between health and social care providers, and between professionals and their patients or clients. For instance, while some people could perceive technology (telehealth/telecare) as decreasing the quality of human relationships, others can see it as an enhancement of this quality, e.g. by increasing the frequency of the contacts in the relationship or by enabling patients and citizens to feel more secure because their health/care conditions are being monitored. **See the sub-section on Channels in this document.**

The customer relationship may be taking place, supported by telehealth/telecare, in an intimate setting (a hospital ward or room or in a person's home) or on the move. The setting poses the need to consider carefully how the relationship/technology should function.

Service design or re-design should actively and consciously manage changes in communication (and technologies) with a view to the quality of the resulting relationships.

Channels	*Generic definition:* *Describes how an organisation communicates with and reaches its Customer Segments to deliver a Value Proposition.*
	Generic information on Distribution or Communication Channels ⇨ Through which channels do your customers want to be reached? ⇨ Which channels work best? How much do they cost? How can they be integrated into your own and your customers' routines? Background: Communication, distribution, and sales Channels comprise a company's interface with customers. Channels are customer touch points that play an important role in the customer experience.

In a health and social care context:

Here the focus is on communication. Direct communication often takes place with patients and clients whereas mediated communication takes place via health and social care providers. Health and social care professionals need good communication channels.

Increasingly, in the health and social care context, the cost effectiveness of communication is becoming a major challenge.

Democracy and equity of communication (i.e., having multiple channels available) matter too.

In a telehealth and telecare context:

The primary interface in a telehealth/telecare context is between the provider and the customers/beneficiaries: this is where value is delivered. Many telemedicine ventures use either the Internet or the telephone infrastructure (including increasingly, mobile telephony), or both.

For health and social care services based on information technologies, communication is the key channel to the interface with the customers/beneficiaries. Channels are what are referred to as "customer touch points"[14] that play an important role e.g., in the patient experience.

Particular attention has to be paid to the potential for avoiding a digital divide or general inequalities. Offering choice(s) in terms of

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[14] Customer "touch points" is a business term for any encounter in which the business/organisation and its customers/beneficiaries engage to exchange information, provide a service, or handle transactions.
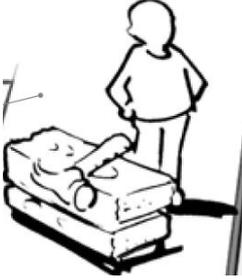
communication channels, or multiple channels, is likely to help. Providing multi-modal forms of communication may prove to be expensive.

Two main channels of communication exist in telehealth and telecare: D2P and D2D – officially these stand for doctor-to-patient and doctor-to-doctor. The channel for delivering the value proposition of telemedicine may take place between the "people" and the "professionals" (often referred to as D2P) or between two "professionals" (similarly referred to, for example, as D2D when referring to doctors)[15].

Important issues to bear in mind include: the need for bi-directional communications; ease of use and reliability; awareness that highly sophisticated systems can lead to risks; confidentiality, privacy, perceived surveillance, security, and a means of handling these; and training in how to use the communication channels for both citizens/patients and care providers.

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[15] As the teams of professional people involved in health and care grow, this vocabulary is likely to move away from referring purely to doctors.

Key Resources	*Generic definition:* *Describes the most important assets required to make a business model (or service model) work.*

Generic information on Key Resources

⇨ What key resources does your Value Proposition require?

⇨ What resources are most important in the distribution channels, customer relationships, revenue stream?

Background:
Every business model requires Key Resources.

These resources allow an enterprise to create and offer a Value Proposition, reach markets, maintain relationships with Customer Segments, and earn revenues.

Different Key Resources are needed depending on the type of business model.

A microchip manufacturer requires capital-intensive production facilities, whereas a microchip designer focuses more on human resources.

Key Resources can be physical, financial, intellectual, or human.

Key Resources can be owned or leased by the company or acquired from Key Partners.

In a health and social care context:

The financial resources required for the public sector to deliver health and/or social care come mainly that part of the national or regional budget which is allocated to health and/or social care each year and collected either via taxes or social insurance. There has been a tendency to increase this budget each year because of the rising costs of health care, rising demands for quality care from citizens, and the demographic evolution of the population. Now, however, many governments are working hard to stabilise their budget or keep budget increases under control.

In some countries or regions, the health and social care budgets can be described as being "under the same roof". In others, they come from and are managed by different sources. This diversity has a significant impact on initiatives aiming at integrating health and social care.

Resources are not only financial, however. Because health and social care are labour intensive, they require highly skilled staff. Therefore, the workforce often plays a critical role as a resource, and workforce shortages can pose severe problems.

Each of these resources depreciates over time. Resources such as medical knowledge and expertise can also depreciate, and need to be kept up-to-date. Appropriate measures need to be adopted to compensate for this depreciation, e.g. through continuous medical education, and technology updates.

In a telehealth and telecare context:

The price of the technologies involved in supporting health and care (e.g. medical devices, drugs, information and communication technology (ICT), TEC) is not to be underestimated. Technologies are perceived not only as a means to improve quality care but also as a cause of budget increases.

Investing in telehealth and/or telecare implies that either, when technology is used in routine care, services do more for less or at least do more with the same overall budget. If additional resources are needed, they can endanger the overall sustainability of the system. Resources coming from outside the health or social care sector may be a solution.

This situation presupposes, however, that financial resources have been made available for investment in the redesign of the service using telehealth and/or telecare.

The existence of an ICT and eHealth infrastructure is, to some extent, a prerequisite to limit investment costs, and to reduce the burden of the cost of technology, in terms of the total costs of telehealth and/or telecare.

In the design phase of telehealth and telecare, medical, organisational and technological knowledge are Key Resources.

Key Activities	*Generic definition:* *Describes the most important things an entity must do to make its business model work.*

Generic information on Key Activities

⇨ What key activities does your Value Proposition require?

⇨ What activities are important the most in distribution channels, customer relationships, revenue stream?

Background:
Every business model calls for a number of Key Activities.

These are the most important actions a company must take to operate successfully.

Like Key Resources, they are required to create and offer a Value Proposition, reach markets, maintain Customer Relationships, and earn revenues.

Like Key Resources, Key Activities differ depending on business model type.

For software maker Microsoft, Key Activities include software development. For personal computer manufacturer Dell, Key Activities include supply chain management. For consultancy McKinsey, Key Activities include problem solving.

In a health and social care context:

Health and social care involve a universe of activities. These usually – but not always – involve interactions between health and social care professionals with their clients or patients. They are organised in settings like an intensive care unit, an outpatient clinic or a housing service.

Some examples of care-related Key Activities are:

⇨ Diagnosis, treatment and follow-up,

⇨ Second opinion, referral, and discharge (using healthcare terms),

⇨ Housing, welfare and care in support of clients' quality of life (using social care terms).

In a telehealth and telecare context:

Telehealth and telecare are an integral part of the care delivery process.

Key Activities directly related to the delivery of care telehealth and telecare. They can be categorised as (a) enrolling recipients of care to receive telehealth and/or telecare, (b) collecting data from the

beneficiaries, (c) processing the data (e.g. triage and clinical pathway execution), and (d) providing customers/beneficiaries with feedback.

In addition, there are also a number of activities which support the use of telehealth and telecare on a daily basis. For example, depending on which organisation is the initiator of the redesign of the service and the associated introduction of telehealth and/or telecare, the Key Activities can be run either in-house or by partners. Organising and monitoring this partnership is a specific type of support activity.

There are differences between running and supporting these Key Resources.

Key Partners	*Generic definition:* *Describes the network of suppliers and partners that make the business model work.*

Generic information on Key Partners

⇨ Who are your Key Partners/suppliers?

⇨ What are the motivations for the partnerships?

Background:
Companies forge partnerships for many reasons, and partnerships are becoming a cornerstone of many business models.

Companies create alliances to optimise their business models, reduce risk, or acquire resources. Partnerships may range from strategic alliances to simple buyer-supplier relationships.

In a health and social care context:

Key Partners can be providers of care or payers and contribute to the delivery of the value proposition. If they benefit from the Value Proposition, they are to be considered to be a customer/beneficiary instead.

New services (like telehealth and telecare – **see below**) can only operate when smoothly integrated into the care delivery process.

Therefore, the primary Key Partners for new health and social care services are all those involved in the care process. Their readiness e.g., to provide additional documentation and to share data is critical. Likewise, a proper definition of any changes to the responsibility chain / liability chain is critical.

In a telehealth and telecare context:

Key Partners directly related to telehealth and telecare are the technology providers (which are often enrolled in a buyer-supplier relationship). They may also be telehealth or telecare service providers, if this activity has been outsourced by the initiator in a buyer-supplier or joint venture relationship.

To scale up telehealth and telecare, it may be important to rely on a market that has several suppliers instead of a single supplier.[16]

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[16] See, for example, Momentum Critical Success Factors 17 and 18 on putting in place the technology and processes needed to monitor the service, and establishing and maintaining good procurement processes – www.telemedicine-momentum.eu, accessed 5 October 2015.

The role of Key Partners can change with telehealth/telecare. Examples include the work done by nurses as well as general practitioners / specialists in primary care. When telehealth and telecare are integrated, this involves the sharing of data. Commercially-based companies can be involved in different ways.

Cost Structure	*Generic definition:* *Describes all costs incurred to operate a business model.*

Generic Information on Cost Structure

⇨   What are the most cost in your business?

⇨   Which Key Resources/ Activities are most expensive?

Background:
Creating and delivering value, maintaining Customer Relationships, and generating revenue all incur costs.

Such costs can be calculated relatively easily after defining Key Resources, Key Activities, and Key Partnerships.

Some business models, though, are more cost-driven than others. So-called "no frills" airlines, for instance, have built business models entirely around low Cost Structures.

In a health and social care context:

New health or care services may bring better quality and/or more efficiency. In the absence of an explicit revenue stream, the new service(s) should show a better cost structure. **(See the sub-section on Revenue Streams in this document.)**

The cost structure involves the costs of all the business operations for the venture, including initial investments, operating costs, and service maintenance. In a workforce-intensive industry, like the health and social sector (**see the sub-section on Key Resources in this document**), the main cost is health professional salaries or fees. As these professionals may be involved in the provision of many (other) services, a refined cost-accounting system is required to size the actual cost structure of the health or the care system properly.

It is also important to consider three items: the alternative cost of doing nothing, so as to consider alternatives; the shifting of cost between different service sectors; and the costs of exit strategies/disinvestment. Undertaking a risk analysis of the costs involved may also be an important activity.

In a telehealth and telecare context:

An initial phase of investment in telehealth/telecare will often be needed. A first set of costs is incurred by making changes in the service organisation and by establishing the technical infrastructure. It may only be possible to show savings if human resources are reallocated in support of the telehealth and telecare services. A

second source of costs – that is not always visible – are those related to service maintenance.

Sometimes, investments are appealing. However, they may hide recurring costs over the years to come that may condition the economic performance of the telehealth/telecare service.

Revenue Streams	*Generic definition:* *Represents the cash an organisation generates from each Customer Segment (costs must be subtracted from revenues to create earnings).*

Generic information on Revenue Streams

⇨ For what value are your customers willing to pay?

⇨ What and how do they recently pay? How would they prefer to pay?

⇨ How much does every revenue stream contribute to the overall revenues?

Background:
If customers comprise the heart of a business model, Revenue Streams are its arteries.

A company must ask itself, for what value is each Customer Segment truly willing to pay?

Successfully answering that question allows the firm to generate one or more Revenue Streams from each Customer Segment.

Each Revenue Stream may have different pricing mechanisms, such as fixed list prices, bargaining, auctioning, market dependent, volume dependent, or yield management.

In a health and social care context:

Revenue streams represent the economic transformation of the connection between the Value Proposition and the Customer Segment. Value needs to be transformed into revenue to ensure the economic viability of the new service. However, revenues may have different forms, and customers/beneficiaries are not necessarily patients. **See the Customer Segments sub-section of this document**.

In the health and social care setting, revenues may be either explicit or implicit:

⇨ Explicit: direct economic flow as result of a new contract.

⇨ Implicit: indirect economic flow as a result of an efficiency gain (i.e., the service is doing more with the same resources or doing the same with fewer resources).

From the customer segment perspective, health and social care services provided by a public system are offered in service contracts between the commissioner (who is ultimately the representative of the

public) and care providers, regardless of their legal status. Therefore, a Value Proposition has to be made to the commissioner that will be regarded as value-for-money. The Value Proposition is preferably formalised in a payment mechanism through a service contract. **For further details, see the Value Proposition sub-section of this document**.

Alternative revenue funds may be sought, including charitable donations, generic fund-raising, and self-financing. There is likely to be a shift away from what has been classical or traditional.

In a telehealth and telecare context:

Payment mechanisms range from being per capita-based to fee-for-service. Recently hybrid systems – that include pay for performance and risk sharing – have emerged as new payment systems.

The closer the payment mechanism is to a fee-for-service, the clearer is the sustainability of the telehealth and telecare services. Per capita-based funding transfers the risk of the new service efficiency to the provider who can internally balance its services according to value. For instance, resources may be transferred from an acknowledged service to a new TEC service despite not being directly reimbursed.

Explicit revenues that come direct from patients may also be considered if the local health system allows the introduction of complementary services (i.e., an enhanced service basket) or co-payments. Without leaving the public service framework, in this case the customer segment covers patients, professional users and commissioners of services.
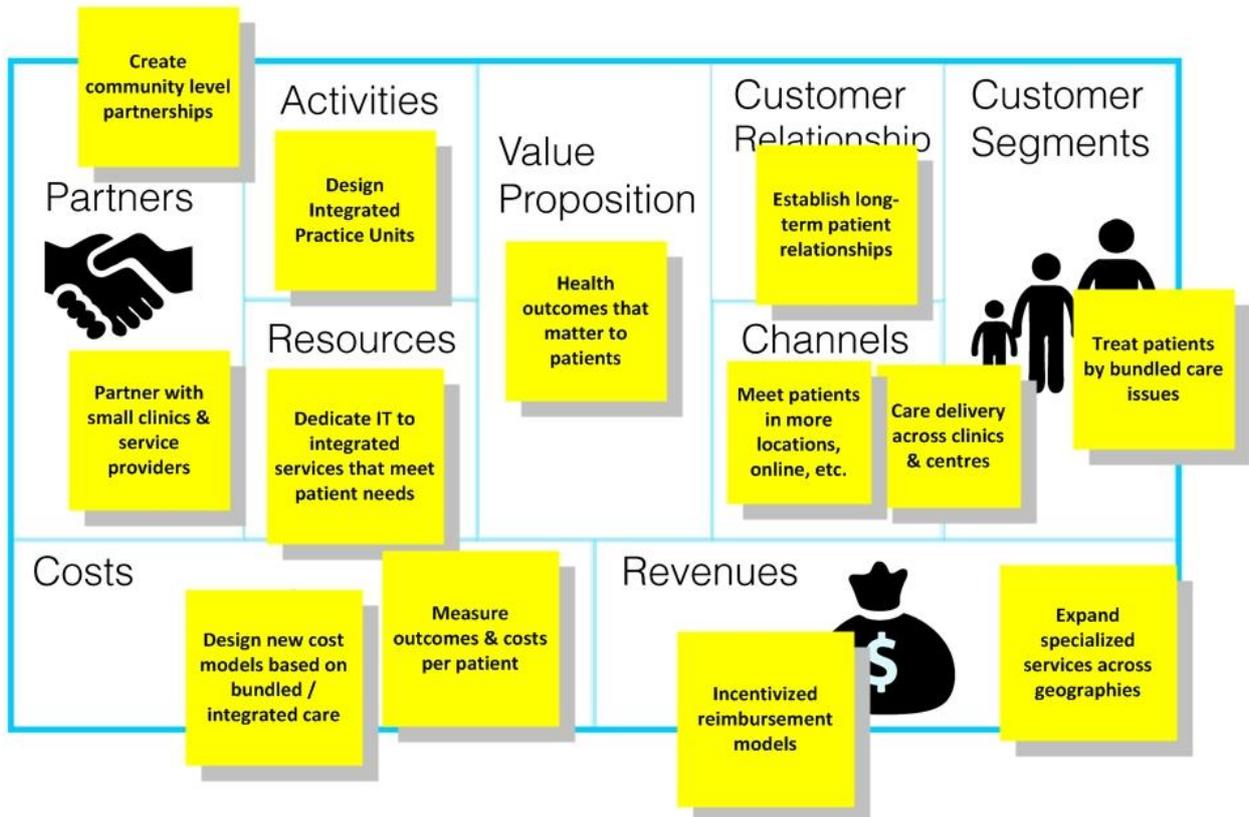
5   Annex 1: Use case for integrated care

Figure 3: An Example of Integrated Care

6   Annex 2: Use case for a tele wound care service

Key partners	Key activities	Value proposition	Customers relationships	Customer segments
Project partner Health insurance company	Infrastructure service organization (database customers, service contracts, guarantees) CR management - Helpdesk	Future service – communication platform (image assessment with new technology with procedural part) Resale of technology	Retailer Trust (customer hospitality) Social networking (communication) Education (courses)	Two roles: As health care provider (end-user): - GP - Dermatologist As health care institute (contractual business manager): - GP practice - Hospital - Independent GP Additional customer (scenario 2): - Home care
	Key resources Helpdesk employees CR management employees Vendors technology Data storage		**Channels** Telephone (helpdesk) Internet (ADSL/web application) Link with HIS, hospital and home care system	

Cost structure	Revenue streams
Costs infrastructure and CR management (personnel CR management department and vendors), and data storage Pay per digital wound data processing to the project partner	Revenues per teleconsultation from health insurance company Indirect revenues (decrease society costs)

Figure 4: An Example from a Tele Wound Care Service Provider