Appendix

A. Organization

Visual 7S

To get a complete image of the organization, an original adaptation of the McKinsey 7S model (Waterman, Peters & Philips, 1980) is used (see Fig. XXX). This model is especially suited when used by change managers that want to make business processes more effective or design (parts of) organizations. It builds on three 'hard' factors (red) and four 'soft' factors (green), all equally important, that give an image of how well all skills within the company are aligned. These factors need to be complementary to one another for an effective company performance. By applying the model to the present situation and the ideal situation, gaps can be discovered and the differences can be addressed.

In this report, the 7S model is not used to improve or change the business, but merely to analyze it. The present situation is mapped visually using information gathered by interviewing employees and by using internal documents and information that is online available. This way, an overview is generated of how the company operates, formally and informally.

The proposed Visual 7S model (V7S) differentiates from the original one on two aspects. Usually, a 7S model textually explains the state of the present and future company, with the goal to find gaps within the organization to be bridged. In de proposed adaptation, text is avoided as much as possible so aspects can be clearly communicated in a glance. This is done because of the different goal: to find alignment. Alignment is a qualitative metric that can best be interpreted by having a visual overview to compare all
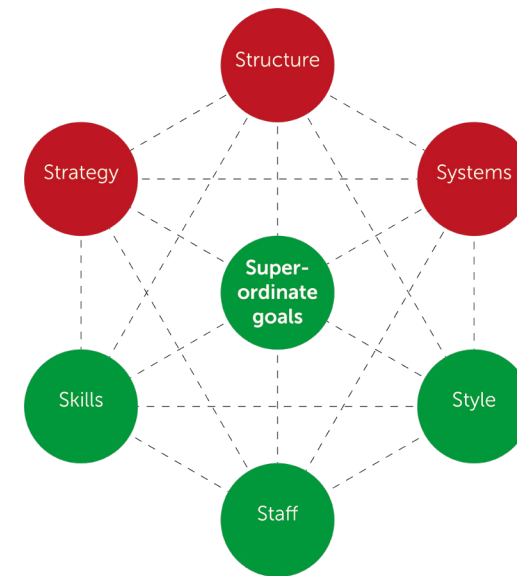

Fig. XXX - Original McKinsey 7S model (Waterman, Peters & Philips, 1980)

aspects. Guided text in a report can clarify the aspects in-depth.

Structure

Organization of the company levels, tasks, coordination, chain, staff and functions (Fig. XXX).

FocusCura formally has a three-layered structure which is headed by a board of directors. Informally, there is a horizontal structure where decisions are jointly made. The final call and the responsibility in the end does follow the formal structure. Each board member is responsible for certain departments, for instance, Business Development reports to the CFO. The board gets together weekly to talk about the status of the company and to make decisions about certain issues.
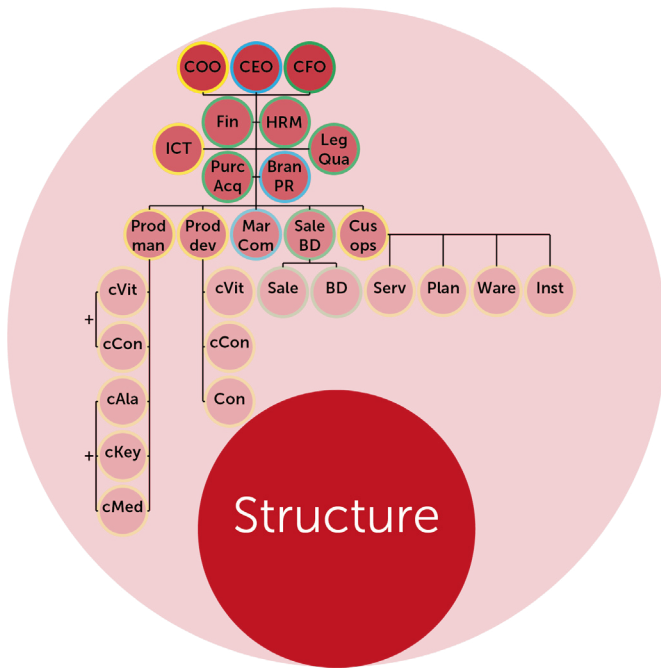
Fig. XXX - Structure of FocusCura

Finance, ICT, Purchase and Acquisition, HRM, Legal and Quality and Brand Management and PR are staff departments that support in all layers of the business. The sections Product Management, Product Development, Marketing and Communication, Sales and Business Development and Customer Operations are on the second level in the hierarchy. Each of those sections have responsible directors or managers that operate autonomously, but report to one of the departments above.

On the third level, there are teams with specific tasks: business development and sales, which promote the company, and service, warehouse, planning or installation, which work together in a chain for customer operations.

There are also teams responsible for specific products, like cVitals development or cVitals management. The product teams have specialists that focus on aspects of the product, but also receive input through multi-disciplinary product teams, which regularly come together to discuss the status of the product. These teams regularly meet and set cross departmental goals to achieve coherent solutions to problems. The software developers also use agile, lean and scrum to manage their projects. This is something they want to do more. The cVitals and cContact team, as well as the cAlarm, cKey and cMed team are getting more integrated, while the service offering will become more integrated.

Strategy
The proposed actions of the company: goals and means to achieve them (Fig. XXX).

The mission of the company for the long-term is "To make technology valuable in healthcare so vulnerable people can stay independent with access to care and support they need". In practise this means connecting technology with vulnerable people so they can live long, prosper and independent. A strategic planning process that follows the yearly evaluated sequence of Objectives, Goals, Strategies and Measures (OGSM) that makes sure the long-term planning remains part of the day-to-day operations. OGSM gives a three-year scope with five major strategic goals. Also, product roadmaps are made to ensure a clear development direction for the product development teams.

Fig. XXX - Strategy of FocusCura

In the short-term, the footprint needs to be expanded in the home market by building a network of partners, and digitisation and integration of existing (EMR) infrastructure. Making use of data, and digitisation and up-selling of products, the organisation needs to scale and further digitize products, operations and sales. Market adoption also needs to speed up by investing in B2C, evidence and thought leadership and collaborations with insurance companies need to prove the business case.

A (quarterly) system of Objectives and Key Results (OKR) is in place

that makes sure the short-term objectives are focused and aligned to get the results that fits the mission and vision. These OKR's are broken down to smaller objectives within departments or teams, and then to personal objectives. This way the company intends to improve continuously based on data and facts.

In the mid-term, there is internationalization which is getting more important over the years. The first-mover advantage that has been established in The Netherlands needs to be repeated abroad. After countries that where either closely related in terms of culture and system (Denmark and Sweden) and which is physically close and with a low language barrier (Belgium), it is now time to set foot in the German market.

Systems
The formal and informal means of communication, procedures and methods (Fig. XXX).

A nice way to illustrate the use of systems is by not only looking at how people work together, but also with which applications they do that. These applications enforce a way of working, which is exemplary for the system. Mainly for communication, service/ operations, documentation and decision making, multiple systems are in place.

Looking at the overlap with others, the communication is most important within the organization. Within project teams and during regular board meetings, decisions are made. These are documented with use of processing tools, like JIRA. Decisions are also made within specialized teams, for instance scrum teams. Business Intelligence is used as input for decision making.
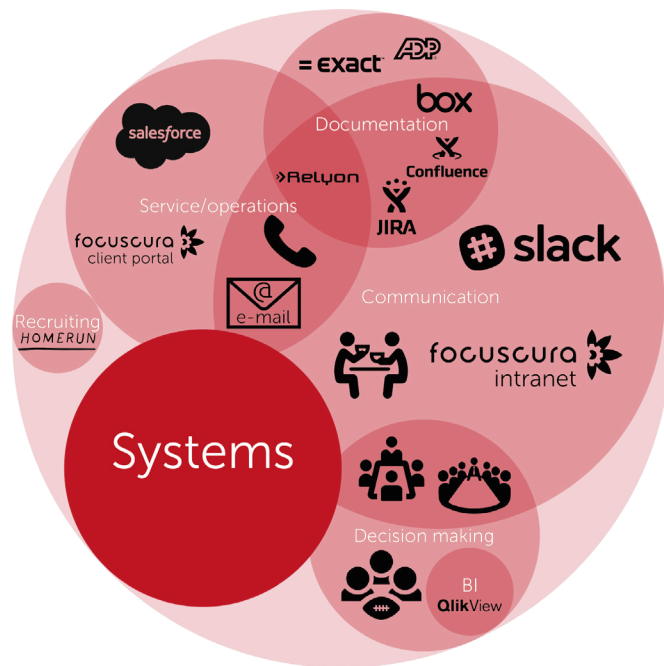
Fig. XXX - Systems of FocusCura

Plain e-mails and telephone calls are used for operations and are important for providing customer service. Here, also salesforce and an internal client portal are used. In Relyon, all customer operations are managed, documented and communicated among multiple departments.

Salaries and accounting is done with ADP and Exact software. Slack is used to easily communicate personally and among groups, formally as well as informally. During lunch, coffee breaks or quarterly drinks, personal contacts are made, which is good for getting to know one another and can smoothen communication.

HR and management uses a recruitment system that makes hiring a joint effort.

Style
The way employees treat each other (Fig. XXX).

How management deals with others is very much related to the personalities of management, but also to how leadership is perceived by the employees.

Management tries to be very progressive with their thinking and acting, and tries to involve employees as much as possible with all aspects of the company. Involvement can be seen by for instance the 100 day groups, in which the whole company enters in a dialogue with the CEO on what to improve for the next 100 days. Data-driven reflections are made, and transparency is promoted. This seems to align with the perception of the employees, that mostly share a forward-thinking attitude. This reflects in a friendly and pleasurable atmosphere. The Employee Net Promotor Score (eNPS) underlines that image, which is positive with a score of 31.

Personalities of management is visionary, which is perceived by employees as pioneering in the industry.

Staff
The profiles of employees, how they are recruited and how they develop (Fig. XXX).

There are 127 people working at FocusCura (September 2017). Three-quarters of the employees is male (a quarter is female). The average age is 38 years. The jobs can be divided in 22 different functions. About half of the people work in customer operations
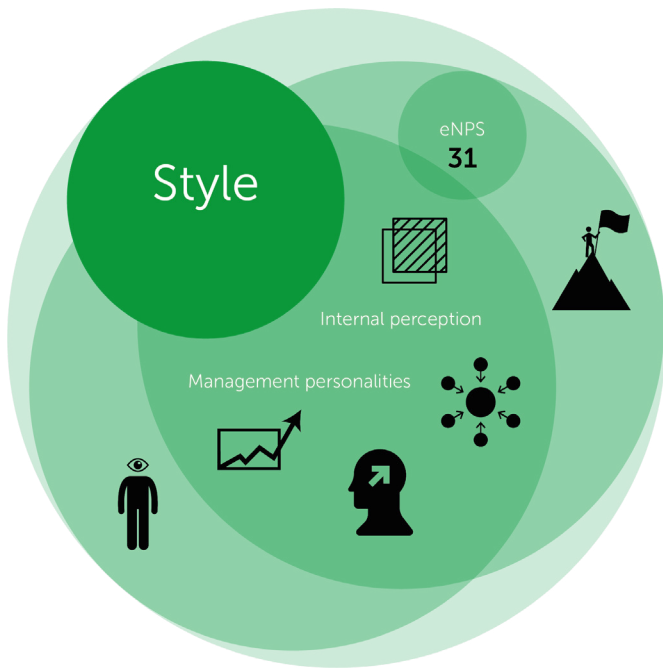
Fig. XXX - Style of FocusCura

Fig. XXX - Staff of FocusCura

(warehouse, planning, service and installation), 16% of the people are (mainly software-) developers and the rest are departments of up to five people.

Among employees, there is a large sense of involvement with healthcare. Most have educational and/or practical experience in healthcare. Others have at least a sense of purpose, being involved with care. Staff is stimulated to work creatively and agile.

Employees are recruited online (website, social media) and

via personal networks. Every employee spends a day to meet customers in real situations, to get in touch with what the company stands for. Regular performance evaluations are planned to be able to steer, reward and motivate employees. Also, because it is a fast-growing company, there are multiple options to follow different ambitions within the company, like moving from one department to another or following extra courses. These opportunities are a reason for people to stay with the company.
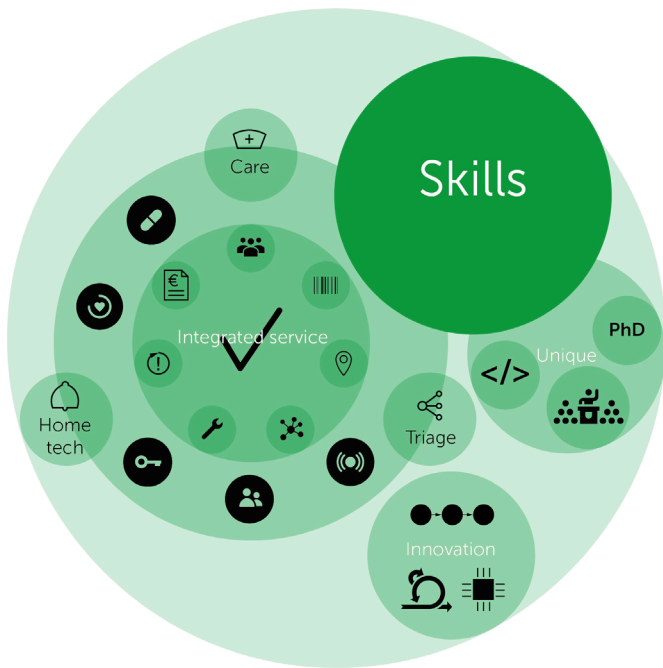
Fig. XXX - Skills of FocusCura

Skills
The know-how FocusCura has (Fig. XXX).

Being innovative is one of the skills that the company is successful at in the healthcare market. It is done by trying to incorporate end-to-end solutions, using new-to-the-market technology and adopting modern business processes (like agile and scrum).

FocusCura is unique in The Netherlands in offering an integrated service that covers home technology, care and triage (treatment assessment). It is a one-stop-shop for organizing, ordering, implementing/installing, connecting care, maintaining/developing, failure solving and invoicing. Most competitors only offer one or a few of those services.

The CEO being perceived as an authority in healthcare innovation is a unique skill almost no other company has. Having a thought-leader at the head of the firm helps with credibility. Also, having three PhD's and one PhD candidate shows knowledge. Furthermore, the internal software development gives the ability to pivot rapidly, which is something unique for a company this size, in this industry.

Superordinate goals
The vision about the company, culture and identity (Fig. XXX).

The central position is taken by superordinate goals (also called shared values) which is placed in the middle of the model, because it provides coherency and control over the other factors.

The core values of the company are threefold.
1.	Focus: Excel in five product categories and dare to say no to anything that does not fit with the strategy.
2.	Simplicity: Anything that is done can be explained in one sentence, otherwise it will not be done.
3.	Quality: Care for clients like you would for own children or parents.

The vision of the company is to use technology to make care warm, human, accessible and affordable for everyone that needs it. Applying the technology within the care network is believed to be

Fig. XXX - Superordinate goals of FocusCura

the key for achieving this vision.

The user/patient is the main driving force within the business. When decisions are made it eventually needs to benefit the user. This is nurtured in the culture of the company. Besides caring for users, its identity is highly related to the innovativeness of the products, and the new ways of solving healthcare problems.

Alignment
The business development director has validated this model to be a realistic representation of the current state of the company (Fig. XXX).

Most seems well aligned. For instance, the vision clearly supports the long-term mission, which comes back in the products/services and style. But also, the staff profiles, working structures, and systems seem to contribute positively.

There are some misalignments. For instance, the core value simplicity does not seem to count for the systems-side of the model, which shows abundant use of different channels and work methods. Even more, while the plans at top level seem simple, it does not always turn out that way in practise. For instance, the service department has a lot of different work instructions for different customers, which has turned into quite a fragmented and complex way of working (see Appendix ABC, service department shadowing). Workload increases and the rest of the factors suffer from it as well. This kind of things still are to be addressed for the company to be operating at its highest potential. The given example is already being taken care of in an OKR.

Conclusion
The 7S model provided a deep insight in the company. Details and in-depth knowledge of how the company operates could be crucial in developing (the same) business elsewhere. Knowing how all aspects are aligned makes it easier to understand how the company changes when some factors are changed. "Turning knobs" can be done with more certainty.

The V7S is received positively by the company, and turned out to be useful during research. Nonetheless, more research can be done to validate the usefulness of this adaptation for company research.
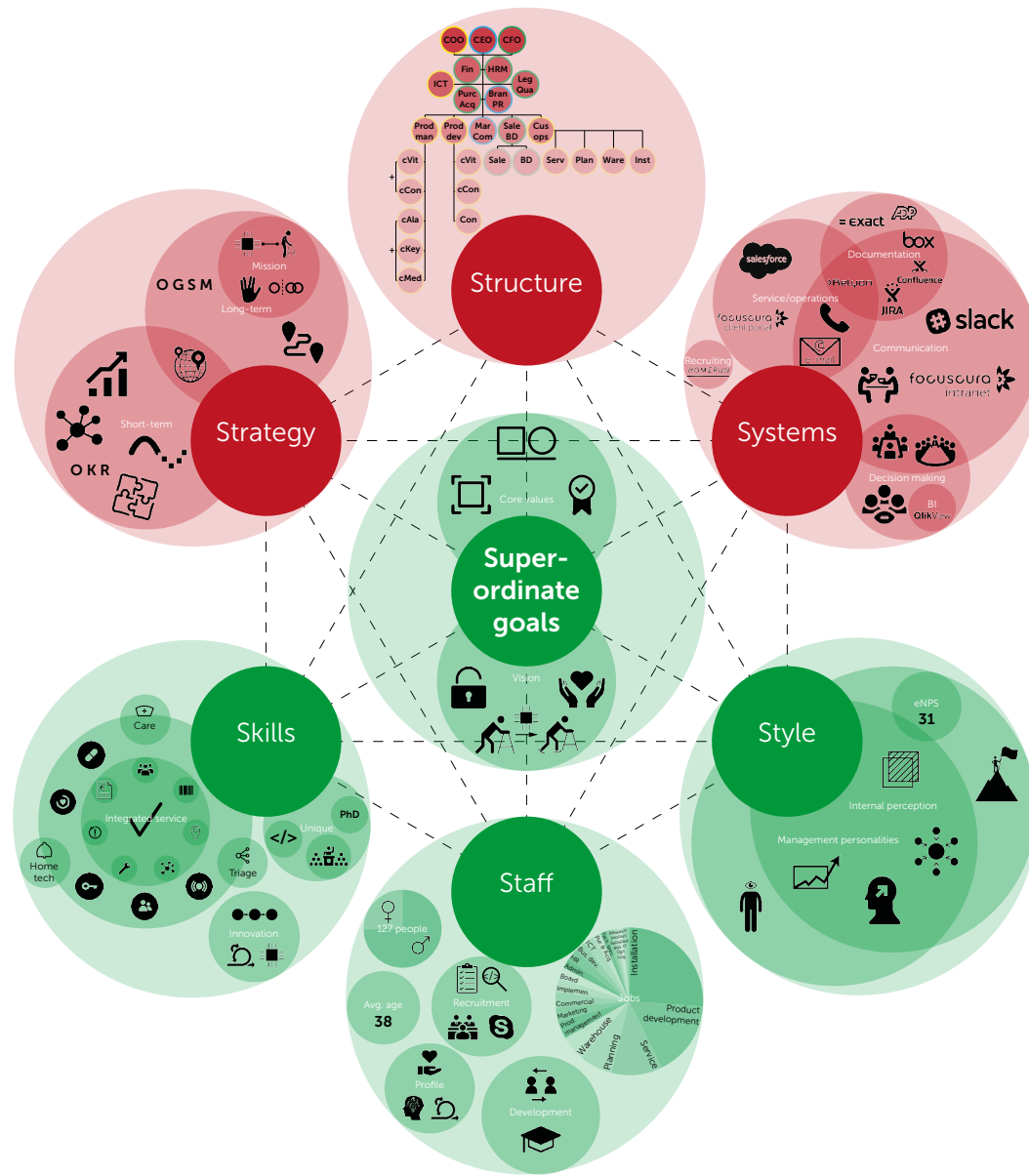
Fig. XXX - Visual 7S model applied to FocusCura

B. Products

cAlarm

Smart personal alarm system to alert care providers in case of need and prevent nursing home admissions. This provides care on call, prevents emergency room admissions (e.g. wandering and tripping).

Consists of 3 products/services. cAlarm Home is a personal alarm system at home that works with an alarm button and a connecting device. cAlarm Mobile is a GPS alarm system to be used when away from home. cAlarm Sense is a learning lifestyle monitoring system that uses sensors to detect problems.

cAlarm	Home	Mobile	Sense
What	Personal alarm system	Personal alarm system	Personal alarm system
Where	At home	Away from home (all of Europe)	At home
Why	To feel safe at home	To feel safe on the go	To feel safe at home
	To get emergency help	To get emergency help	To reassure family and friends
	To live at home longer		To live at home longer
Who	Elderly	Elderly	Elderly
	Physically disabled	Physically limited	Physically limited
			Dementia patients
When	Fallen and cannot get up	Lost	No regular house visits
	Medical issues	Immediate medical issues	Medical issues
	Emergency troubles	Emergency troubles	Emergency troubles
How	An alarm button around neck or wrist	A GPS alarm button around neck, wrist or keychain	Motion sensors inside the house
	A device for voice-listening connection	A mobile app	Self-learning lifestyle monitoring software
	A person to arrange help when needed	A person to receive alarm notifications and arranges follow-up	A mobile app
			A person to receive alarm notifications and arranges follow-up
Business Model	B2B and B2C Subscription model	B2B and B2C Subscription model	B2B Subscription model
	Button, device and service for a monthly fee	Button, app and service for a monthly fee	Sensors, device, app and service for a monthly fee
	One-time installation costs	Invoicing to healthcare institute or client	One-time installation costs
	Invoicing to healthcare institute or client		Invoicing to healthcare institute

Table XXX - cAlarm product/service overview

cKey
(Digital) home access, to give care providers access, for regular care, but also if you are not able to do so yourself (e.g. in case of fall). This makes sure no time is lost with picking up and bringing back keys of client houses.

Consists of 3 products/services. cKey Pin is a burglary-proof key safe that gives authorized caregivers access to a key with a pin-code. cKey Door is an electronic door opener that works with Bluetooth and an app for individual apartments. cKey Central works just like cKey Door, but then for central entrance doors.

cKey	Pin	Door	Central
What	Key safe	Electronic door opener	Electronic door opener
Where	Home or central entrance door	Home entrance door	Central entrance door
Why	To give access to homes	To give access to homes	To give access to apartments
	To avoid key management hassle for homecare	To avoid key management hassle for homecare	To avoid key management hassle for homecare
		To manage access	To manage access
Who	Elderly	Elderly	Elderly
	Physically disabled	Physically disabled	Physically disabled

	Pin	Door	Central
	Mentally disabled	Mentally disabled	Mentally disabled
When	Homecare visit	Homecare visit	Homecare visit
	Emergency troubles	Emergency troubles	Emergency troubles
How	Wall-attached locker	A Bluetooth activated door lock	A Bluetooth activated door lock
	Ability to hold a (home) key	A mobile app	A mobile app
	Opens with pin-code	Entrance management by user	Entrance management by homecare
		Can also be opened with regular key	Can also be opened with regular key
Business Model	B2B and B2C Subscription model	B2B and B2C Subscription model	B2B Subscription model
	Key safe and service for a monthly fee	Door opener and service for a monthly fee	Door opener and service for a monthly fee
	One-time installation costs	One-time installation costs	One-time installation costs
	Invoicing to healthcare institute or client	Invoicing to healthcare institute or client	Invoicing to healthcare institute

cMed

Medication dispenser to improve medication adherence by timely medication intake to reduce health risks. This reduces the number of homecare visits for medication supply. Currently, the only cMed product used is the Medido, by Philips.

cMed	
What	Medication dispenser
Where	Home
Why	To decrease mistakes with medicine intake
	To remind patients to take medicines
	To save medicine dispensing homecare nurses valuable time
Who	Seniors
	Alzheimer patients
	Parkinson patients
When	Regularly on pre-set times
	Complex care
How	On-desk medicine dispensing device
	Nurses pre-set dispensing times and insert medicines
	Sound when medicine can be taken
	Nurse notifications when no/late dispense
Business Model	B2B Subscription model
	Dispenser and service for a monthly fee
	One-time installation costs

	Invoicing to healthcare institute

cVitals

Telemonitoring chronical illnesses to prevent hospital visits and admissions by monitoring vital values to detect deterioration. This reduces the outpatient clinic visits, emergency care visits, number of clinical days and (re)admissions. There is a Triple Aim (Fig. XXX): improve health of population, improve quality of care and reduce cost of care.

Consists of focus on the disease areas COPD, heart failure and hypertension. With cVitals COPD, patients can record vital signs and answer validated questionnaires about their health in an app on a tablet, for which an algorithm determines if there is an increased risk. If this is the case a healthcare professional is alarmed. With cVitals Heart failure / hypertension, the same can be done, with the additional possibility of having a Bluetooth blood pressure monitor and scale to send data directly to the tablet.

cVitals	COPD	Heart failure / hypertension
What	Physical value tracking app	Physical value tracking app
Where	Home	Home
Why	Reduce hospital visits	Reduce hospital visits
	Reduce (re)admissions	Reduce (re)admissions
	More frequent monitoring	More frequent monitoring
Who	COPD patients	Heart failure patients

		Cardiovascular patients
When	Pre-set times	Pre-set times
How	A mobile app	A mobile app
	Recording of physical values	Recording of physical values
	Additional questionnaires	Additional questionnaires
	Nurse detecting deviating values	Nurse detecting deviating values
	cContact addition possible for direct support	cContact addition possible for direct support
Business Model	B2B Subscription model	B2B Subscription model
	App use and service for a monthly fee	App use and service for a monthly fee
	Possibility for leasing an iPad and scale	Possibility for leasing an iPad, blood pressure monitor and scale
	One-time installation costs	One-time installation costs
	Invoicing to healthcare institute	Invoicing to healthcare institute

cContact

Telemedicine and virtual waiting room to provide remote healthcare when needed, independent of place and time. This reduces care visits (general practitioners, emergency care, outpatient clinic) and prevents travel time (home care).
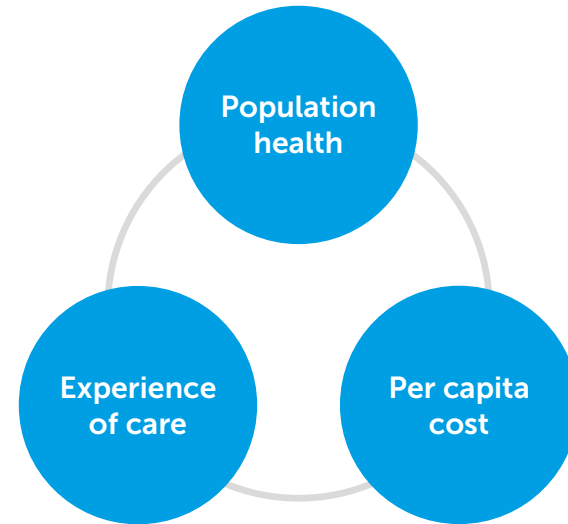

Fig. XXX - Triple Aim (Berwick, Nolan & Whittington, 2008)

cContact	
What	Tele-care app
Where	Home
Why	Reduce hospital visits
	Care at the right moment
	More contact between patient and caregiver
	Better cooperation between caregivers
Who	Elderly
	Physically disabled
	Mentally disabled
When	Regular check-up
	Medical issue
	Guided medicine intake
How	A mobile app

	Having tele-calls with caregiver
	Telemedicine
	Virtual waiting room
Business Model	B2B Subscription model
	App use and service for a monthly fee
	Possibility for leasing an iPad
	One-time installation costs
	Invoicing to healthcare institute

Integration options

cVitals and cContact will become more integrated into one service offering, as well as cAlarm, cKey and cMed. These groups of products are complementary and already are regularly offered together since they are used in similar market segments (for instance, when you press an alarm button because you fell, you want someone to be able to enter your home). The development teams are already being integrated, and service is becoming standardized. This results in offerings in two main domains: virtual homecare (cAlarm, cKey, cMed) and hospital-to-home (cVitals, cContact).

C. Methods

I follow the research process with the following methods. They apply for both the decision aid development as the case study.

$\mathcal{A}$ Document review

Like can be expected from a company, FocusCura has done research themselves on a large range of subjects. Most of these researches are internally available on documents for employees to see and use. I can take relevant documents to review and use them to make assumptions. This way I avoid reinventing the wheel. I cannot share most of the documents publicly, because of confidentiallity, but whenever I use them, a company representative checks the validity of the claims made.

$\mathcal{B}$ Literature review

There are a couple subjects of interest that require a deeper and scientifically valid understanding. In articles on the internet and in books and magazines, I consult many sources for information.

$\mathcal{C}$ Generative research

I use generative research to get to know deep experiences of people. According to Sanders & Stappers (2012) in their book Convivial Toolbox, generative research serves as an effective way to reflect on past actions and to reveal tacit and latent needs of participants (see Fig. XXX). It is a way for people to express what they know, feel or dream. The proposed research method builds on the methods this book describes.

Generative research happens in sessions with stakeholders. From the path of expression approach (Sanders & Stappers, 2012), you can deduct main principles, depicted in Figure XXX. This is the process a participant in a generative research needs to go through, in order to get access their tacit and latent needs. The same figure depicts another principle you can use: Say, do, make. These are the actions that are best suited when accessing the present, the near past and future, and far past and future. If you want to know current experiences, 'Doing' activities are best suited. If you want a wider scope of experiences that go beyond the present, 'Saying' activities make room for opinions and interpretations. To reach deeper levels of understanding about the past or future, 'making' activities are best by using associative, bisociative and creative thinking. The say, do, make principles are tools and techniques that are complementary to each other.

When you plan a session, you need to consider the following steps, from Context Mapping & Experience Design (2008):

- Preparing
    - Make assumptions about the research question
    - Recruit relevant participants
- Collecting
    - Make sensitizing packages to prime the participants
    - Execute the session
        - Follow the say-do-make principle
        - Have a discussion with the participants about the results
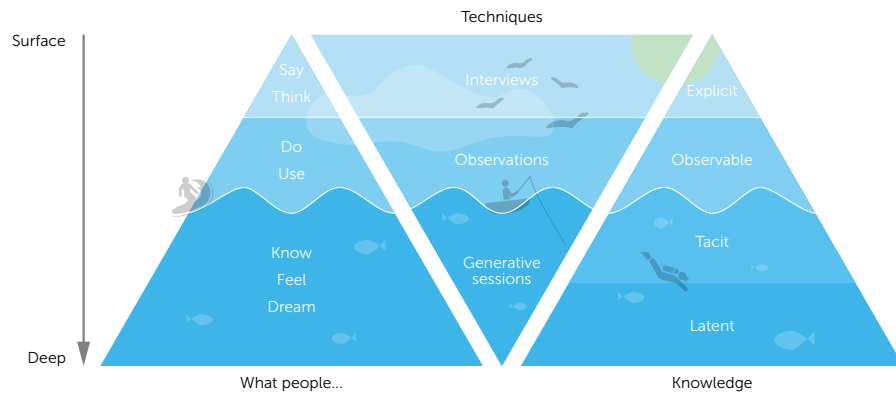- Communicating

Fig. XXX - Levels of knowledge, adapted from Sleeswijk Visser, Stappers, van der Lugt & Sanders (2005).

Fig. XXX - Path of expression and Say-Do-Make approach, adapted from Sanders & Stappers (2012).

- Analyse the data from the session
- Capture and share the relevant outcomes with participants
- Conceptualize designs based on the outcomes

D Interviews

In interviews you extract more explicit information, compared to the focus on the tacit and latent needs of the subject. Depending on the context, you can do interviews in three ways. Structured interviews are mostly useful in a formal setting, when you focus on extracting comparable data in multiple subjects. Unstructured interviews are good for informal settings when you aim to get general insights into an unknown topic. Semi-structured interviews can be used in formal and informal settings, when your goal is to get more information on predetermined topics. Because of the open-ended character of this method, you can easily follow-up on intersting subjects that emerge.

When you are interested in tacit or latent needs, and an interview format better fits the setting, you can fit laddering techniques into the interview (Reynolds & Gutman, 1988). In short, when you aks the question 'why?' a few times in succession during an interview the participants go through cognitive abstractions from the attributes (A), through consequences (C) to determine the values (V) of a person. The result is a means-end chain of the needs and wishes of the end-user. The questions that fit these steps are: 1. What is it? 2. What does it do? 3. What benefit do I get from it? 4. Why is this important to me? 5. What personal value does this tap into?
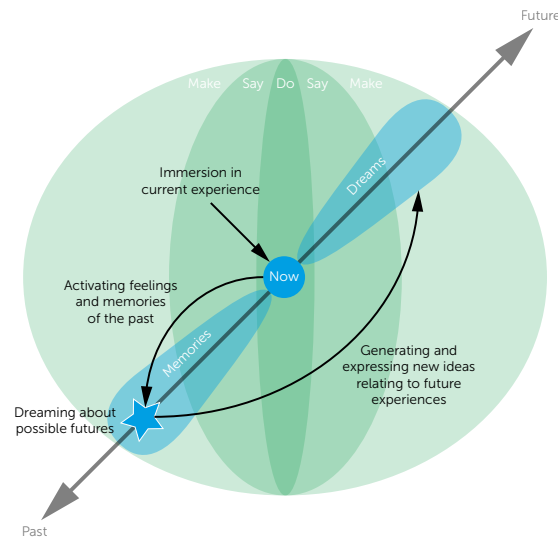
There is another way you can get through to the tacit and latent needs of participants in an interview setting, when, for instance, it is difficult to do a complete generative session because of a short time frame, little planning opportunities or a dependence on the help of the local network. To know participants' experiences, you can do an interview that leads subjects through all stages of the Path of Expression, but then applicable within the time and frame of an average meeting. When you prepare a semi-structured interview that takes participants through the present, the past and then the future, their deeper experiences can surface.

E   Focus groups

In a focus group research, many insights can emerge in a much shorter timeframe than with interviews (Stokes, D., and R. Bergin, 2006). They are mostly suitable when you try to identify (new) opportunities. This method is also very suited for small scale qualitative studies, when you want a global understanding of certain topic (Bruseberg, A. and McDonagh-Philp, D., 2002). The insights can however be more superficial than with, for example, observational studies.

F   Job shadowing

Job shadowing is an observational research method where you can follow people on their daily activities. If you make the subject explain their activities, this can give you insights in observational as well as explicit knowledge.

G   Conferences

On conferences you can possibly hear stories of experts on very specific topics. Often, there is a chance you can meet some of them during drinks or during an exhibition. You can hear multiple stories from different angles, which can give insights into the latest developments in a certain field. For this reason, conferences are a great source of information. However, because many conferences are sponsored, you must caution for biased information. It can be in favour of a second agenda.

H   Questionnaires

If you want a group of people to provide insights into their explicit thoughts and feelings, you can do that by asking a specific set of questions. Mostly, you use questionnaires to get quantative data from a large group of people, but they can also be valuable to get people to respond remaining anonymous or when you do not have enough resources to interview a large number of people. For this research, questionnaires are useful to get general information about subjects, for instance if you want to build a user profile.

D. Researches done

A. Document reviews

1A. eHealth
2A. Company
3A. Product
4A. Decision aid
5A Internationalization
9A Market-entry Germany

B. Literature review

4B. Decision aid
5B. Internationalization
6B. Decision-making

C. Generative research

4C. Decision aid

Goal:
Participants:
Main insights:
Takeaways:

5C. Internationalization
6C. Decision-making
7C. Form

8C. Decision aid design

D. Interviews

2D. Company
3D. Product
5D. Internationalization
8D. Decision aid design
9D. Market-entry Germany

E. Focus group research

8E. Decision aid design
9E.Market-entry Germany

F. Job shadowing

2F. Company
3F. Product

G. Conferences

1G. eHealth
3G. Product
9G. Market-entry Germany

H. Questionnaires

9H. Market-entry Germany