The validation of an e-health service business model

The Myotel case

Leunissen R.M.J
r.m.j.leunissen@student.utwente.nl

ABSTRACT
In this research paper the validation process of the business model design of Myotel. A business model is viable if it creates value for all actors involved. The validation of the Myotel business model [1] showed that the business model as initially designed does not add value for all actors involved. However, the added value is influenced by a large number of cash flows which in the future could change. The validation process also results in an improved method for validating e-health business models, based on a general business model validation method[2].

Keywords
Business Model, E-health, Validation, Service Viability, Quantification, Myotel.

PAPER STRUCTURE
This section will explain the structure of the paper. The first section will give the problem statement, the second section will give an introduction of the research field. The third section describes the main and subquestions of the research, the research model and methods. The fourth section will give a short overview of the Myotel service and project as the environment in which the research has been conducted. In the fifth section an introduction is being given with respect to business models and the business model on which the business model of Myotel is based. This section will also go into more detail by describing the Myotel business model and its domains. The sixth section describes the validation method which has been used to validate the business model. The actual validation process is described in section seven. The paper will then be concluded and the last section also gives some recommendations for further research. The references and Appendices can be found after the future research.

1. PROBLEM STATEMENT
Relatively new developments in healthcare are e-health solutions. E-health can be described as “a consumer-centered model of health care where stakeholders collaborate utilizing ICT including Internet technologies to manage health, arrange, deliver, and account for care, and manage the health care system.” [3]

A critical issue of most e-health solutions is that they are not accompanied with a viable business model needed for successful deployment and commercialization [4]. Therefore, most e-health services are only developed but never successfully deployed commercially. [4]

The problem in this research therefore is “how can an e-health solution successful be deployed and commercialized”.

2. INTRODUCTION
In the Myotel project [5] large scale research is performed into the clinical effectiveness of a treatment for both patients with a chronic whiplash as well as for subjects with neck/shoulder problems that are related to computer work. The Myotel project should result in a feasibility investigation of the deployment of a prototype of the Myotel feedback teletreatment service.

Myotel focuses on the business aspects of an e-health solution and the main goal is to analyze the feasibility of the service for the key value network actors needed for offering the service. For all key value network actors the service is only feasible if it adds value for the actor. A service adds value if the revenue of the organizations improves by the service.

To analyze the feasibility a qualitative business model has been developed based on literature reviews, interviews and workshops in the first phase of the project. The second phase focuses on validation and quantification. For validating this business model, the main question to be answered is if and how Myotel will create value for these actors.

The method for validation of the business model as used in this paper and the conclusions drawn from the research may support the future development of new e-health business models as well as the validation of these models. The validation method is based on an existing business model validation method [2] which has been improved to validate the Myotel e-health business model.

The relevance of the research to science is to analyze and improve a method to validate E-Health business models. Also the results of the validation will give an indication of the feasibility of e-health business models in general.

3. RESEARCH QUESTION
The main research question to be answered is:

- Does the E-Health business model of Myotel create value for the involved actors?

To answer this research question the following sub questions have to be answered:

- Do the actors within the value network of Myotel expect the business model to be viable?
- What are the expected cash flows between the actors in the value network?
- Are the customers willing to pay for Myotel?
- What are the expected revenues of Myotel for investors and involved actors?

To answer the research questions and sub questions some actions are needed. These actions and their relationships are modeled in a research model as depicted in appendix A.

4. MYOTEL
Myotel is a collaboration project of Roessingh Research and Development (RRD Netherlands; Coordinator), University of
In the 1970s the concept of a business model was used to describe and map business processes and information and communication patterns within companies, for the purpose of building information technology systems [6, 7]. Since then a number of definitions have been given, common to most of the definitions is that a business model describes the logic behind the business concept of the company. For a business model to be viable in the long run it has to create value for all actors involved [1].

5.1 STOF-Model

The Myotel business model is based on the STOF-Model [1]. This model uses the following definition of a business model: “A business model is a blueprint for a service to be delivered, describing the service definition and the intended value for the target group, the sources of revenue, and providing an architecture for the service delivery, including a description of the resources required, and the organizational and financial arrangements between the involved business actors, including a description of their roles and the division of costs and revenues over the business actors” [1]. The starting point for a business model is the customer value of a product or service that an individual company or network of companies has to offer and which will satisfy customer demands.

According to the STOF-model business models have to focus on four – interrelated – domains [1]:

- Market: describes the service domain covers a number of general issues that play a role in conceptualizing the service, such as customer value.
- Technology: covers the requirements and technical architecture of the technology.
- Organisation: covers the organizational arrangements which are necessary to deploy the service.
- Finance: covers the financial arrangements between the involved actors such as pricing arrangements.

The domains and the goal of a business model are graphically displayed below.

Business models are dynamic in nature, with design choices having to be adapted over time in order to maintain a fit with the environment. External factors like market, technological or regulatory changes often require business models to be adapted over time [1]. In order to gain insight how business models change over time it is helpful to structure the life cycle of business models in phases.

The dynamic STOF model distinguishes three phases [1]
- Roll-out
- Market

The dynamic model is graphically displayed below.

5.2 Myotels business model

This section will shortly describe the Myotel business model based on the STOF model described in the previous section. Attention will be paid to each of the four domains.

5.2.1 Service domain

To analyze if the service matches with the market needs a service analysis has been performed in the Myotel project. The results will be described below [8].

There are four groups of potential end-users: subjects in occupational rehabilitation or workers with work related neck shoulder problems, clinically diagnosed severe pain patients, clinical health therapists and occupational therapists.

The paying customers of the service are insurance companies, occupational rehabilitation providers and companies of working subjects.

The added value for end users is that the intensity of the treatment is much higher than with conventional treatments and could be done anywhere anytime. Also the treatment is more individually tailored and can address neck-shoulders symptoms at the workplace.

Myotel lists a number of advantages with this new treatment, both for patients as for care delivery [5]. These advantages for patients are:
• The treatment is less time consuming because of less face to face visits and less travel time,
• Patients with work related complaints do not have to leave their workplace for treatment and consultation,
• Patients with a chronic whiplash can be treated in their own daily environment which is less costly than the alternative intramural care.

The advantages for health care delivery are:
• As the intensity of training, which is the key factor for successful treatment, is much higher compared to traditional care because patients train during their own daily activities and are therefore not limited to the available treatment hours at the therapist.
• The intensity of training is determined by the patients themselves making care more tailored to the individual needs.
• For patients with work related complaints revenues are expected in the sense of prevention of sick leave, disablement and/or development chronicity.
• Multidisciplinary treatments of chronic patients are effective in about 30-40% of the patients whereas previous evaluation of the myofeedback treatment has shown effects in about 50% of the subjects or even more.

5.2.2 Technology domain
The most important technological components to be used are the Body Area Network (BAN), the back-end system (server) and the end user device (e.g. a PDA/Smartphone). [8]

The Body Area Network consists of a harness, signal storage and processing units and a PDA. Embedded software within the signal storage and processing units enable processing raw EMG data into muscular rest detection and feedback algorithms. The communication between the devices is based on Bluetooth.

The back-end system is a software system that registers the incoming signals and makes them available for further processing. The end-user system comprises of the application running on the PDA / Smartphone for the patient and the (web based) viewer application running on the medical personnel PC, allowing the visualization of vital signals. The technology components are supported by a public wireless network infrastructure, such as GPRS or UMTS that enables efficient and reliable delivery of the EMG data to the care center.

5.2.3 Organizational domain
Based on an organization analysis the following main value network roles, actors and activities have been identified: the list of roles, actors and activities can be found in Appendix B and are based on earlier research. [1]

In order to be able to offer the Myotel value proposition all actors with their respective roles need to work together. The value diagram shows how this cooperation can be organized. This diagram can be found in Appendix C [8].

5.2.4 Financial domain
The financial domain consists of an analysis of the revenue sources, potential revenue models, the financial streams in the value network and the willingness to pay.

The potential revenue sources that have been identified [8] are end users who pay their insurance company for getting the treatment, companies who may also partly co-finance the treatment, insurance companies who pay for the treatment of their clients and occupational rehabilitation providers who may pay for support and certification costs.

There are a number of revenue models possible for Myotel. Offering Myotel as a stand-alone product is expected to be too complicated and therefore not viable. Because of its complexity a complete service based on a fixed or variable subscription based fee or leasing model would be viable. However the most appropriate option would be offering the Myotel service for a fixed monthly fee. [8]

The financial streams in the value network can be found in Appendix D [8].

6. VALIDATION OF THE BUSINESS MODEL
The business model and the business logic of Myotel has been created in the first phase of the Myotel project and describes the way the network of actors aims to create value for customers as well as the organizations that are offering the service by focusing on aspects like value propositions, value networks, money streams and high level technological architecture. To validate this business model it is important to know how the organizations and people think about this business model. Next to the validation of the roles of the actors it is important to validate the financial domain in order to analyze if the financial model is profitable. This chapter will describe the validation of the business model.

Organizational validation
The validation of the organizational domain has been validated whether all organizations involved in the value network agree with the role they fulfill within the value network. To validate how the organizations think about their role there were a number of interviews with these organizations. The following organizations have been interviewed:
• Medical research & development organizations
• Healthcare professional
• Software developer

The interviewed organizations wanted to participate in the value network, if it was financial viable. The organizational arrangements focusing on the question who is responsible for which task and how to cooperate has to be specified more precisely before implementation but all organizations thought the organization model was a good start of point.

The most important results considering the financial arrangements are described in the financial validation.

7. FINANCIAL MODEL
This chapter will show the financial model of Myotel based on a validation method for information service business models [2]. It will show the value model, the expected revenues for all involved organizations and some trend analyses for the future. The validation of the financial domain will validate whether all organizations will profit from the business model. This validation will be done by making a financial model based on the business model, expected cash flows, expected market share and expected costs / revenue’s. The financial model will be made by using the e3Value method [9].

Also a validation method for business model considering information services which has been used to validate a business model in the media industry [2] will be used to validate the business model. This model was used for the quantification and validation of a service in the entertainment industry, but can also be used to validate information service business models in general. According to the model a business model for information services is a description of the business actors, their
value contributions and the value objects exchanged between them. [2]

A business model is valid if the expected resulting profit of each business actor is higher than zero, and for each actor higher than compared to the expected profit when remaining with the current business model. These two business model validity norms can be assessed by predicting the future revenue flows of all business actors. The steps for validating new information service business models according to the model are:

1. Describe the current and new business structure in the industry.
2. Describe the mutual exchanges between the business actors, i.e construct the value network.
3. Estimate future outgoing and incoming revenue streams, as well as the operational expense, per actor in both the current situation and after implementing the new business model.
4. Calculate profitability for each business actor in both the current situation and after implementing the new business model.
5. Assess the profitability of the actors within the business models using the two business model validity norms.
6. Determine under which conditions the better business model is valid by changing the estimates for outgoing and incoming revenue streams and operational expenses.
7. Draw conclusions regarding the business model’s validity.

Because it is easier to assess and calculate the profitability of the actors within the business model after more estimates for revenue streams have been taken into account in this research the conditions of the better business model by changing the estimates will be determined before the profitability is calculated. This means step 6 in the Voerms model will be analyzed before step 4 in the model. Also instead of analyzing the profitability for actors in this research the model has been made more flexible by analyzing the profitability for different roles. The original method only takes one year into account, as an investment can be earned back in a longer term this research has taken a term of five years.

The different steps and their results are shown below.

**Step 1: Describe the business structure models**

This step describes the structure of the business model in order to identify the actors and their potential roles. The following roles can be found in the Myotel e-health context.[1], which are also present in the value network in appendix C

- Service provider
- Medical research & development
- Network provider
- Software developer
- Software provider
- Hardware provider
- Health care professional
- Insurance company
- End user / patient

The service provider is the main role which links all roles together. The service provider buys the hardware, pays for the use of the software platform, the use of the network and the medical research and support from the supply side.

It also offers the care concept to healthcare professionals and pays them a fee for the treatment. The insurance companies pay the service provider a fee for the treatment of their patient by the healthcare professional.

**Step 2: Construct the value network**

This step constructs a financial model of the value network to model the cash flows between the different roles in the value network. The e3value modeling technique is used to represent actors and their value activities. Value objects are exchanged between these actors via value interfaces. These value interfaces are part of actors or their value activities. Value interfaces have value ports that offer or request value objects. These value objects are obtained from other value ports via value exchanges.

Minimally two value exchanges, one incoming and one outgoing, make up a value offering (Gordijn and Akkermans, 2001).

Value offerings fulfill a certain consumer or organizational need. Within e3value, scenario paths are used to model which value offerings fulfill these needs. A scenario path consists of a start stimulus representing a need, a stop stimulus indicating the end of the scenario path, and several connection elements that connect the start stimulus, stop stimulus, and the intermediate value offerings. A scenario path can consist of a pure linear process, but can also have several AND or OR elements representing alternative paths that can be used to fulfill a particular need.

The value model can be found in Appendix E and is based on the value network and cash flows in Appendix C and D.

In this model the different value exchanges between the different roles is graphically displayed. The service provider triggers the hardware provider, network provider and software platform provider to offer their software to the service provider.

In return the service provider pays the network provider and software platform provider a fee per treatment and buys the hardware from the hardware provider. The software platform provider pays the software developer for the development of the software platform.

The service provider also triggers the medical research development organization to offer medical research and support; this is also returned with a fee per transfer.

For each treatment the healthcare professional gets paid by the service provider which gets paid by the insurance company of the patient. The service provider pays the healthcare professional for delivering the care to the patient.

The values which are coupled to the cash flows can also be found in the model

**Step 3: Estimated value exchanges**

The estimated value exchanges are based on the expected total market and expected market share. The expected total market is 80,715 patients on a yearly basis. These numbers are based on the interview with RRD and are calculated by analyzing the number of therapists. [10] Costs per treatment are based on market conform prices and interview results. The table with the costs / values exchanges can be found in Appendix F.

The estimates are divided into a low and a high value for the respective value exchange or cost and should be read as value per treatment. In the average column as mentioned in Appendix F these low and high values are used to calculate the average per treatment if possible.
Based on earlier deliverables the fee paid by the insurance companies has been determined.[1] An interview with RRD gave more insights in the costs of the hardware, the medical training, the treatment fee and the certification fee. The data costs are based on regular data costs of a network provider. A Myotel business case workshop gave an even better estimation of the hardware costs.

**Step 4: Calculate profitability and sensitivity analysis**

In this step the profitability of the business model will be analyzed. In the Voermans method [2] the profitability for all actors are analyzed. In this research the profitability of a role, for instance software provider, will be analyzed. This will offer more flexibility to the model, for instance an organization playing the role of software developer may also play the role of a software provider. An actor is for instance a company, but an actor can have more roles in a value network. Also a role can be implemented by different actors.

The Voermans method assesses the profitability before the sensitivity analysis. In this research the sensitivity analysis will be done before the assess of the profitability. This will provide a better view of all possible scenarios and the possible profitability based on some different variables. Therefore the profitability will be easier to assess.

The profitability will be calculated for three different scenarios. For each scenario the first five years are calculated with a growing market share which is shown in appendix F. In year one the expected market share is 0.5%, year 2 1%, year 3 3%, year 4 7.5% and in year 5 10%. Also the sum of these first five years is given. Also the expected inflation for the different services/products is given in an additional table. As a result also the expected profitability is given when the service has a pilot in Twente, a region in the Netherlands. The expected market in Twente is 3000. [10] This will only be calculated for the first scenario to give a general impression of the influence of such a pilot.

**Scenario one: Each role is performed by one actor**

In this scenario each role is performed by one actor, as also described in step 2 of the analysis. The profitability analysis is based on the costs per treatment, these can be found in Appendix F. Also the profitability for this scenario with a pilot in Twente can be found in Appendix F.

**Scenario two: software provided and deployed by same company**

In this scenario the roles and actors are the same as scenario one with one exception. The software is now provided and deployed by the same company. This will result in a bigger profit for the actor, because there is less overhead costs but the same revenue level. The values can be found in Appendix F.

**Scenario three: Research and support is provided by the same actor as the service provider**

In this scenario the service provider role and the research and support role are provided by the same actor. This results that there are lower costs for research and support because the research & development department does not have to make a profit on their research and support. The table of profitability in this scenario can also be found in Appendix F. To give an overview of the revenue of all actors the total revenue after five years for each actor in each of the three scenario’s is presented below in a diagram.

In this diagram the profitability of the three scenario’s is shown. The numbers correspond with the following actors; 1 is the telecom company, 2 the hardware provider, 3 the independent company, 4 the therapists, 5 the software developer, 6 the software provider, 7 the insurance company and 8 the research and development.

It is interesting to see what happens if some costs increase or decrease. For instance, it is likely that hardware costs decrease. This is also modeled by adjusting this inflation in the model, these results can be found in Appendix F.

**Step 5: Assess profitability**

This section assess the profitability of each actor to see if the business model adds value to the actor. In the profitability analysis a number of scenarios have been analyzed. For each of these scenarios the analysis shows that the norm to be profitable is not reached for all involved actors. In the first two scenario’s the Myotel service provider does not have a positive cash flow. In the third scenario R&D, which also covers the service provider role, has a negative cash flow.

The service provider role is dependent on a lot of variables. If for instance the hardware would get less expensive or the insurance companies are willing to pay a higher insurance fee the Myotel service provider will be profitable.

**Step 6: Draw conclusion**

This section draws a conclusion on the viability of the business model. Based on the profitability analyses the business model of Myotel is not viable. However the margins for the service provider are small and there are a lot of factors which influence the profitability of the service provider. The difference between incomes and outcomes per treatment are small and a shift in income or outcome could have the result that the service could become profitable.

**8. CONCLUSION**

It is hard to develop a viable business model for an e-health solution. Based on earlier studies, literature reviews, interviews and workshops on business models, Myotel developed a business model for their e-health solution. The model is viable if it adds value to all involved actors. Based on a number of scenarios and future expectations the cash flows between the actors and the profitability have been analyzed. The conclusion of this analysis is that the business model is not viable.

However the service provider, which is the most important role in the business model, is influenced by a large number of cash flows both for income and outcomes. There is a chance that this actor in the future will have a positive result if one of the cash flows changes.

The analysis of the profitability is based on the Voermans method. During the research some adjustments have been made to this model to make it better suitable for this research. Instead
of analyzing the profitability for the actors, roles have been taken into account. This makes the method more dynamic for when the business model changes.

The Voermans method also assesses the profitability before the sensitivity analyses is performed. In this research the sensitivity analyses is performed earlier. This gives a better overview of the different scenarios based on variances, so the profitability is based on all possibilities. In the Voermans method only one year is taken into account when looking at potential viability of investments. As an investment can be earned back in a longer term this is a weak point of the method. In this research the development of the market share during the first five years is taken into account, however if a longer term is required this could also be possible. These three changes to the method make the method better suitable for analyzing a business model for an e-health solution.

9. FUTURE WORK

Further studies can be conducted on the cash flows, in this research these cash flows are based on a small number of interviews. To get a better view of the viability of these cash flows more interviews and research can be conducted. This is important because a minor change in the cash flows, for instance the insurance fee or hardware costs, could result in a viable business model.

An option for the service provider for an additional cash flow is the employer which is described in the business model. Because employees can be treated during work employers have less costs. There is a chance that because of this additional advantage for the employers these employers are willing to pay a fee to the service provider additional to the insurance fee. Also governments could be considered to give a financial contribution to the service provider because the number of employees which cannot work because of shoulder problems decreases which is of national importance. During a Myotel business case workshop the profit for employers has been calculated, which in the Dutch case was about 10 million a year. When this profit can be used to pay a part of the treatment the business model would also be viable, however at the moment there is no construction for this cash flow.

Another option for further research is more research on the European dimension, for instance for analyzing the differences between the European countries and by determining the market share and cash flows in the European market.

REFERENCES


APPENDIX A - RESEARCH MODEL

APPENDIX B: - ROLES, ACTORS AND ACTIVITIES IN THE BUSINESS ENVIRONMENT

<table>
<thead>
<tr>
<th>Roles</th>
<th>Actor</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>End users/patient</td>
<td>Therapist Patient</td>
<td>Uses the service</td>
</tr>
<tr>
<td>Network provider</td>
<td>Telecom operator</td>
<td>Offers mobile communication services</td>
</tr>
<tr>
<td>Hardware providers</td>
<td>Company</td>
<td>Offers hardware</td>
</tr>
<tr>
<td>Myotel / Telehealth service provider</td>
<td>Company / independent organization</td>
<td>Offers the actual service</td>
</tr>
<tr>
<td>Health care professional</td>
<td>Therapist organization</td>
<td>Offers the professional service accompanying the activities of the Myotel service provider</td>
</tr>
<tr>
<td>Software developer</td>
<td>Company</td>
<td>Develops the Myotel software</td>
</tr>
<tr>
<td>Software platform provider</td>
<td>Company</td>
<td>Offers the Myotel software platform</td>
</tr>
<tr>
<td>Insurance company</td>
<td>Company</td>
<td>Offers health insurance to end user / patient</td>
</tr>
<tr>
<td>Employer</td>
<td>Commercial organization</td>
<td>Employs the patient</td>
</tr>
<tr>
<td>Medical research &amp; development organization</td>
<td>A group of medical institutions that supports the commercial exploitation of the Myotel Service</td>
<td>Medical research, giving support with developing training material and certification.</td>
</tr>
</tbody>
</table>

APPENDIX C - THE VALUE NETWORK OF MYOTEL
APPENDIX D - THE CASH FLOWS WITHIN THE VALUE NETWORK

APPENDIX E - THE E3VALUE COMPOSITION OF THE BUSINESS MODEL
### APPENDIX F - EXPECTED VALUE EXCHANGES PER TREATMENT

<table>
<thead>
<tr>
<th>Actor</th>
<th>Value exchange</th>
<th>Low</th>
<th>High</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>a</td>
<td>b</td>
<td>c</td>
</tr>
<tr>
<td>Hardware provider</td>
<td>Hardware</td>
<td>60</td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>Network provider</td>
<td>Network</td>
<td>12.5</td>
<td></td>
<td>17.5</td>
</tr>
<tr>
<td>Software provider</td>
<td>Software fee</td>
<td>3</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Software developer</td>
<td>Develop fee</td>
<td>2</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Medical research</td>
<td>Training fee</td>
<td>250</td>
<td></td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>Support fee</td>
<td>0</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Service provider</td>
<td>Treatment fee</td>
<td>230</td>
<td></td>
<td>270</td>
</tr>
<tr>
<td>Insurance company</td>
<td>Insurance fee</td>
<td>150</td>
<td></td>
<td>350</td>
</tr>
<tr>
<td>Healthcare professional</td>
<td>Certification fee</td>
<td>50</td>
<td></td>
<td>125</td>
</tr>
</tbody>
</table>

**Sources:**

A= Myotel project deliverables  
B= RRD interview  
C= Mobihelth interview  
D= Telecom provider  
E= Myotel meeting

**Scenario 1**

The results are the positive or negative value of the cashflow of each actor in his role(s) a year and in total.

<table>
<thead>
<tr>
<th>Actor</th>
<th>Role</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom company</td>
<td>Network provider</td>
<td>€6,053</td>
<td>€12,107</td>
<td>€36,321</td>
<td>€90,804</td>
<td>€121,072</td>
<td>€266,359</td>
</tr>
<tr>
<td>Hardware provider</td>
<td>Hardware provider</td>
<td>€43,384</td>
<td>€86,768</td>
<td>€260,305</td>
<td>€650,764</td>
<td>€867,686</td>
<td>€1,908,909</td>
</tr>
<tr>
<td>Independent company</td>
<td>Myotel service provider</td>
<td>€16,748</td>
<td>€33,496</td>
<td>€100,490</td>
<td>€251,225</td>
<td>€334,967</td>
<td>€736,927</td>
</tr>
<tr>
<td>Therapists</td>
<td>Health care professional</td>
<td>€57,509,44</td>
<td>€123,090,4</td>
<td>€361,199,6</td>
<td>€911,070,6</td>
<td>€1,271,261</td>
<td>€2,724,131,25</td>
</tr>
<tr>
<td>Software developer</td>
<td>Software developer</td>
<td>€1008,938</td>
<td>€2017,875</td>
<td>€6053,625</td>
<td>€15134,06</td>
<td>€20178,75</td>
<td>€44393,25</td>
</tr>
<tr>
<td>Software provider</td>
<td>Software provider</td>
<td>€605,3625</td>
<td>€1210,725</td>
<td>€3632,175</td>
<td>€9080,438</td>
<td>€12107,25</td>
<td>€26635,95</td>
</tr>
<tr>
<td>Insurance companies</td>
<td>Insurance company</td>
<td>€92822,25</td>
<td>€185644,5</td>
<td>€556933,5</td>
<td>€1392334</td>
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<td>€4084179</td>
</tr>
<tr>
<td>Research &amp; development</td>
<td>Medical research</td>
<td>€90804,38</td>
<td>€10089,38</td>
<td>€38339,63</td>
<td>€87777,56</td>
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</table>

**Scenario 2**

<table>
<thead>
<tr>
<th>Actor</th>
<th>Role</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom company</td>
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<td>€6,053</td>
<td>€12,107</td>
<td>€36,321</td>
<td>€90,804</td>
<td>€121,072</td>
<td>€266,359</td>
</tr>
<tr>
<td>Hardware provider</td>
<td>Hardware provider</td>
<td>€43,384</td>
<td>€86,768</td>
<td>€260,305</td>
<td>€650,764</td>
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<td>€1,908,909</td>
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<tr>
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<td>Myotel service provider</td>
<td>€16,748</td>
<td>€33,496</td>
<td>€100,490</td>
<td>€251,225</td>
<td>€334,967</td>
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<tr>
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<tr>
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<td>€123,090</td>
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<td>Medical research</td>
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<td>€10089,38</td>
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### Scenario 3

<table>
<thead>
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<th>Actor</th>
<th>Role</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom company</td>
<td>Network provider</td>
<td>€6,053</td>
<td>€12,107</td>
<td>€36,321</td>
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<td>€121,072</td>
<td>€266,359</td>
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<td>€650,764</td>
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<td>€1,908,909</td>
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<td>Health care professional</td>
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<td>€911,070</td>
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<td>€2,724,131</td>
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<td>€15,134</td>
<td>€20,178</td>
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<tr>
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<td>Software provider</td>
<td>€605</td>
<td>€1,210</td>
<td>€3,632</td>
<td>€9,080</td>
<td>€12,107</td>
<td>€26,635</td>
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### Scenario 1 pilot in the region of Twente

<table>
<thead>
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<th>Actor</th>
<th>Role</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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</thead>
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<tr>
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<td>€70,950</td>
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<tr>
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<tr>
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### Scenario 1 with adjusted inflation numbers

<table>
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<tr>
<th>Actor</th>
<th>Role</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom company</td>
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<td>€44,393</td>
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<td>Software provider</td>
<td>Software provider</td>
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<td>€3,632</td>
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