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D41 - Service Alternatives, Business Modelling, Quantitative Impact Estimation

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Authors	Name	Organization/Unit
	Zsolt BARTA	SI
	Sandrine BOUSSONNIE	AI
	Christoph HEITZ	ZHAW
	Giovanni BINDA	ZHAW

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Executive Summary

There are many ways of how to describe business models, and there are different granularities or levels of detail that might be chosen. A fairly detailed business model is taking into account the full strategic, tactical and operational context of the participating businesses. Success or failure of a given business model may depend on specific details.

The basics of each business model are the value propositions made by a company towards its customers. This defines the way of how provider and customer are linked together. By analyzing the associated costs for realizing the value proposition (cost structure), and the revenues generated by delivering the value (revenue stream), the economic viability for the considered company can be assessed. In particular the evaluation of the cost side requires the specification of the business processes used for creating the value for the customers.

In the context of the M3W, we have several players that might be interested in the platform, and thus should be considered in the search for suitable business models (players, family members, care providers, health care providers, platform providers, game developers, etc.).

In this document as a top-level analysis, we focus on service systems, by studying the value propositions that each actor could make towards another actor. So, we describe the value propositions of the complete service system in order to understand who delivers which value to which other one. We also assess the economic sustainability of each company involved. In particular, we have to make sure that, for all involved companies, their costs are at least covered by corresponding revenues.

2009 - 2014

Content

1 WG4 / Task 7.1: Analysis of Sustainable Service Alternatives

1.1 *Goal of WG4 / Task 71*

As stated in the project proposal of the M3W project, the goal of Task WG4-1T71 is the following:

> *In this task, the possible exploitation alternatives for the MWT will be analyzed by studying existing exploitations of similar products, and the sustainability of multilingual / multicultural thematic mental wellness community portal will be explored. The results of the analyses will serve as the starting point for the business models development.*

The result of Task 7.1 should be an overview document describing the most promising business models, evaluated according to a reasonable metrics. These can then be used to work out the final business models with companies, to be made in Task WG4-2T72.

The leader of Task 7.1 is ZHAW, the following partners are involved:

Partner	Months
GP	1
FZ	1
AI	1
SI	1
ZHAW - AMTS (Swiss partner) - Swiss Alzheimer Union (Swiss partner)	3

1.2 *Review of Task 71*

In the framework of the project, task 71 has the function of creating a starting point for the dissemination of the project results by soliciting companies or other organizations to develop own businesses using the platform that has been developed in the project. In this way, the sustainability of the project results will be ensured. The immediate next step is task 72, whose goal is to create actual businesses with companies in the EU.

In the very first discussions it became clear that it is not possible to design "theoretical" business models without taking the very specific situation of the actual company into account. A specific business model may work perfectly in one situation

for one company, but fail for another company. This means that the development of business models can only be made in a specific cooperation with a company.

So, the goal of the task has been focused on analyzing the specific structure of a business that may use the M3W platform, and trying to derive insights that
   (a) might be helpful for identifying suitable commercial partners;
   (b) create some ideas how the business model could, in general, look like.

To this aim, the methodology of "service systems" has been applied with the goal to identify promising service system configurations. In Section 2 and 3, the general approach is described. Section 4 is a discussion of some of these configurations.

2 Basics of Business Models

2.1 General Approach for Search of Business Models

In Task 71, we seek to get an overview over possible business models that could be used for implementing the project's technical results in a context that is economically sustainable.

There are many ways of how to describe business models, and there are different granularities or levels of detail that might be chosen. Clearly, eventually an implementation requires a fairly detailed business model, taking into account the full strategic, tactical and operational context of the participating businesses. Success or failure of a given business model may depend on specific details. However, it is far beyond the scope of this task to go for this level of detail.

As the goal of Task 71 is to get an overview over different possible business models, we have to adopt a top-down approach. Rather than elaborating a few possible business models in detail, we will assess the space of possible business models in a structured way, trying to identify reasonable business models and assess them in order to create a ranked list of models.

This will be done without taking reference to specific existing companies that could implement the business model, but rather in a generic way. It will be the job of Task 72 to create concrete instances of some of the business models with real companies.

2.2 Business Model vs. Service Systems

Typically, a business model describes the ideas of how a company makes business in a certain market from the perspective of this company. The typical other actors outside the company are customers and partners (mainly other companies). Costs and revenues of the regarded company have to be analyzed for making sure that the model is economically viable. A very popular way of describing a business model is the Business Model Canvas (Osterwalder, Pigneur, 2010).

The basics of each business model are the value propositions made by a company towards its customers. This defines the way of how provider and customer are linked together. By analyzing the associated costs for realizing the value proposition (cost structure), and the revenues generated by delivering the value (revenue stream), the economic viability for the considered company can be assessed. In particular the evaluation of the cost side requires the specification of the business processes used for creating the value for the customers.

In the context of the M3W platform, there are many actors that could play a role in a business models. It is not only the platform provider and the elderly people who are connected via a business models, but there are also actors such as care providers, family, and so on. So, we might expect complicated business models involving more than two actors.

An example of such a more complicated model is the so-called "multi-sided platform model" (often exemplified by the Google AdWords business model). In this business model, there is a platform provider (Google) who connects to a specific customer segment (individuals wanting to search the web for specific content) with a specific value proposition, and at the same time connects to another customer segment (companies wanting to post ads) with another value proposition (displaying ads in a context that maximizes conversion rate). In the case of Google, the searching individuals do not pay anything for the service, and the complete revenue is created from the advertising companies.

This business model only works if
- It is attractive for Google (i.e. the business model is valid for Google)
- It is attractive for the advertising companies (i.e. using the Google service is reasonable for their own business model)
- It is attractive for individuals (otherwise there will be no business at all)

Even if this particular business model is described in the book of Osterwalder/Pigneur (2010), the business model of Google is only part of the story. For making such a scenario feasible, the business model of the advertising company has to be considered as well. In fact, in B2B business, one of the most important things is "to know the business of our customers", because only this knowledge can make sure that the value proposition is really compatible with the business model of the customer, and thus will be accepted.

In service research, therefore, the more recent research tends to speak of "service systems":

> "One recent definition of a service system is a value coproduction configuration of people, technology, internal and external service systems connected via value propositions, and shared information (language, laws, measures, etc.). The smallest service system is a single person and the largest service system is the world economy. […] Service systems can be characterized by the value that results from interaction between service

systems, whether the interactions are between people, businesses, or nations." (Wikipedia, http://en.wikipedia.org/wiki/Service_system)

Even if this definition is somewhat self-referring because it defines service system by service system, it is still helpful. The basic idea is that there are "actors" (which might be persons, companies, or larger entities) that are connected via value propositions, and for understanding such a system, we have to analyse the values that are created in the interaction of the actors, and the way how these values are created.

In the context of the M3W, we have several players that might be interested in the platform, and thus should be considered in the search for suitable business models (players, family members, care providers, health care providers, platform providers, game developers, etc.).

There might be business models that only include the platform provider and the players, but many others could be thought of that include more than two actors, thus leading to more complex service systems. Not all of the actors are companies (in particular the players, but also the family), but a lot of situations can be imagined that involve more than one company, thus requiring the whole service system being feasible for each of them.

A service system as a whole is viable if:
• Every actor has a clear value from engaging in the system. This value is produced by a corresponding value propositions from other actors.
• The commercial actors (companies) must have revenues that cover their costs. No commercial actor can exist sustainably if the costs are higher than the revenues. (Note that this does not hold for non-commercial actors such as the player and their families. They do not have to earn money from engaging in the system. They typically get a non-monetary value from a service).

So, for a top-level analysis, we focus on service systems, by studying the value propositions that each actor could make towards another actor. So, we try to describe the value propositions of the complete service system in order to understand who delivers which value to which other one.

In a second step, we assess the economic sustainability of each company involved. In particular, we have to make sure that, for all involved companies, their costs are at least covered by corresponding revenues.

In the following, we illustrate this approach for two prototypical business models that are chosen from outside the framework of the M3W project.

2.3 *Examples*

As a first example, we consider a B2C simple service such as a mobile phone company. The service system here only consists of two actors: the service provider (phone company) and the customer (Figure 1).
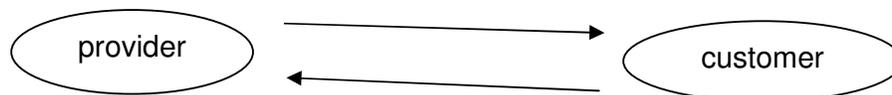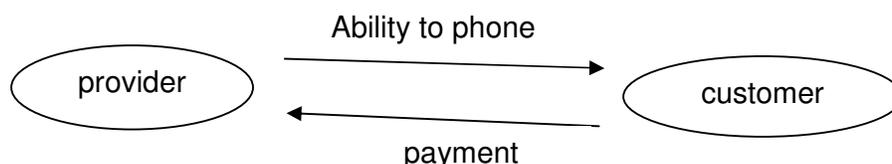
Figure 1: simple B2C service

These two actors are connected via value propositions. Classically, only the value proposition of the provider is considered, but for understanding service systems, we have to include the value proposition of all actors (including the customer). This is why there are two arrows connecting the two actors.

The value proposition of the provider towards the customer is something like "you will be able to make and receive phone calls from any place". The value proposition of the customer is "I will pay you according to your rate plan". This is a promise to create some value for the provider (in this case a monetary value) if the deal is made.

Even if the provider defines the type of value proposition that the customer can make (by defining the rate plans that are available), it still is a value proposition of the customer towards the provider.

So, the service system looks like this (Figure 2):

Figure 2: Simple B2C service with value proposition

where the value propositions are now specified. Of course, the value propositions can be arbitrarily complex and include different dimensions, but every value proposition can be described in such a way, and a picture like this explains roughly the service system.

Now, in a second step, the economic sustainability for the commercial actors has to be assessed. Since we only have one company, we only have to assess the provider's case. The customer is not a company, so he does not need to earn money in this service system, but rather spends money (note that the customer, too, has to

earn money in order to have his own life financially sustainable, but this is a different service system which we do not consider here).
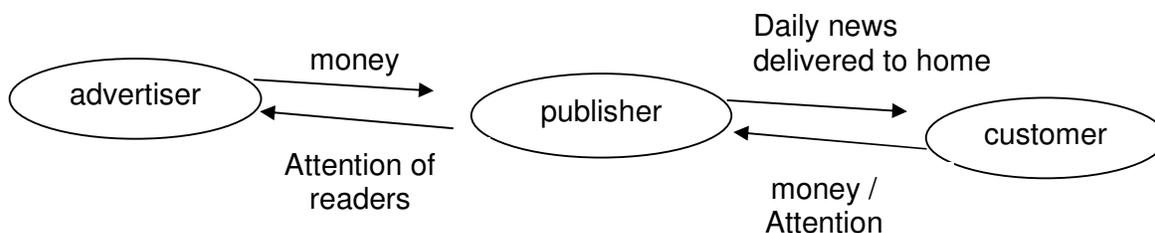
For the provider, we have to have a look at the costs for providing the service, and make sure that these costs are covered by some revenues. Since revenues come from outside, they are a result of some value proposition made by another actor towards the provider.

As only one other actor is around (the customer), it is clear that the revenues for covering the costs of the phone provider <u>must</u> come from the customer. The rate plan has to make sure that this revenue covers the costs, at least on the average over all customers.

Now let's assume that the phone provider is not owner of the infrastructure (communication network) but rather rents the network from a network owner. Then the renting costs of the provider have to be considered, as well as all internal costs (customer acquisition and retention, billing, call centers, …). This will place some restrictions on the rate plan. If there are fixed costs on the side of the provider, typically a minimum number of customers are needed to ensure the economic viability. Also, the market conditions of the telecom market induce some restrictions on prices. We see at this simple example that the assessment of the economic feasibility might be rather complicated. However, we might be able to collect some reference numbers that give us some rough ideas if a specific constellation might work or not. Market prices can be used for estimating realistic revenue streams.

In a second example, we consider the newspaper business. The basic value proposition of a newspaper provider is "Daily news delivered to your house". However, there are two important external players. One is the customer, the other one are commercial customers that display ads in the newspaper. Today, classical newspapers have roughly 50% of their revenues from their ad customers, and only 50% are paid by the customers. The model of the free newspapers even eliminates the revenue stream from customer to newspaper provider. How does this service system work?

Graphically, the system can be depicted as follows (Figure 3):

Figure 3: Service System

The publisher gets two different streams of revenue: One from the customer (newspaper subscription), the other one from the advertiser. The value proposition of the publisher toward the advertiser is that the publisher can deliver some "attention" of its readers that allow the advertiser to transport his message. Furthermore, since different parts of a newspaper have different topics, the ads can be embedded in the right context, such as car advertisements on the sports page, creating even more value for the advertiser.

Particularly interesting is the value proposition of the customer towards the publisher. The customer offers some monetary payment. But, equally important, he "pays" with attention to the newspaper, i.e. with the time he looks at the newspaper pages. This is a value for the publisher because he can "sell" this attention to the advertiser. Because the customer pays attention to the newspaper page, a displayed advertisement on this page can have an effect and lead to additional business for the advertiser.

The picture above shows the general structure of the service system. However, in order to assess if this leads to an economically viable case, we have to consider the economic situation of the involved companies, because companies only engage in such a model if they can get at least a compensation of the associated costs.

For the publisher, the revenue stream must cover the costs of producing and distributing the newspaper (including the journalists, and all staff that is required to produce the news per se). Since the revenue from the advertisers depends largely on the number of readers, having more readers creates double revenue. This justifies the large number of "test deals" that are offered by many publishers, offering a subscription at a ridiculously low price for several months.

For the advertiser, the ads have a value if they lead to increased sales. A typical number for describing the effect of an ad is the "conversion rate", meaning the fraction of readers that engage in a business with the advertiser when seeing the ad. In case of newspaper ads, this number is hard to measure. This is quite different at online portals where the clicks on ads can be measured, and sometimes the customer can be followed until the point of purchase.

2.4 *Application to the M3W Project*

For the M3W platform, there are quite a number of possible actors that might play a role in a platform business model.

Actimage has developed the following schematic overview on different roles in the environment of MWT (Figure 4). Here, we have five roles:
- Game user (player)
- Data analysis service ("Game")
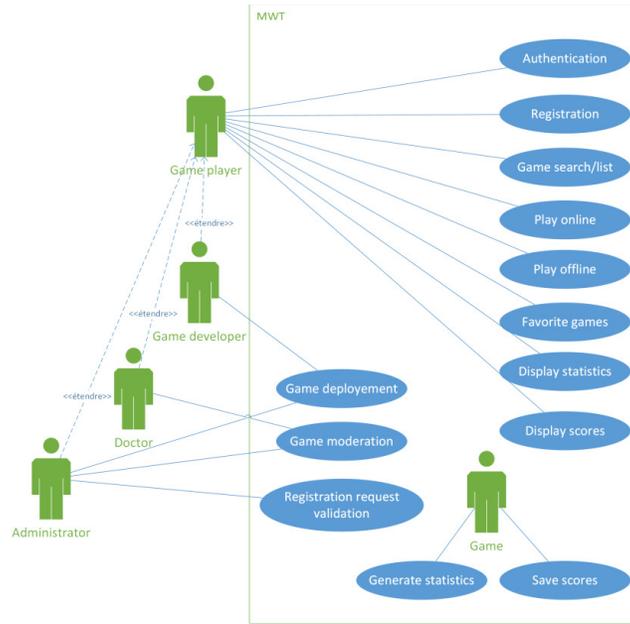- Game developer

- Administrator
- Doctor

Figure 4: Different roles in the environment of MWT

Giovanni Binda has recently proposed the following picture (Figure 5) describing the different actors (called services) around the platform:
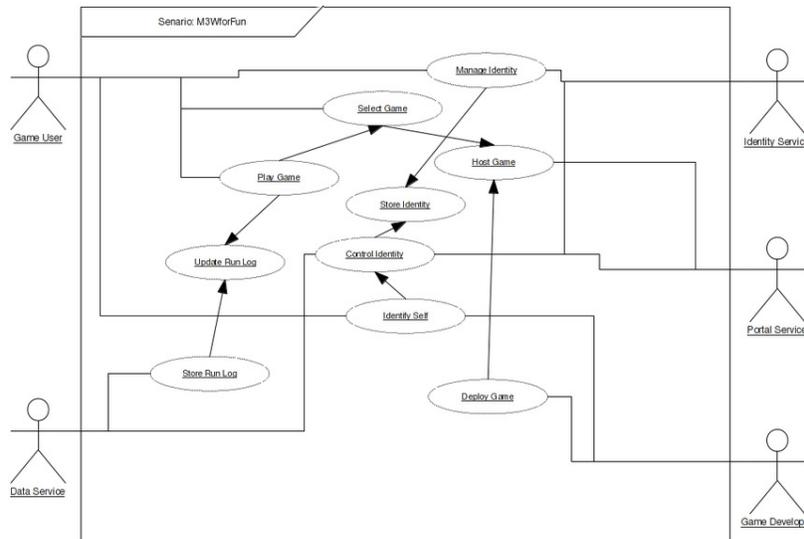

Figure 5: Actors around the platform according to Giovanni Binda

He distinguishes these five roles:
- Game user (player)
- Data analysis service
- Identity service
- Portal service
- Game developer

From a technical perspective, all these actors are required. All of the services have to be offered by a company, which creates some associated costs that have to be covered.

From a business perspective, however, additional actors might play a crucial role for finding sustainable business models. For example, we might consider (see also the report M3WBusinessModel_v4 with annexes.doc):

- Family members of the game users (who might get information about the mental health of their beloved ones)
- Care providers (who might use the data about gaming activity or the evaluation results of the data service for improving their operations, or improve their own value proposition towards the game player)
- Retirement homes
- Doctors
- Health Insurances (which, e.g., might use the data for a better risk assessment of the player)
- Other provider of goods and services (which might be interested to display ads on the portal)
- Associations for elderly people

It is clear from the sheer number of possible actors that there is nearly an infinity of possible service systems that could be built around the platform.

The goal of Task 71 is to create some overview, develop tools for sorting out unrealistic configurations as quickly as possible, and to identify promising candidates.

We propose a structured procedure for doing this in the next section.

3 Methodological Approach for Identifying Promising Service Configurations

3.1 *General Approach*
For finding possible promising service configurations, we move forward in two steps:

Step 1: Create a listing of all service system configurations where the actors are connected with reasonable value propositions. Reasonable means:

- Every actor has to have a clear value from engaging in the system which is produced by a corresponding value propositions by other actors.
- The commercial actors (companies) must have revenues that cover their costs. No commercial actor can exist that has costs but no revenues.

Step 2: For the most promising configurations, we make a more thorough cost and revenue analysis, using available reference numbers for costs and prices, if possible.

3.2 *Costs of Different Services*

The typical costs (and cost structures) for each of the services that might be offered by companies will be assessed and estimated. These will be important reference numbers for the economic sustainability discussion.

3.3 *Prices*

For standard value propositions that exist at other places in the market, typical prices are collected. For example, Google AdWords charges between 2 and 5 US$ for a click on an ad. Similarly, reference numbers for a display of an ad on a platform are available. With this information, we can roughly estimate at least some of the revenue streams.

4 Service System Configurations

Based on the methodological approach, the first step is the analysis of the service system of the M3W-System. It includes the depiction of all involved actors around the M3W-Platform and their connections. Furthermore, the definition of the value propositions of every actor has to be done. The next task is the evaluation of different service system configurations, where each configuration consists of a subset of all possible actors.

The easiest such configuration would consist of only the portal and elderly people. However, the system could easily be extended for instance by advertisers or other involved actors. To analyze the most attractive service system configuration, it is necessary to have knowledge about revenues and costs. All these steps are explained in the following subchapters.

4.1 *Service System of the M3W platform*

The following Figure 6 shows an overview of possible actors around the M3W platform. The platform includes the operation of the portal as well as the sourcing and analysis of data[1]. The current list of actors could be extended infinitely with other

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[1] Note that, in principle, we could separate the different technical services such as providing the platform, maintaining the games, doing the data analysis, … and assume that they are done by different companies. This would enlarge the possible configurations of service system. For the sake of

stakeholders. In this task the number of actors is consciously limited to eight parties involved.

The service system is knowingly built with the M3W-System in the center and with all relevant stakeholders around, because we want to focus on the business model for the platform. In Figure 6, the dotted arrows represent the value propositions of the actors towards the platform, and the value propositions of the platform towards the actors.

Note that considerably more value propositions might exist between the external actors. For example, doctors and hospitals usually work closely together and have therefore a value exchange. As in this task the business model of the M3W platform is considered, only the relations between the M3W-Platform and the surrounded actors are defined and described.
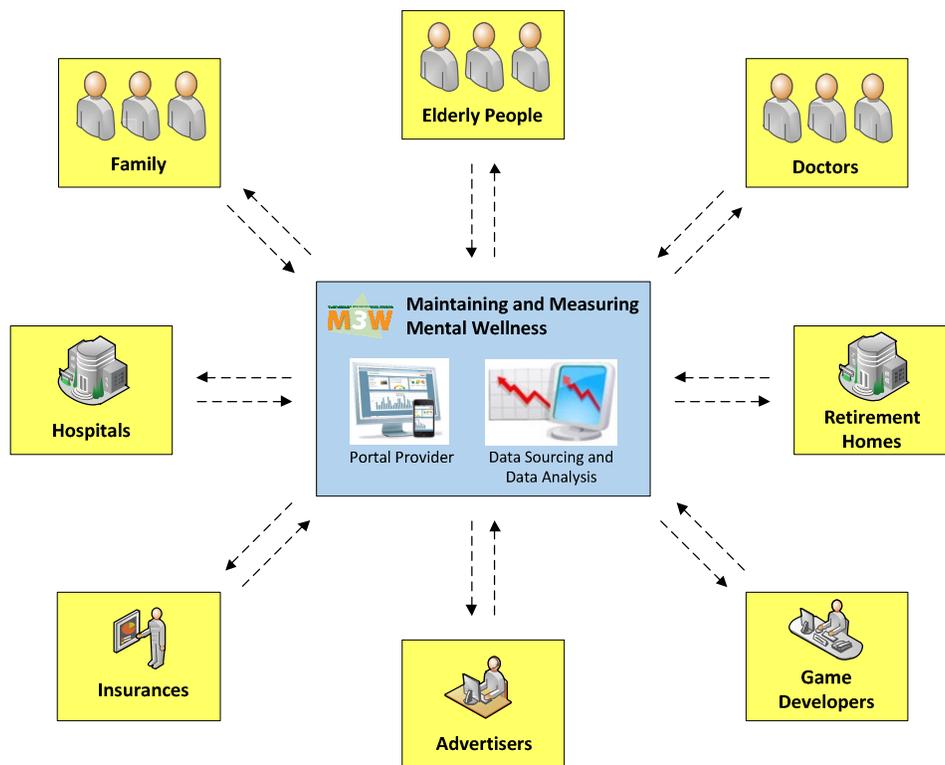
Figure 6: Service System Configuration: Overview

The key users in this service system are the elderly people who play the games. While playing, they generate data that may be analyzed.

simplicity we restrict our discussion to the simple case where the platform provider is a single company that provides all necessary technical functions of the platform.

The next relevant actors in this system are the families, doctors, retirement homes and hospitals which are present in elderly people's life and thus they can influence directly the decisions of the seniors.

The insurance companies might have interest to get the data for risk assessments or other usages. Advertisers (e.g. health care providers) get the possibility to place related advertisements on the M3W platform. They can generate business through offering their services in a highly specific context. To keep the platform attractive on the long run, games have to be continuously developed by game developers.

4.2 Value Propositions

In this section the possible value propositions of actors surrounding the M3W-System and the platform itself are described. In cooperation with Actimage and Silver Kiadó value propositions for the actors have been collected. In a service system, actors are linked with value propositions (see Chapter 2). Each actor has to receive value (otherwise he would not participate), and has to deliver value (otherwise the other actors would not have interest to have him, and exclude him from the system).

In the following table, the value propositions have been structured using a classification of Sheth, J. N., Newman, B. I., & Gross, B. L. (1991) with five value dimensions:

- **Functional Value:** Performs a specific function: "Saves time". "Makes something easier".
- **Financial Value:** Creates financial wealth: "Saves money", "Allows me to earn money". "Can be sold later". "is cheaper than alternative"
- **Social Value:** Affects my social position: "I am part of a group", "Others admire me"
- **Emotional Value:** Gives me good feelings: Means something to me: "I feel great when using it", "Reminds me of my grandpa"
- **Conditional Value:** specific conditions at the time of making the decision: "easy to get right now"

In addition, some functional requirements are listed for allowing the value sender to generate the value for the value receiver.

This list is based on a former list of value propositions, made by AI, that has been reviewed and expanded. Note that not all value propositions may be used in a specific service system configuration.

Sender	Receiver	Value Proposition	Functionality Needed
M3W-System	Elderly People	**Functional Value** - Maintain memory and brain's abilities (1) - Improvement of health (2) - delivers information about pathology, disease (6) **Social Value** - Entertainment with family and friends - Allows to build up a social network (3) **Emotional Value** - Creates good feeling when winning (4) - Gives reassurance about mental health (5)	(1) Games (2) Advices of personal physician (3) Multiplayer modus, community, chat, social network (4) Reward system: e.g. users can be able to earn coins and unlock other gates or win small gifts (5) analysis about mental performance, comparison between other users (6) CBT
Elderly People	M3W-System	**Functional Value** - Deliver user data about their memory and brain's abilities as well as mental fitness - Paying attention to the platform (sellable to advertisers) **Financial Value** - payment for extra games/ levels - Payment for data analysis services or algorithm	

Sender	Receiver	Value Proposition	Functionality Needed
M3W-System	Family	**Functional Value** - Help, distract and entertain (grand) parents - Deliver confidence about (grand) parents health status – follow up (1) - Deliver advices, links to other health websites and information (2) **Social Value** - Entertainment with the elderly family member (3)	(1) Regular review of the patient's results (2) Expert platform, links to health care provider (3) community platform (CBT) – multiplayer modus
Family	M3W-System	**Functional Value** - Pay attention to the website of the platform **Financial Value** - Payment of fee for user account for parents/ grandparents - Payment for data analysis services or algorithm	

Sender	Receiver	Value Proposition	Functionality Needed
M3W-System	Retire-ment homes	**Functional Value** - The M3W system adds a new element of resident care. It creates both social (1) and medical value. - Delivers Patient follow up, trends/graphics (2) - Enables comparison with results of other patients (3) - Inhouse doctors and patient can communicate via application (4) - Sets an alert, if the resident's health is not fine (5) **Financial Value** - Differentiation against competing retirement homes	(1) Multi player model (2) data analysis tools (3) possibility to follow their patients (4) messaging tool (i.e. chat, mail or webcam possibilities) (5) technical environment to send and receive alerts (notifications)
Retire-ment homes	M3W-System	**Social Value** - Platform gets attention **Financial Value** - Fee for usage (1) - Payment for data analysis services or algorithm (1)	(1) Patient account

Sender	Receiver	Value Proposition	Functionality Needed
M3W-System	Hospitals	***Functional Value*** - Deliver patient follow up (1) - Allows comparison with results of other patients (2) - Doctor and patient can communicate via application (3) - creates an alert, if the patient's health isn't fine (4)	(1) data analysis tools (2) possibility to follow their patients (3) messaging tool (i.e. chat, mail or webcam possibilities) (4) technical environment to send and receive alerts
Hospitals	M3W-System	***Financial Value*** - payment for the service to track patients - Payment for data analysis services or algorithm ***Functional Value*** - Deliver new users by recommending the platform (1)	(1) Account for institutions

Sender	Receiver	Value Proposition	Functionality Needed
M3W-System	Doctors	***Functional Value*** - Make patient follow up possible, "extended treatment", trends/graphics (1) - Enable learning by comparison with results of other patients (2) - Reinforce the communication between the hospital doctor and his/her patients (3) ***Conditional Value*** - Sets an alert, if the patient's health isn't fine (4)	(1) data analysis tools (2) possibility to follow their patients (3) messaging tool (i.e. chat, mail or webcam possibilities) (4) technical environment to send and receive alerts
Doctors	M3W-System	***Financial Value*** - License fee for analysis and patient follow up (1) - Pay attention to platform	(1) Account for doctors

Sender	Receiver	Value Proposition	Functionality Needed
M3W-System	Insur-ances	**Functional Value** - Deliver huge set of data for analyses	
Insur-ances	M3W-System	**Financial Value** - Money for data **Functional value** - Make surveys (Prevention) (1)	(1) Forum - community

Sender	Receiver	Value Proposition	Functionality Needed
M3W-System	Game devel-opers	**Financial Value** - Commission for development of new games or additional levels (1)	(1) Payment system
Game devel-opers	M3W-System	**Functional Value** - games, additional levels (1)	(1) games development

Sender	Receiver	Value Proposition	Functionality Needed
M3W-System	Adver-tisers	**Functional Value** - Delivers attention of elderly people (potential new customers) (1) - Enables links, simple text formats, banners, or other integrated formats to display on the platform (2)	(1) user's attention by displaying links, simple text formats, banners or other integrated formats (2) space for ads
Adver-tisers	M3W-System	**Functional Value** - May contribute information in various fields (e.g. mental healthcare, career experts, coaching) that might be interesting for platform users **Financial Value** - Payment for display of ads (1)	(1) payment system

4.3 Cost Estimation of the M3W-Platform

The M3W-Platform is the hub of the service system and cannot be dropped out. Therefore it is important to know the cost of running the platform which includes the portal as well as the data sourcing and analysis.

We analyze the costs for running the platform, and the costs for game development.

4.3.1 Costs for running the platform

The project partner "Actimage" (Ms. Sandrine Boussonnie) tried to analyze the relevant costs of the platform. As the cost structure highly depends on the number of

users, the costs are defined as a function of it (see appendix **Hiba! A hivatkozási forrás nem található.**)

Actimage divided the costs in different categories and defined the monthly amounts:

Cost Category	Costs (monthly)
Virtual Machine	70 €
Bandwidth (1000 Users)	20 €
On Call (3000 Users)	100 €

As the expected number of users is unknown, we calculate the costs of the M3W-platform for 3'000, 30'000 and 300'000 users. The number of units is as follow:

	3'000 Users	30'000 Users	300'000 Users
Virtual Machines	20	200	2'000
Bandwidth (mega)	3	30	300
On Call (3000 Users)	1	10	100

The combination of prices and number of units results in monthly and annual costs:

	3'000 Users	30'000 Users	300'000 Users
Virtual Machines	1'400 €	14'000 €	140'000 €
Bandwidth (mega)	60 €	600 €	6'000 €
On Call (3000 Users)	100 €	1'000 €	10'000 €
Total per month	1'560 €	15'600 €	156'000 €
Total per year	**18'720 €**	**187'200 €**	**1'872'000 €**

We assume a linear relationship between number of users and IT costs. The calculation of the annual costs for the IT-equipment leads to a roughly approximation of **6€** per user.

As for the labor costs, Actimage estimates the annual costs for a full time employee at 42'500 €. As reference, for 30'000 Users, an IT-Consultant and another person for marketing and communication are required. As a function of the number of users, Actimage delivered the following estimation for the annual costs:

	3'000 Users	30'000 Users	300'000 Users
Labor Costs per year	42'500 €	85'000 €	297'500 €

In the following graph, the relation between number of users and costs is displayed:
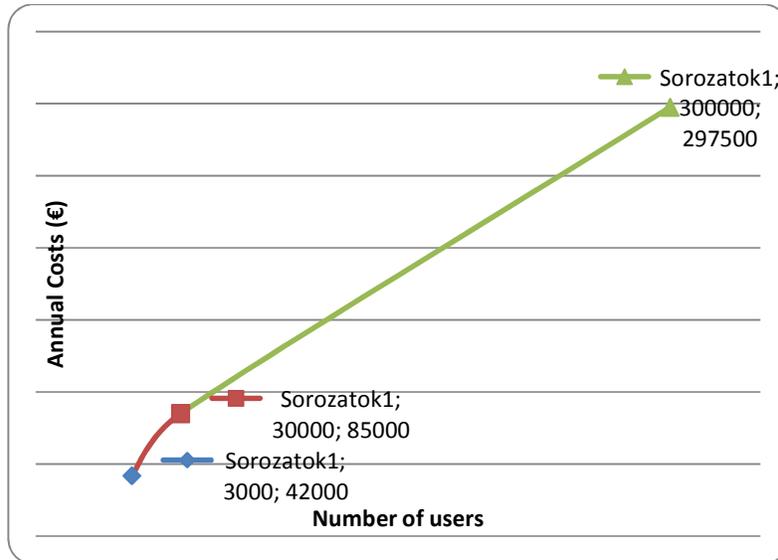
The following table combines the IT cost and the labor costs:

	3'000 Users	30'000 Users	300'000 Users
IT-Equipment	18'720 €	187'200 €	1'872'000 €
Labor costs	42'500 €	85'000 €	297'500 €
Total cost per year	**61'220 €**	**272'200 €**	**2'169'500 €**
Total per year per User	**20.4€**	**9€**	**7.2€**

The following graph shows the relation of the number of users and the costs, together with a linear trend line. The base costs are again roughly 50 k€, and the added costs per customer are about 1.8€.

So, the added costs of an additional customer is roughly **7€** per customer, with a cost baseline of around 50 k€.

4.3.2 Cost Estimation of the Game Development and Maintenance

In addition to the costs of running the M3W-Platform, the costs for developing and maintaining of games are also relevant.

Actimage estimates the costs for developing a new game at approximately 7'000 € (see appendix **Hiba! A hivatkozási forrás nem található.**). Actimage guesses that the specifications and coding may take about 1.5 month and submitting it to the platform would last two weeks. In total, it takes two months to develop a new game. We assume that it is necessary to develop three new games per year to retain the attractiveness of the M3W-Platform. This would lead to costs of **21'000 € per year**.

We further assume that the maintenance cost of one game amounts to 15 percent of the development costs, and that the average number of games at each given time point is ten games. Hence, the maintenance costs are **10'500 € per year**.

The costs of 31'500 €/yr for game development and maintenance are fixed costs.

4.3.3 Total platform costs

Summing up the costs for running the platform and the game development costs, we end up at a **fixed cost of roughly 80 kCHF**, and additional variable costs of **€7 per user**.

Alternatively, we can look at the costs per user which depends on the number of users, and is given by the following table:

	3'000 Users	30'000 Users	300'000 Users
Total per year per User	30€	10€	7.3€

4.4 Possible Service System Configurations

4.4.1 Elderly People – M3W-Platform

The simplest service system configuration consists of the elderly people and the M3W-Platform because both actors are essential for the system (Figure 7).
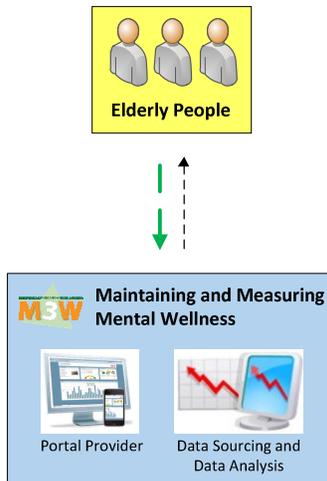
Figure 7: Service System Configuration: Elderly People – M3W-Platform

In this scenario, the full costs for the M3W-Platform have to be paid by the user fees. In this and the following pictures, the green arrow describes the financial stream of the configuration. As the game developers are not considered, we assume a case where no new games are developed.

This case is not realistic but is chosen as a reference case.

a. Total Costs

The costs for running the platform have been calculated in Section 4.3. They are between 20€ per user (3000 users) and 7.2 € per user (300'000 users).

b. Revenue Streams

The elderly people have to pay a monthly or annual fee for the use of service for covering the costs, which requires between 7€ and 20€, depending on the number of users.

c. Assessment

To assess this service system, we have to ask if it is realistic to ask a price of €7 to €20 per user per year.

In the following table, the results of a price analysis done by Actimage are summarized:

Happy Neuron	PRESCO	Lumosity	Cognifit	Fitbrains
- 3 months: $29.95 **- 1 year:** $79,95 **- 2 years:** $119,95 **- Lifetime:** $259,95	**- CR-ROM:** price in function of the exercises number **Android version:** same price that the CD-ROM **Online subscription:** - 3 months: 150€ - 6 months: 300€ - 1 year: 479€	**- Basic:** free **- Subscription:** - 1 month: $14,95 - 1 year: $80,4 - 2 years: $119,76 - Lifetime: $299,95	**- Basic:** free **- Premium:** - 1 month: 7,50€ **- Plus:** - 1 month: 10,10€	**- 1 month:** $ 29,95 **- 1 year:** $ 69,95 **- Lifetime:** $ 329,95

Averaging over all providers, we end up with an estimated market price of around $80 per user per year. The costs to run the M3W-Platform would be much lower than this reference value. So we might conclude that the considered simple business model is a feasible one, if delivered by subscription.

A popular business model for web applications is the "freemium" model which often is a valid alternative for a subscription based business model. The freemium model is a model where the basic service is for free, and the user has only to pay for additional features. This model is used in particular in cases where it is necessary to have a large number of customers (typically in a multi-sided platform model). Two of the above analyzed providers (Lumosity, Cognifit) use this business model.

In the case of the considered simple 2-party service system, the economic viability of the "freemium" model depends on the ratio of the conversion from free customers into paying customers. Assume that ten percent of all users are willing to spend money for additional features. Then, the costs per paying customer would rise to 70€…200€ per year because the fee of the paying customers has to cover the total costs.

Compared to the subscription prices of the competitors, this model would not be completely infeasible. However, it might be a bigger challenge to justify a price of €100 for the premium version of the games when the basic version is free, than to justify a price of €10 for a regular subscription. The example of Lumosity and Cognifit shows, however, that this might work.

4.4.2 Elderly People – M3W-Platform – Game Developers

Figure 8: Service System Configuration: Elderly People – M3W-Platform – Game Developers

In this business model, the original service system remains the same. However, the actor "Game Developers" is added to sustain the long-term attractiveness of the M3W-Platform.

This modification leads to an additional financial stream from the M3W-Platform to the game developers (red arrow). Thus, the elderly people have to pay for the platform as well as for the new games and the maintenance.

a. Total Costs

The additional costs for the game development and the maintenance are calculated in chapter 4.3.2 and are between €30 (3000 users) and €7.3 (300'000 users).

b. Potential Revenue Streams

Similar to the original service system, the elderly people have to cover the whole amount of costs.

c. Assessment

The assessment gives similar results as in the first example, with fees that are 50% higher in the case of 3000 users, and nearly the same in the case of 300'000 users.

However, both the subscription business model and the freemium model might work.

4.4.3 Elderly People – M3W-Platform – Advertisers

Many webservices are heavily financed by advertisements. As a platform for elderly people would select a rather specific target group, it might be especially interesting for advertisers. In this subsection, we analyze the option of having advertisers as a part of the service system, thus adding an additional revenue stream, or even replacing the revenue stream from the users.
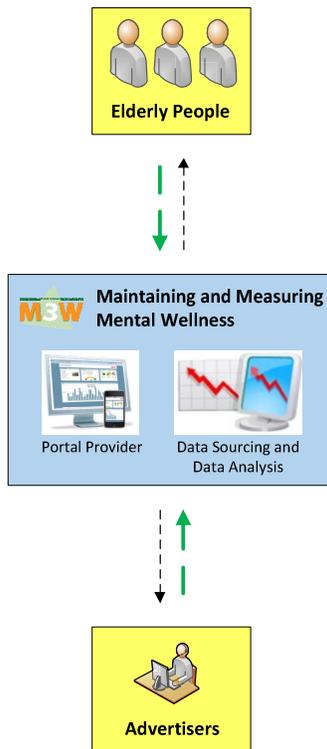
Figure 9: Service System Configuration: Elderly People – M3W-Platform – Advertisers

a. Total Costs

The total annual costs are the same as in the examples above.

b. Potential Revenue Streams

In addition to the user fee, in this service system configuration, we have the opportunity to earn money with selling of advertisements. The fee for a banner, a link or any other kind of online ad depends strongly on different factors. For example, it is important to have information about the number of visitors per month, the number of impressions of an ad, the click-through-rate (CTR) which describes the percentage of people who click on this ad or the cost-per-click (CPC) which defines the costs for the advertiser per click.

There are many uncertainties about online marketing in our case. However, a rough estimate may be done, for getting a feeling for the principal feasibility of a business model that is financed by advertisers. In the following, we will make some assumptions for getting an estimate of the possible revenue stream from ads.

Our first assumption is the estimation of the average dwell time of a user on the M3W-Platform. Due to the fact that elderly people often have much time, we assume that a user spends in average of one hour per day on the M3W-Platform. During this time, impressions of different ads can appear on the portal. The number of impressions that might be displayed is restricted, in particular in a context of playing games – if the ads are exchanged too often, the player might be disturbed and irritated. We assume a range from one impression per hour to ten impressions per hour.

Typical click-through-rates are below one percent. However, as the M3W platform is only for elderly people, a first customer segmentation is already made. Therefore, the advertisers can present more specific ads and this should lead to a higher CTR. IN the following, we assume a CTR of one percent.

Additionally, we estimate the willingness-to pay for a click on the ad as €1. This is in the order of magnitude of today's costs-per-click in online marketing.

Based on these estimations we can calculate the revenues that might be generated with advertisements.

	One impression per hour	Ten impressions per hour
Dwell time per year per user	360 h	360 h
Impressions per year per user	360	3'600
Click-through-rate (CTR)	0.01	0.01
Cost-per-click (CPC)	1€	1€
Total per year per User	**3.6€**	**36€**

c. Assessment

If we compare the results of the revenue calculation with the costs-per-user for running the M3W-Platform, we observe that the advertisements can substantially help to cover the costs. Especially in the case of 10 impressions per hour this seems feasible.

Note, however, that this calculation is a rough estimation, and no attempt was made to verify the assumptions with a more thorough analysis.

We can conclude that the potential to offer a service that is free for users, and completely financed by advertisements, is clearly present. However, since

advertisement revenues depend on many factors, it may depend on the specific case whether or not this is a viable way for financing a substantial part of the service system.

4.4.4 Elderly People – M3W-Platform – Family
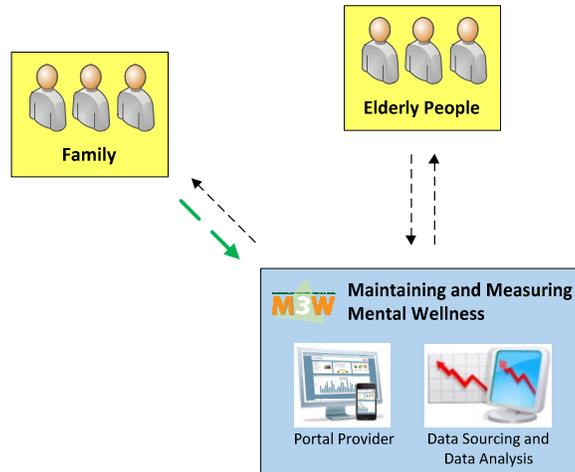
Figure 10: Service System Configuration: Elderly People – M3W-Platform - Family

In many cases, the children of elderly people are interested to know the physical condition of their parents. This leads to the next service system configuration where an additional revenue stream from the family might be existing, assuming that parents or other family members of elderly people are willing to pay money for an access to the games itself (multiplayer model, playing with their relative), or to the analyzed data.

a. Total Costs

The total annual costs are between €7 and €30 per user, assuming that the game developers are integrated.

b. Potential Revenue Streams

In a first scenario, we assume that children or other family members who are interested in results about their parents are willing to pay around €1 per month. This would result in additional revenue of **12€** per year per user.

c. Assessment

A business model that relies on financial contributions of family members seems to be feasible. Even if not every senior will be backed by a family member, the financial contribution of the family can be expected to be a substantial factor for covering the costs.

In principle, a business model could be imagined where the family members cover all the costs, while the platform is free for the seniors. This is similar to the freemium model – the paying family members would have to afford for all the costs, which would increase the fee for family members substantially. A thorough market research would be necessary to prove the viability of such a model.

It might be a better solution to go for a subscription model for seniors, and add additional value propositions for family members with additional subscription packages.

4.4.5 Elderly People – M3W-Platform – Remaining Stakeholders
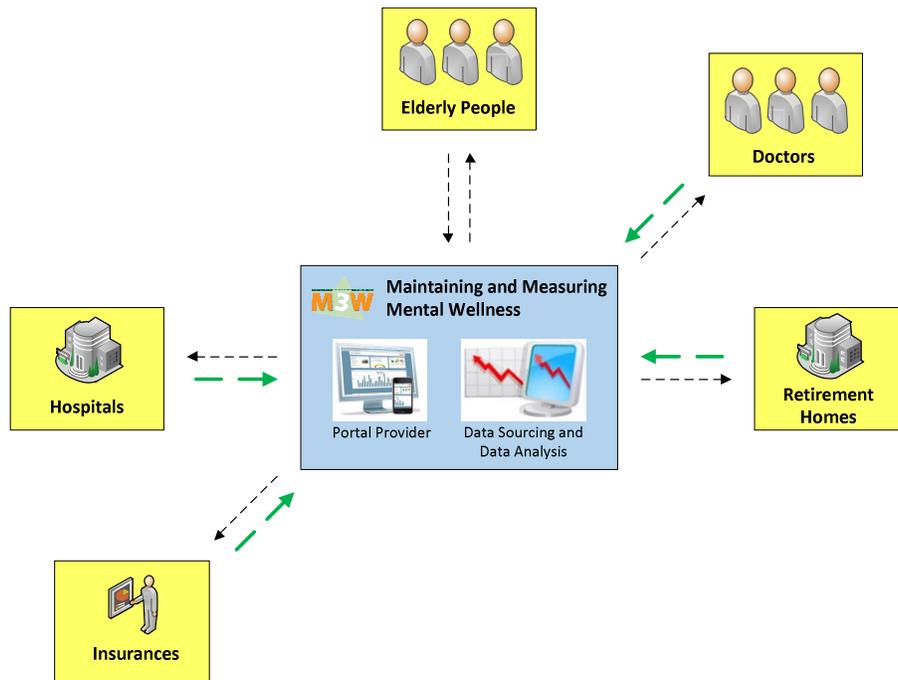
Figure 11: Service System Configuration: Elderly People – M3W-Platform – Remaining Stakeholders

In this section, we analyze the possible inclusion of the other stakeholders not yet mentioned. No market research results were available for assessing the possible financial contributions of hospitals, doctors, retirement homes, and insurances. Therefore, the analysis is based on some basic considerations in a qualitative approach.

a. Retirement Homes

Elderly people are often accommodated in retirement homes, and the retirement homes are strongly involved in helping to increase the quality of life of the seniors. In fact, the retirement homes themselves create value for the seniors, and they might

make use of the M3W platform for improving their own value proposition. An integration of the retirement homes in a business model thus makes sense. The M3W platform can create added social value (playing in groups, competitions among the residents, …) and medical value (assess residents' mental health, alerts, …) for the residents, and also for their families.

It might be an element of differentiation of the retirement home with respect to competing retirement homes, even though this would probably not a strong factors: Retirement homes do not compete with such additional care elements in the first hand.

So, a retirement home might be motivated to pay for the usage of the M3W platform and thus could be an additional customer. Different options are imaginable. For example, the retirement homes could get a group license (with some group discount) and provide the platform as a free service to its residents. Another option could be that the retirement homes take over the subscription fee for their patients. In this case, the retirement homes would not formally be contract partners of the M3W platform provider.

In comparison to all other care costs of a retirement home, the user fees would be negligible. Thus, there should be a potential to make business with retirement homes. On the other hand, an investment from the side of a retirement home would only make sense if there is a clear added value for the residents that can be and will be communicated not only to the seniors but more importantly to their family. It can thus be expected that the retirement homes would be much more demanding with respect to the data analysis, the alert functionality, etc., than individual players.

We would expect that an engagement of a retirement home requires a strategic decision – the investment only pays off if the M3W platform will be a integral part of the service package of the retirement home. This requires a clear strategy for the usage, additional internal resources for organizing this, a communication strategy, and so on.

b. Hospitals

The value proposition analysis in section 4.2 shows that the value proposition of the M3W platform toward the hospitals is mainly based on the analysis and tracking functionality. A hospital could be interested in using this functionality for improving its medical care.

However, since the length of a typical hospital stay is in the order of several days, and the change in mental health takes place in time constants of months, it is hard to see what the use of the analytical functionality of the M3W platform could be for hospitals.

So we expect that hospitals can be sorted out as probable business partners.

c. Doctors

Family doctors are the first contact person of patients, and one of their tasks is to monitor the long-term development of the patient's health. Especially in the case of elderly people with regular doctor visits, the family doctor is a constant reference person for all medical issues, typically over a longer period. In this context, the M3W analytical functionality might be a clear added value for a doctor to keep track of the mental health of his patient without the need of own diagnostic tools. A doctor would not base a treatment on the results of the M3W analysis, but he could use the M3W analytical tools as an indicator for possible problems, and would initiate own medical investigations if the M3W system creates an alert.

So, for a family doctor, the M3W system could be an additional data input for his assessment of a patient's health. This data input, however, will not be one of major importance for a doctor, but rather count as an (more or less reliable) indicator of possible problems, unless the doctor is very involved with both theory and practice of the M3W tool and its underlying analytics. An average family doctor might have heard of the M3W tool and have a basic understanding of it, but he will not be able to interpret the data with enough confidence for making it an integral part of his own analysis.

So, a doctor might encourage his patient to use the M3W platform and share the data, and might have a look at the data when the patient come to see him, but this will probably remain a nice-to-have rather than an integral part of a treatment.

Since looking at the M3W data need a doctor's time resources, a doctor will probably have high expectations on the ease of availability. For example, the need of performing a login with a password each time he wants to have a look at the data might already be an obstacle. Furthermore, if the M3W results are being used as a diagnostic instrument of some sort, then the doctor must be able to document what he has seen on the M3W platform. This requires an integration of the M3W system into the doctor's own IT system which, as a consequence, could only be made with a set of interfaces to the different IT products that are now used in doctors' practices.

With respect to a financial contribution from the side of the doctors, this depends on the willingness of the health insurances of reimbursing the costs. Thus, doctors would only become a major player in any kind of business model if a large part of the national health insurances accept the M3W tool as a relevant tool for maintaining the health of their customers.

We do not know if there have been already discussions with health insurances but we anticipate major difficulties to make them accept M3W as a medical health device.

Organizationally, an acceptance would also require a clear provider of the M3W system which could be a partner of the health insurances and stand for sustainable quality of the system. Probably this would require the creation of an international (for-

profit or not-for-profit) company which would own the M3W system and take responsibility for the tool.

Taking all these considerations, it seems not realistic to expect financial contributions from the side of family doctors. They might be supporters in that they encourage their patients to use the tool and have a look at the data, but even this would not come without some additional technical and support requirements.

So, involving doctors would be something that could be imagined as add-on in a second step, but it seems hard to base the market introduction on a substantial engagement of family doctors.

d. Insurances

The M3W-Platform accumulates a lot of data about elderly people. This data can have a huge value for their owner. In the case of M3W, there might be a financial value of the collected data or analysis results for insurance companies.

However, it is not clear to the authors of this study, how big this value would be, and how exactly the data would produce value for an insurance. Could the data help an insurance to reduce the health cost for a customer using the M3W system? Could the data be used for better estimating the future health costs for a customer?

In addition, the confidentiality seems to become a problem as soon as an insurance would want to get access to the data.

Furthermore, the aspects mentioned in the last section on doctors (quality assurance, who stands for the M3W tool, …) remain valid.

Since there seem to be still many unsolved issues, we would rather exclude insurances as customers in a first phase of market penetration.

5 Evaluation of possible business models and service system configurations

After the analysis of the different possible service systems, a preliminary evaluation of the options will be done. Note that the evaluation is strongly based on the made assumptions on the type of value propositions and the associated costs, and thus depends heavily on the accuracy of these assumptions. No thorough market research has been done, which adds another element of uncertainty.

Therefore, the following statements have to be interpreted as preliminary and based on today's knowledge of the authors, rather than scientifically proven facts. The purpose of these statements is to summarize the results of the analysis, as a basis for creating the real business models in Task 72.

We start with some preliminaries:

- The minimal service system for a sustainable operation consists of
  - the M3W platform
  - the senior players
  - and the game developers

  as actors.
- The total costs of providing the M3W platform (including data sourcing and analysis and realizing a sustainable stream of game development) have been estimated in the range of €7 (for 300'000 users) to €30 (for 3'000 users) per user per year. These costs have to be covered by any actors with exception of the game developers and platform provider.

As for the different options for service systems, these are the findings:
- For the minimal service system (platform, game developer, players), only a subscription model is feasible. The average annual subscription fee should be at least €7…€30 (depending on the number of users). This is a reasonable price, compared with other similar offers in the market. The subscription model may be integrated in a broader freemium model, in which case the annual fee for the premium version must have a significantly higher price.
- A multi-sided platform model with advertisers as additional customer segment seems feasible. It might be possible that the service is fully financed by advertisers. Strategically, the fact that the M3W system is focused on a well-defined target group makes it very interesting to marketers.
- The minimal services system can be extended by including the families as additional users. They could profit from the platform for a rather low price but still add significantly to the revenue stream, which makes this customer segment particularly interesting. The value proposition towards the families is rather clear.
- Retirement homes as paying customers (having own licenses that they would offer to their residents) is a possible customer segment, but the value proposition is less clear. We expect that retirement homes will only buy in if they make the M3W system an integral part of their service offer – this requires a strategic decision.
- Family doctors are a less promising actor in a service system. The added value of the M3W system for a doctor seems relatively small in the context of comprehensive medical care, and requirements concerning easiness of data access and IT integration in the system of the doctor's practice are probably demanding. Furthermore, a financial engagement of doctors would require the M3W service being officially accepted by health insurances.
- Even less promising than doctors are hospitals. Due to the short duration of a typical hospital stay, the analytic functionality seems not to be able to create a reasonable added value for hospitals.
- The situation is rather unclear with insurances. For the possible value propositions of the M3W system towards insurances that have been collected for this report, it is not clear how they might improve the business of the insurance.

These considerations lead to the following recommendations:

1. Due to the relatively low costs of providing the M3W platform (less than €30 per year for 3000 users), the most promising business model seems to be a subscription based model, with no advertisements. This model is simple, and the subscription fee seems to be low enough for attracting users.
2. One might add a free version which is financed by advertisements (multi-sided platform model), as a part of a freemium business model. However, since multisided business models are more complicated and harder to manage (two different customer segments that must be managed simultaneously), this option has to be addressed carefully. Already pre-structured advertisement offers (such as Google's AdSense) would keep the costs low for acquiring and managing advertisement partners and could be worth to consider.
3. A fully ad-financed option seems to be feasible, too. However, if the business model is based fully on advertisers, the points mentioned above are even more important.
4. An easy win seems to be the inclusion of the families into the business model (which might be done either with or without advertiser participation).
5. Doctors, hospitals and insurances seem to be more difficult to integrate. For a first market penetration phase, we recommend not to base the business on these possible actors.

6 Quantitative impact estimation

1) How many users (elderly people) can we expect?

20'000/30'000 in the first year as average, and 100'000/150'000 for longer term on monthly basis.

2) How high are the annual costs to operate the M3W-Plattform (Portal Provider and Data Analysis)? (Most probably the cost to run such a platform depends on the number of users. Therefore, try to separate between fix costs and variable costs.)

The cost of the hosting depends on the number of users.
To calculate the cost, we used the following figures:

1 VM	70 €
Bandwidth 1Mo for 1000 users	20 €
On call (3000 users)	100 €

Example:

Users number	3 000	6000	9 000	12 000	14 000
VMs number	20	22	24	26	28
bandwidth (mega)	3	6	9	12	14

Costs per user	3 000	6 000	9 000	12 000	14 000	30 000
VMs	1 400 €	1 540 €	1 680 €	1 820 €	1 960 €	14 000 €
Bandwidth	60 €	120 €	180 €	240 €	280 €	600 €
On call	100 €	200 €	300 €	400 €	500 €	1 000 €
Total per month	1 560 €	1 860 €	2 160 €	2 460 €	2 740 €	15 600 €
Total per year	18 720 €	22 320 €	25 920 €	29 520 €	32 880 €	187 200 €

After that, it must be added the team in charge of the hosting (1 full time: 42 500 euros/ IT consultant, employer costs included) and another person for marketing and communication

Example: for one year with 2 employees and 30'000 users, the cost per month per user **is 9.10 Euros**

To resume for the costs:
- Hosting costs
- 1 Person in charge of the hosting
- 1 Person in charge of the marketing/communication
- 1 to 2 person in charge of the development - maintain of the (new) games

3) As you already made a competitor analysis you probably have knowledge about common monthly user fees. Can you give me a possible range for monthly fees?

Happy Neuron	PRESCO	Lumosity	Cognifit	Fitbrains
- **3 months:** $29.95 - **1 year:** $79,95 - **2 years:** $119,95 - **Lifetime:** $259,95	- **CR-ROM:** price in function of the exercises number **Android version:** same price that the CD-ROM **Online subscripiton:** - 3 months: 150€ - 6 months: 300€ - 1 year: 479€	- **Basic:** free - **Subscription:** - 1 month: $14,95 - 1 year: $80,4 - 2 years: $119,76 - Lifetime: $299,95	- **Basic**: free - **Premium:** - 1 month: 7,50€ - **Plus:** - 1 month: 10,10€	- **1 month**: $ 29,95 - **1 year:** $ 69,95 - **Lifetime:** $ 329,95

I think, the Lumosity model is very interesting. For M3W, we can let some games for free (3, 4) and a subscription fee (by month/year or just by month (premium/plus etc.)
We could set up a sponsorship offer: 1 month subscription free (or credit) if the player invites 5 people or if one of his friends takes a subscription.

4) How high are the annual costs to develop a new game?

Developing a new game may last about 2 months: specifications and coding may take about a month and an half, and submitting it to the platform (which would require a validation workflow, and updating the databases) would last 2 weeks.
Cost for 2 months of developing a new game: 7 085 euros

7 WG4.2 / Task 7.2: Business Model Development

7.1 *Goal of WG4.2 / Task 7.2*

The goal of Task WG4-2T72 is the following:

This task is to explore the business potentials of MWT and produce various business models for selling the services of the mental wellness community portal, and make its operation sustainable. Business model should take into account the variety of market environments, user preferences and competition.

The result of Task 7.2 should draft several promising business model and go-to-market strategies to be created based on the inputs of relevant market analysis and surveys.

Resource

SI, FZ, GP, AI, ZHAW

Subtasks

Development of different draft business models for the MWT (SI, ZHAW)
Challenging the different business models, identifying pros and cons of each plan (ALL)
Elaborating the business models based on the arguments (SI, ZHAW)

Milestones and deadlines

Milestone 1: Draft business models, 2013-11-30
Milestone 2: Finished report about arguments, 2014-04-30
Milestone 3: Elaborated business models ready, 2014-05-30
Deadline: 2014-05-30

The leader of Task 7.2 is SI, the following partners are involved:

Partner	Months
GP	1
FZ	1
AI	1
ZHAW - AMTS (Swiss partner) - Swiss Alzheimer Union (Swiss partner)	3
SI	4

7.2 *Review of Task 72*

It is clear that it is not possible to design "theoretical" business models without thorough analysis of market environment, including study of business processes and habits of users. A specific business model may work perfectly in one market situation, but fail in another. This means that the approach of a business model should be general enough to be adaptable elsewhere, but specifics will be relevant only on that relevant market it is developed for.

8 **Basics of Business Models**

8.1 *General Approach for drafting a Business Model*

In Task 72, we are going to draft the possible business models that could be used for putting MWT economically sustainable.

There are many ways of how to describe business models, and there are different granularities or levels of detail that might be chosen. Clearly, eventually a real-life implementation requires a fairly detailed business model, taking into account the full strategic, tactical and operational context of the participating businesses. Success or failure of a given business model may depend on specific details.

As the goal of Task 7.2 is to get an overview over possible business models, we have to adopt a top-down approach. Rather than elaborating a few possible business models in detail, we will assess the space of possible business models in a structured way, trying to identify reasonable sources of revenue.

The result of Task 7.2 should be several draft business model and go-to-market strategies.

8.2 *Business Model Canvas*

Typically, a business model describes the ideas of how a company makes business in a certain market from the perspective of this company. The typical other actors

outside the company are customers and partners (mainly other companies). Costs and revenues of the regarded company have to be analyzed for making sure that the model is economically viable. A very popular way of describing a business model is the Business Model Canvas (Osterwalder, Pigneur, 2010).

The basics of each business model are the value propositions made by a company towards its customers. This defines the way of how provider and customer are linked together. By analyzing the associated costs for realizing the value proposition (cost structure), and the revenues generated by delivering the value (revenue stream), the economic viability for the considered company can be assessed. In particular the evaluation of the cost side requires the specification of the business processes used for creating the value for the customers.

In the context of the M3W platform, there are many actors that could play a role in a business models. It is not only the platform provider and the elderly people who are connected via a business models, but there are also actors such as care providers, family, and so on. So, we might expect complicated business models involving more than two actors.

The basic idea is that there are "actors" (which might be persons, companies, or larger entities) that are connected via value propositions, and for understanding such a system, we have to analyze the values that are created in the interaction of the actors, and the way how these values are created.

In the context of the M3W, we have several players that might be interested in the platform, and thus should be considered in the search for suitable business models (players, family members, care providers, health care providers, platform providers, game developers, etc.).

There might be business models that only include the platform provider and the players, but many others could be thought of that include more than two actors, thus leading to more complex service systems. Not all of the actors are companies (in particular the players, but also the family), but a lot of situations can be imagined that involve more than one company, thus requiring the whole service system being feasible for each of them.

A service system as a whole is viable if:
• Every actor has a clear value from engaging in the system. This value is produced by a corresponding value propositions from other actors.
• The commercial actors (companies) must have revenues that cover their costs. No commercial actor can exist sustainably if the costs are higher than the revenues. (Note that this does not hold for non-commercial actors such as the player and their families. They do not have to earn money from engaging in the system. They typically get a non-monetary value from a service).

So, for a top-level analysis, we focus on service systems, by studying the value propositions that each actor could make towards another actor. So, we try to describe the value propositions of the complete service system in order to understand who delivers which value to which other one.

As second step, we assess the revenue potentials of each sales channel involved. In particular, we have to make sure that, for all involved companies, their costs are at least covered by corresponding revenues.

In the following, we illustrate this approach for two prototypical business models that are chosen from outside the framework of the M3W project.

8.3 *B2C model*

As a first example, we consider a B2C model. In the simplest case the service provider and the customer are involved in the deal (Figure 12).
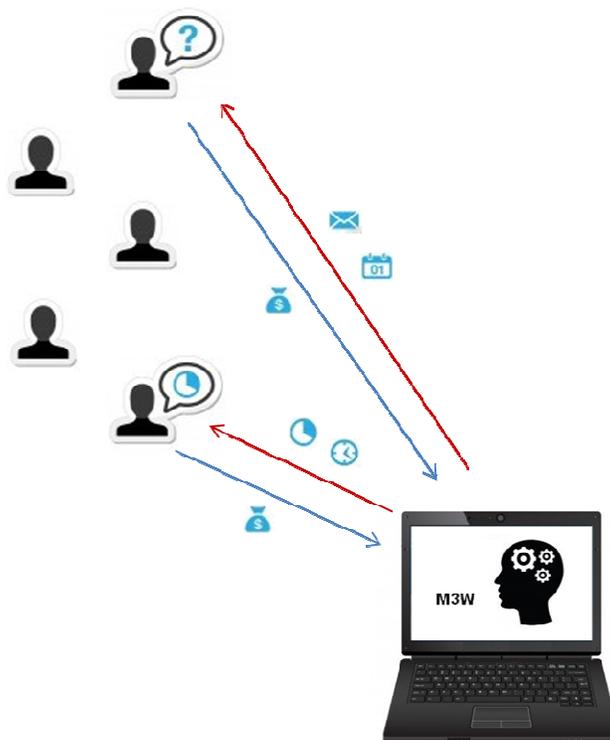

*Figure 12: B2C service model for MWT*

Here, we have two roles:
- Game user (User)
- MWT services center ("Game")

Classically, only the value proposition of the provider is considered, but for understanding service systems, we have to include the value proposition of all actors. Red arrows show the direction of services, blue arrows indicate the financial flow.

The value proposition of the provider towards the customer is a service, privilege, better-for-you option. Users are ready to pay for access to extra games/services, value added privileges, benefits beyond standard. But to give proper answer for what and how much type of questions an online user survey should be conducted.

B2C model might involve third party service providers (subcontractors) who can deliver directly to the customer or through the MWT. In this case the service system looks like this (Figure 13):
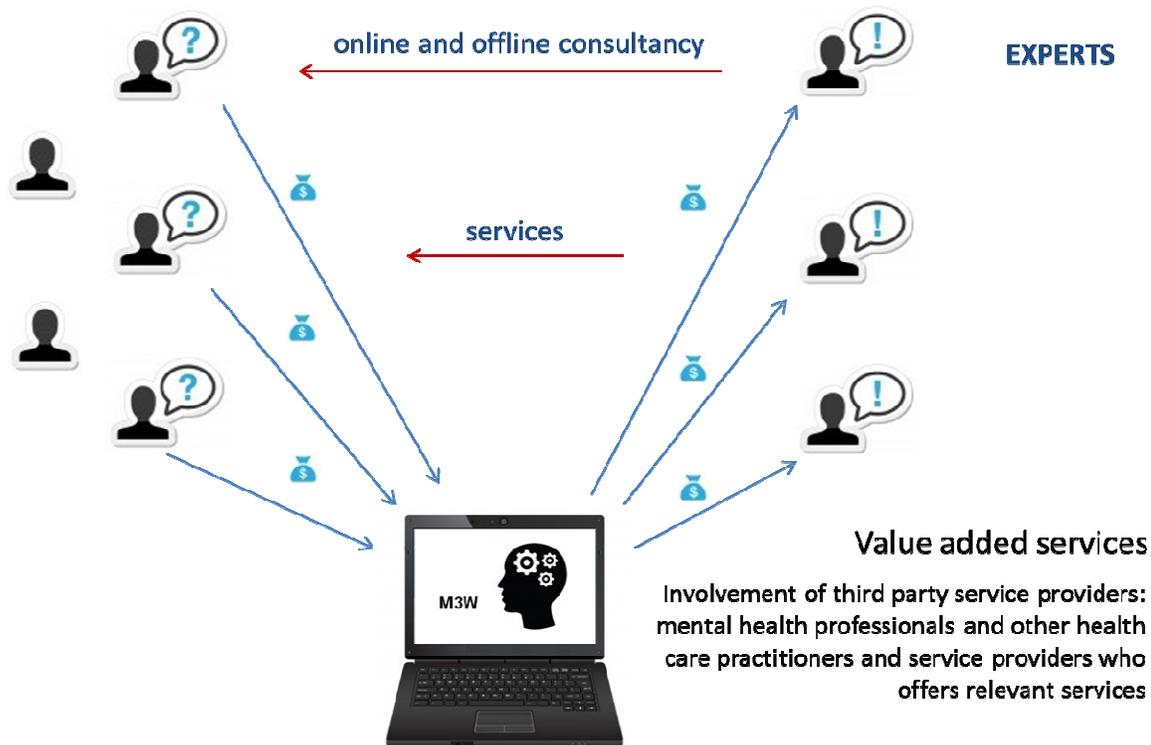
Figure 13: MWT B2C service with third parties service providers

Here, we have two roles:
- Game user (User)
- MWT services center ("Game")
- Third party service providers (doctors, health care specialist, nutritional experts, etc.)

Red arrows show the direction of services, blue arrows indicate the financial flow.

For the provider, we have to have a look at the costs for providing the service, and make sure that these costs are covered by some revenues. Since revenues come from outside, they are a result of some value proposition made by another actor towards the provider.
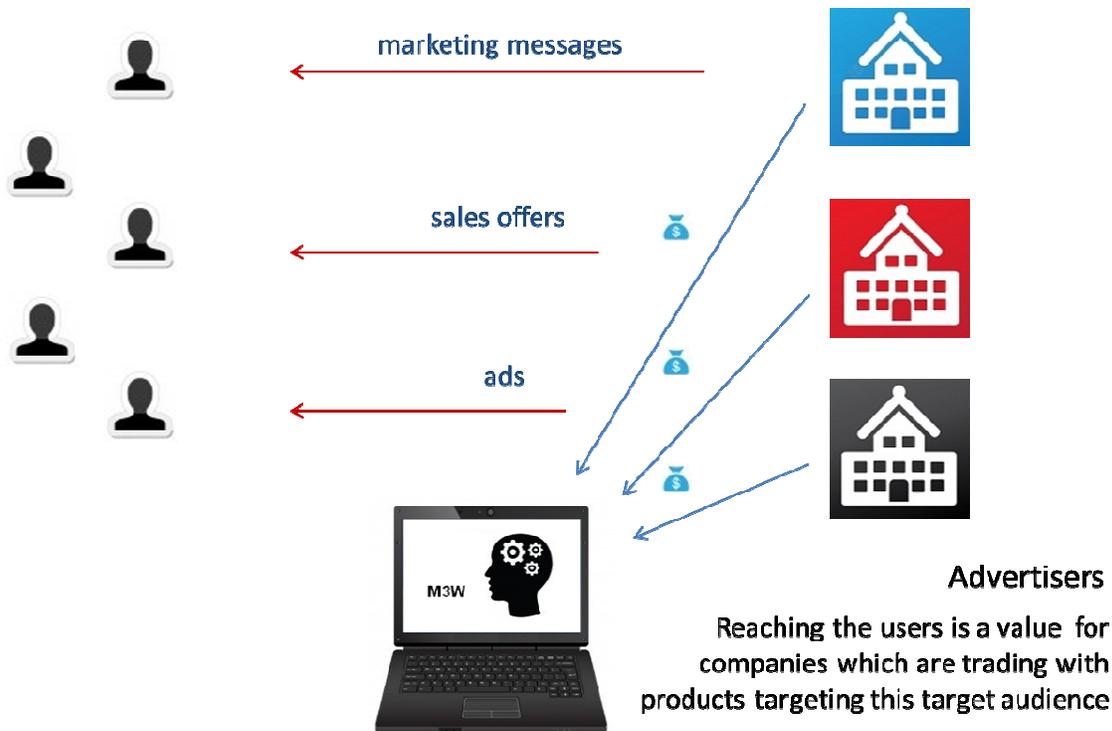
8.4   B2B model

Figure 14: B2B service model for MWT

In Figure 14, red arrows show the direction of marketing messages; blue arrows indicate the financial flow.

Here, we have two roles:
- Game user (User)
- MWT services center ("Game")
- Advertisers

The picture above shows the general structure of a B2B model. Reaching the users of MWT might be value for companies. The users are target groups in this manner and companies will be ready to pay their valued target groups to support their sales and marketing objectives.

Since the revenue from the advertisers depends largely on the number of users, having more users creates more revenue. It is crucial to determine the minimal and optimal number of users that maximize the potential revenue from advertisers.

Acquiring more users costs more for MWT which generates more revenue from advertising until there is a point where the costs of user acquisition are higher than the additional increase in advertising revenue. The optimal number of users (and most profitable operation) is at this point.

For the advertiser, the ads, direct sales offers have a value if they lead to increased sales. A typical number for describing the effect of an ad is the "conversion rate", meaning the fraction of readers that engage in a business with the advertiser when seeing the ad.

Figure 15: Affiliate type of B2B service model for MWT (part 1)

In Figure 15, red arrows show the direction of services and products; blue arrows indicate the financial flow.

Here, we have two roles:
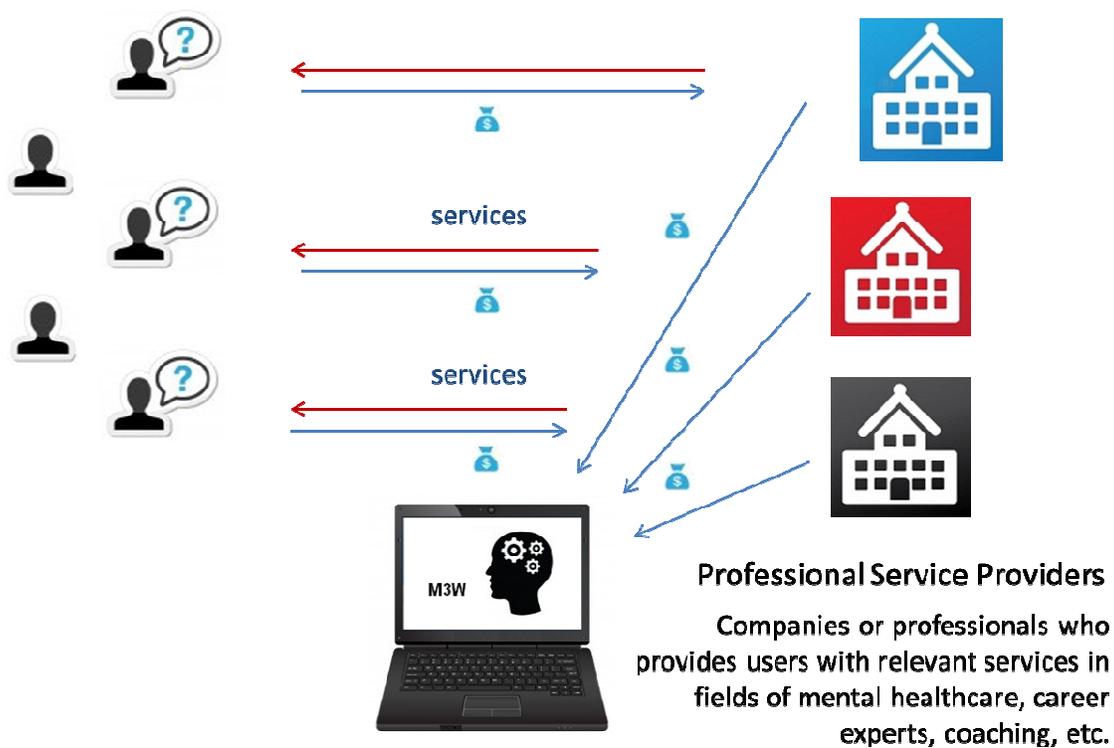- Game user (User)
- MWT services center ("Game")
- Affiliate partners

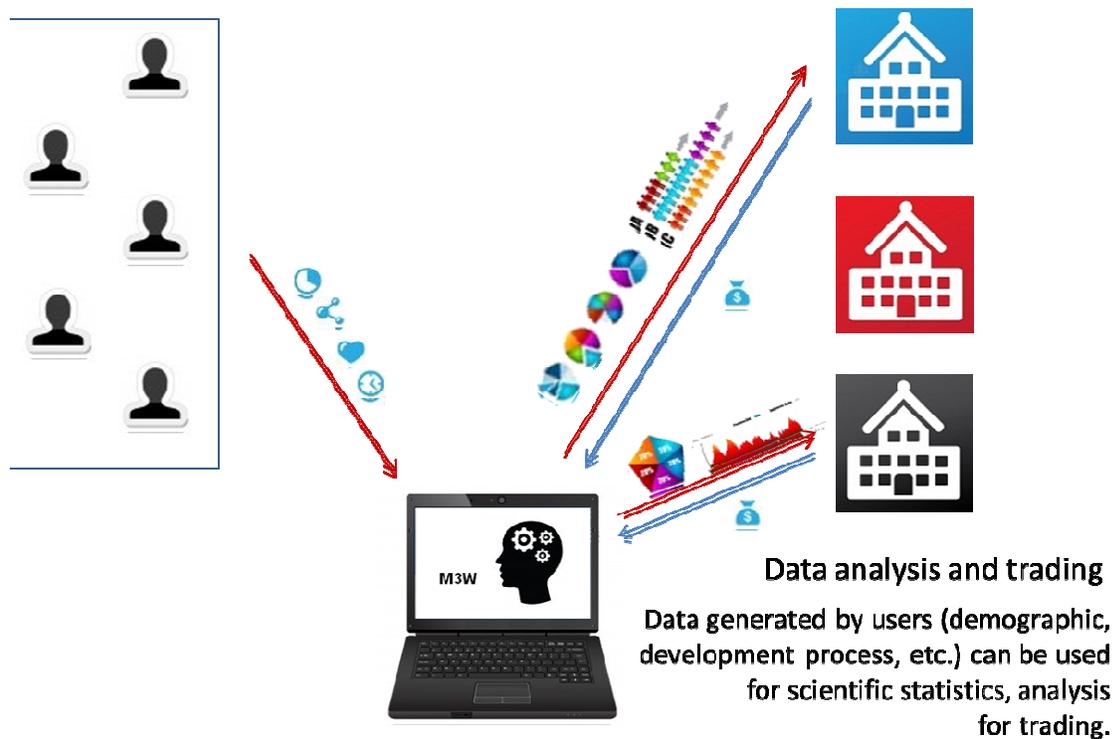Affiliate model is a type of performance-based cooperation in which
- either a company rewards one or more network partner (e.g. website) for each visitor brought by the affiliate's own marketing efforts (commission)

- or a company rewards one or more network partner (e.g. website) for each customer and share revenue (%)

In this business model companies will sell their products or services to the users of MWT. Users will pay directly (via card, bank transfer) to the companies which will share this revenue with MWT.

The large number of users generates additional value beyond direct sales by the individual users. It is the data processing and commercializing.

Data analysis and trading

Data generated by users (demographic, development process, etc.) can be used for scientific statistics, analysis for trading.

Figure 16: Affiliate type of B2B service model for MWT (part 2)

In Figure 16, red arrows show the direction of data flow; blue arrows indicate the financial flow.

Here, we have two roles:
- Game user (User)
- MWT services center ("Game")
- Data buyers

Scientific and commercial data processing involves a large volume of data generated by the users. For example, insurance companies, health officials might be highly interested the cumulated and processed data of MWT. However the commercial use

of the data generated by the use of MWT should be legally sensitive, therefore all market adaptation of this section of the business model need to be revised.

9   Market surveys

9.1   User Survey for B2C model

Market survey is a very important component of the process creating a business strategy. Online user survey actually speaks to the existing members of MWT target audience therefore we have the chance to have an idea of real needs and preferences of potential users, to provide M3W with user insights.

Objective of User Survey

- clarify the characteristic of potential users
- explore their motivation using internet and mental wellness gameset
- find out readiness of payment for online gaming for mental fitness

Survey methodology

- 1000 users of Hungarian Ötvenentúl.hu (website for 50+ people)
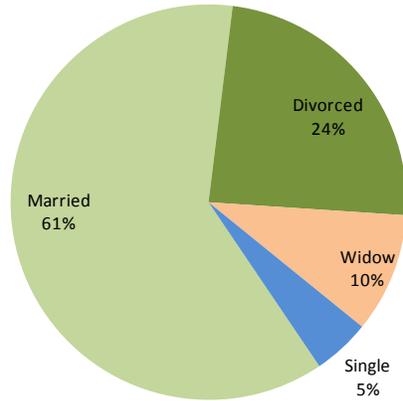- online questionnaire
- 3 weeks duration

Detailed questionnaire is attached to this document in Appendix.

9.2   Results of B2C survey
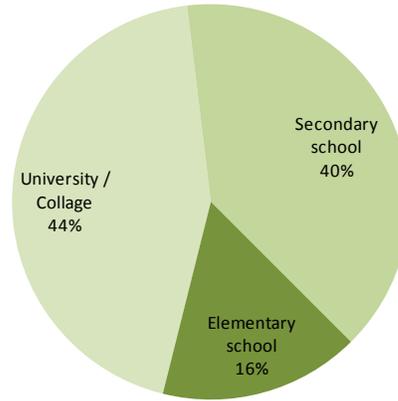
Sociodemographic characteristics (sample: 1000 users)

What is your age?
Below 50 8%
50 - 60 years 68%
Over 60 24%

What is your sex?
Female 62%
Male 38%

What is your status of activity?
Employed 56%
Inactive 44%

What is your marital status?

Divorced 24%
Married 61%
Widow 10%
Single 5%

What is your highest education?

Secondary school 40%
University / Collage 44%
Elementary school 16%
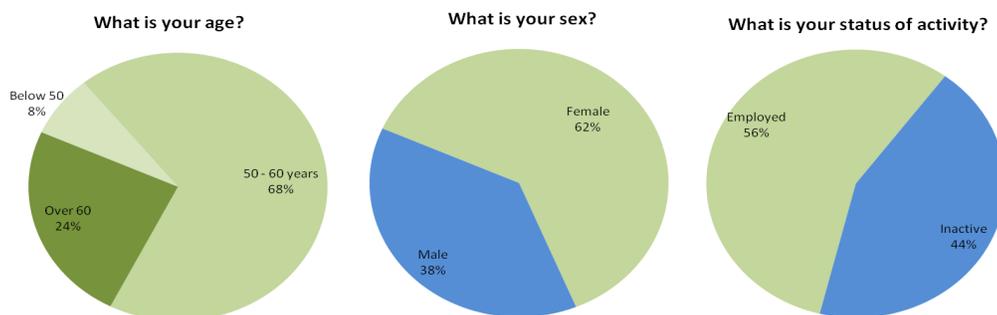
Internet usage (sample: 1000 users)

How long have you been using internet?
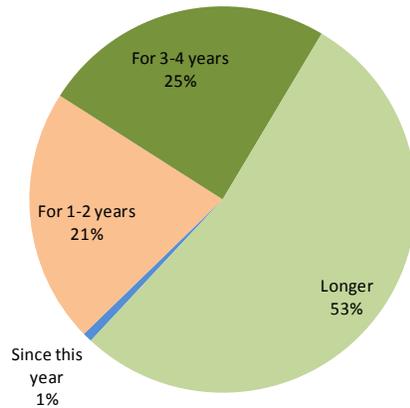
For 3-4 years 25%
For 1-2 years 21%
Since this year 1%
Longer 53%

How often do you use the internet?

Rarely 1%
1-3 times a week 5%
4-6 times a week 6%
Daily 88%

What do you use internet for? (You can pick more answers)

- News reading 42,4
- Get information on specific topic 36
- Keep connection with others 68,8
- For entertainment 21,1
- Playing games 45,9
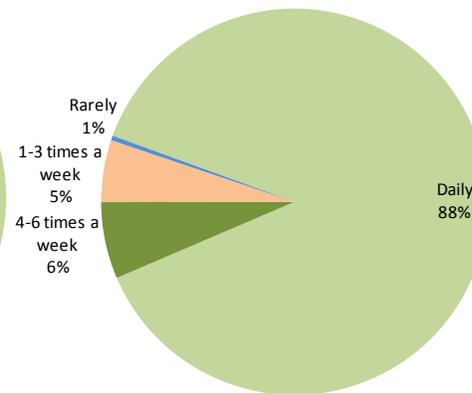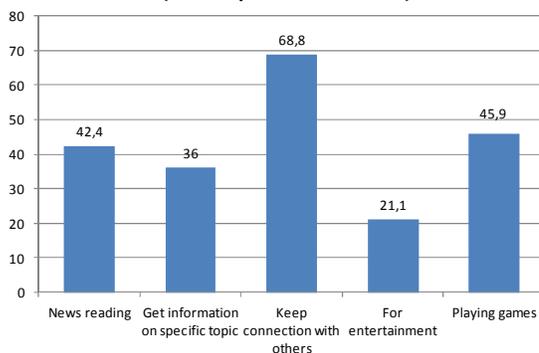
Where did you use the internet the past month? (More answer possible)

- At home 94,3
- At working place 35,2
- At other's home 9,5
- Somewhere else 5
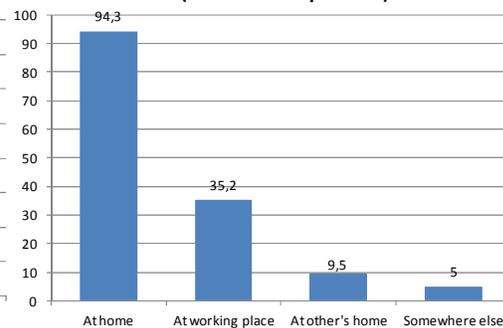
Internet usage – online playing (sample: 1000 users)

Do you play online?

- Yes, regularly 35%
- Yes, sometimes 11%
- No 54%

What kind of online games do you play? (Total sample: 459)

- Card, board games 47%
- Crossword 10%
- Logic games 26%
- Other 4%
- Quiz 13%

Do you know these sites?

- None of them 98%
- Cognifit.com 1%
- Lumosity 1%

What is your motivation in play? (You can pick more answers. Total sample : 459)

- Fun 50,3
- Competition 30,1
- Mental training 78,4
- Spending time 30,8
- Other 8,2

If there will be games on this site for mental wellness, would you play them to train cognitive capabilities?

- Yes, definitely 65%
- I would make a try 22%
- Not interested 13%

Would you pay for playing games that train your mental capabilities?

- Yes, for extra benefits 39%
- Yes 19%
- No 42%

What services are the most valued for you? Pls rank the following options. (1 is the most valued.)

- Access to more games 2,7
- Personal Training & Development Tracking Program 1,6
- Compete & Win Promo 2,2
- Consulting with professionals 3,5

How much are you ready to pay monthly? (Total sample: 266)

- Less than 1000 HUF 33%
- 1000 - 2000 HUF 47%
- 2000 - 3000 HUF 14%
- Over 3000 HUF 6%
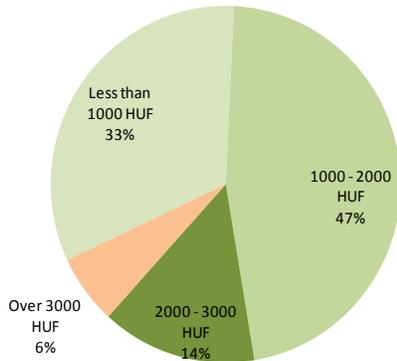
Personal Training & Development Tracking Program

Compete & Win Promo

Access to more games

Consulting with professionals

Value
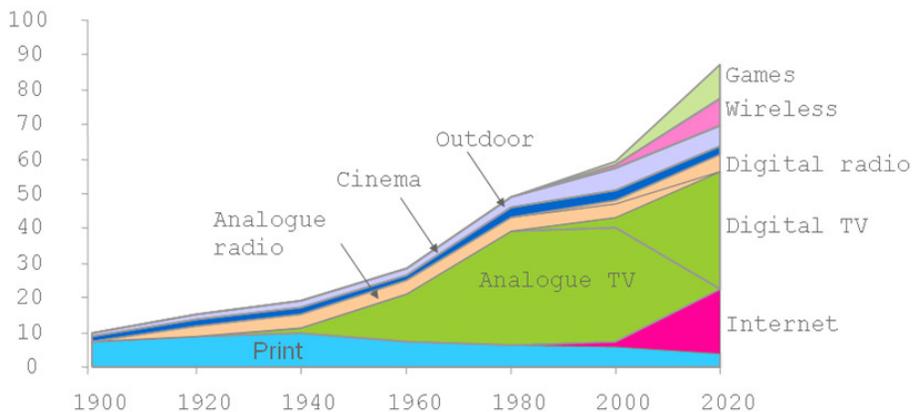
1000 HUF = 3,3 EUR
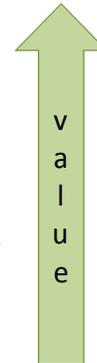
9.3 Conclusions of B2C survey

50+ users have been active daily online user for multiple years
50+ internet users are higher educated than average internet user

46% play online games
87% of gamers would be interested in mental training games if launched
58% of players ready to pay for it if there were value added services, privileges, personal consulting
61% would pay between 3,3 – 10 EUR / month

There is no competition presence on the Hungarian market.
Even not the international sites (lack of knowledge and language barrier)

9.4 Market Survey for B2B model

Digital media consumption has been continuously increasing in the past years.
According to Isobar's estimation digital media including internet will dominate 80% of media consumption in the near future.

Share of digital media
50% of all media by 2007
66% of all media by 2010
80% of all media by 2020

As the share of digital media growths the business potential spending on digital ads will make up around one-quarter of total media ad spending around the world in 2014 according to eMarketer's latest estimates of worldwide paid media spending.

Spending on ads served to internet-connected devices including desktop and laptop computers, mobile phones and tablets will reach $137.53 billion in 2014. Digital spend will be up 14.8% over 2013 levels, according to the forecast, and will make up just over one-quarter of all paid media spending worldwide. That's up from about one-fifth of spending in 2012, and it is set to rise to nearly one-third of the total by the end of our forecast period, when advertisers around the world will invest $204.01 billion in digital.

To investigate the opportunities for B2B model we interviewed 10 brand and top managers in pharmaceutical and insurance industries as potential advertisers for MWT. Besides we interviewed 10 officials at level of state secretary and head of department in relevant ministries (Ministry of Human Resources, Ministry of Government Services and Ministry of National Economic).

Each interview was conducted as face-to-face discussion between 30-60 minutes. Interview panel was set up to investigate the general standards of advertising practice managed by the interview participants, including the intention to cooperate with MWT.

9.5 *Conclusions of B2B survey*

Key conclusions made after the industrial interviews
- pharma industry is strongly interested in advertising with MWT
- insurance companies are not really
- advertising and direct reach, sponsorship, co-partnership in further game developments can be the main fields of cooperation
- also in clinic based studies (research involving hospitals)
- annual spending 5-10 Million HUF (16-33 M EUR) can be expected by the biggest players if reaching 100 thousand users (0,16-0,33 EUR / user
- minimum reach (to be attractive) is 50 thousand unique users per year
- potential advertiser prefer cognitive toolset as part of Ötvenentúl.hu (relevant reach of
- mature audience, active presence of target group)

Key conclusions made after the governmental interviews
- most of the decision makers consider MWT as good potential support as statistical input to their work

- data research and analysis are interesting (trends, geographical differences) for government's adult education initiative
- eg. Ministry of National Economics is interested in communication targeting active mature workforce
- future potential: cognitive training toolset for kids

9.6 *Revenue estimation*

B2C revenue calculation

26,6% of the users stated in the survey they would be ready to pay in average 1565 HUF (5,2 EUR) monthly

Our perception is that real life ratio of pays differs from survey answers
Our perception is that users will pay up to 2 months in a year as average
Our conservative prognosis is that 2,5 out of 100 will pay that amount

Annual revenue calculated based on 100 000 user as average

5,2 EUR * 2 months * 2500 = 26.000 EUR / year

Our conservative estimation is that revenue from users can be expected around 20-25 thousand EUR per year

B2B revenue calculation

B2B Revenue is also calculated based on 100 000 user

B2B revenue from corporate segment 40-50 M EUR per year

B2B revenue from government is hard to estimate due to the long negotiation periods, unclear decision process and hidden power of interests 10-50 M EUR per year

Total

If reaching the 100 000 user annually
- Revenue from B2C can reach 20-25 M EUR per year
- B2B revenue from corporate segment 40-50 M EUR per year
- B2B revenue from government (hard to estimate) 10-50 M EUR per year

Revenue potential in total 70-125 M EUR per year on the Hungarian market

9.7 *Cost estimation*

The total costs of the operation of M3W platform (including data sourcing and analysis and realizing a sustainable stream of game development, sales operation) have been estimated in the range of €0,8-1,1 (for 100'000 users) to €3,5 (for 10'000 users) per user per year in Hungary. These costs have to be covered by any actors with exception of the game developers and platform provider.

As for the different options for service systems, these are the findings:
- For the minimal service system (platform, game developer, players), only a subscription model is feasible. The average monthly subscription fee should be at around €3 (€30 per year / with pay 10 months get full year access offer). This is a reasonable price, compared with other similar offers in the market and the results of the user survey. The subscription model may be integrated in a broader freemium model, in which case the annual fee for the premium version must have a significantly higher price.
- A multi-sided platform model with advertisers as additional customer segment seems feasible. It might be possible that the service is fully financed by advertisers. Strategically, the fact that the M3W system is focused on a well-defined target group makes it very interesting to marketers.
- The minimal services system can be extended by including the families as additional users. They could profit from the platform for a rather low price but still add significantly to the revenue stream, which makes this customer segment particularly interesting. The value proposition towards the families is rather clear.
- Retirement homes as paying customers (having own licences that they would offer to their residents) is a possible customer segment, but the value proposition is less clear. We expect that retirement homes will only buy in if they make the M3W system an integral part of their service offer – this requires a strategic decision.
- Family doctors are a less promising actor in a service system. The added value of the M3W system for a doctor seems relatively small in the context of comprehensive medical care, and requirements concerning easiness of data access and IT integration in the system of the doctor's practice are probably demanding.
- Even less promising than doctors are hospitals. Due to the short duration of a typical hospital stay, the analytic functionality seems not to be able to create a reasonable added value for hospitals.

These considerations lead to the following recommendations:

6. Due to the relatively low costs of providing the M3W platform (€0,8-1,1 per year for 100.000 users), the most promising business model seems to be a subscription based model, with advertisements. This model is simple, and the subscription fee seems to be low enough for attracting users.

7. One might add a free version which is financed by advertisements (multi-sided platform model), as a part of a freemium business model. However, since multisided business models are more complicated and harder to manage (two different customer segments that must be managed simultaneously), this option has to be addressed carefully. Pre-structured (such as Google's AdSense) and premium advertisement offers to be considered and going to market sales strategy to be drafted.

8. Doctors, hospitals and insurances seem to be more difficult to integrate. We recommend integration to be part of a next phase.

Appendix

B2C user survey questionnaire

Please fill this survey to help us understanding your needs and preferences while using the internet. Ötvenentúl.hu as the most popular health and lifestyle site in Hungary targeting senior audience is going to launch a cognitive game site for mental fitness. Games in this site are developed to train your mental capabilities including short term memory and logical capabilities. All games are scientifically tested and proven.

Please walk through the following few questions and mark the answer(s) you think are the closest to your opinion. It takes only few minutes and few clicks for you, but gives essential support to our work. Thank you for your contribution!

1. How long have you been using internet?
- since this year
- 1-2 years
- 3-4 years
- longer

2. How often do you use the internet?
- (almost) daily
- 4-6 times a week
- 1-3 times a week
- rarely

3. Where did you use the internet in the past month? (You can pick more answers)
- at home
- at workplace
- at other's home
- somewhere else

4. What do you use internet for? (You can pick more answers)
- reading news
- get information on specific topic
- keep connection with others
- for entertainment
- playing games

5. Do you play online games?
- yes, regularly
- yes, occasionally
- no

In case of NO answer, system jumps to question No13 >>>

6. What kind of online games do you play?
- quiz
- card, board games
- crosswords
- logic games
- other

7. What is your motivation in play? (You can pick more answers.)
- fun
- competition
- mental training
- just spending free time
- other

8. Do you know any of these sites? (You can pick more answers.)
- lumosity.com
- fitbrains.com
- happyneuron.com
- cognifit.com
- none of them

9. If there will be games on Ötvenentúl.hu site for mental wellness, would you play them to train cognitive capabilities?
- yes, definitely
- I would give a try
- not interested

10. Would you pay for playing games that train your mental capabilities?
- yes
- yes for extra benefits
- no

11. What services are the most valued for you? Pls rank the following options. (1 is the most valued.)
- access to more games
- personal training & development tracking
- compete & win promo
- consulting with professionals

12. How much are you ready to pay monthly?
- less than 1000 HUF
- 1000-2000 HUF
- 2000-3000 HUF
- over 3000 HUF

13. Have you ever paid online for purchasing something?
- yes, regularly
- yes, occasionally
- no

14. What is your sex?
- female
- male

15. How old are you?
- less than 50
- 50-59 years
- older than 60

16. What is your status of activity?
- employed
- inactive

17. What is your highest education?
- university/college degree
- secondary school
- elementary school

18. What is your marital status?
- married
- divorced
- widow
- single

Yes, that was all!
Thank you for your valued contribution!

Back to Ötvenentúl.hu >>>