

Deliverable 7.6:

Final report on sustainability and business models: lessons learned

WP 7: Sustainability and business models

*ACT@Scale
Advancing Care Coordination
and Telehealth @ Scale*



European Innovation
Partnership on Active
and Healthy Ageing

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Short description of the Deliverable:

Work package 7 (WP7) of the ACT@Scale project, aims to collect and evaluate financial models supporting implementation and scaling up of care coordination and telehealth programs. It does so by applying a collaborative methodology (PDSA – Plan, Do, Study, Act) to improve performance of four key drivers of change (stakeholder and change management, service selection, sustainability and business models, and citizen empowerment). This deliverable is the final report on sustainability and business models.

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Background

The work package on Sustainability and Business models covers all areas of research, assessment and improvement activities performed in the area of sustainability of integrated care programs and business modeling.

The specific objective of Workpackage 7 (WP7) is to engage the consortium (and collaborating) regions in Catalonia, the Basque Country, Region of Southern Denmark, Northern Ireland, Northern Netherlands, Gesundes Kinzigtal and Scotland.

This deliverable summarises the work performed previously in WP7 and documented in D7.1, D7.2, D7.3, D7.4 and D7.5. D7.1 focused on collecting baseline information on reimbursement and financial flows of the programs that are being followed and evaluated in the ACT@Scale project. In the second deliverable (D7.2) the first learning sessions using a Plan Do Study Act (PDSA) approach was discussed. Specifically, the selection of drivers pivotal for scaling up specific programs were selected and subsequent improvement approaches to be carried out within each driver were defined. For WP7, focusing on sustainability and business models, the interventions proposed in D7.2. were carried out by collecting information on the level of sustainability (survey) and revenue and costs streams (canvas business model) for each of the programs. As such, the activities as described in the deliverables for WP7 follow on each other naturally as the programs progress in scaling up their programs.

D7.3 compiled a comprehensive overview of the results of the sustainability survey disseminated to project managers, the canvas business model explaining financial aims and revenue streams and the approach for the data collection of KPIs. In D7.4 the results of the first PDSA cycle were described. Per program the results of the improvement cycle were summarized, together with examples of best practices and lessons learned. Also, aspects of transferability and cross-fertilization between programs and regions were delineated. Deliverable 7.5 was aimed at describing the second PDSA cycle performed by programs that selected WP7 as their key driver in scaling up.

This deliverable (D7.6) has four main aims: (1) summarise the work performed thus far in the project, (2) describe more in-depth the lessons learned and best practices identified, supported by examples from local programs (3) evaluate the set-up and methodologies used in this work package, both on a program- and project level and (4) reflection on lessons learned, i.e. successes and failures.

WP7 has committed to produce at least a deliverable at the end of each phase of the project, as described in the table below:

Table 1 ACT@Scale phases and WP7 deliverables

Baseline Phase	Learning Phase	Coaching Phase	Dissemination Phase
M0-6	M7-18	M19-30	M31-36
WP7: Business Models and Sustainability			
D7.1 Financial flows and reimbursement	D 7.2 Report on learning session I D 7.3 Report on learning cycle	D7.4 Report on learning session II D7.5 Report on coaching cycle	D 7.6 Final report on sustainability and business models: Lessons Learned

Deliverable 7.6 encompasses the work done from the start of the project to M36.

Executive Summary

The aim of the ACT@Scale project is to work together with all programs and regions on the implementation and scaling up of projects based on a collaborative methodology. This document describes and summarizes the activities performed in work package 7 of the ACT@Scale project, focusing on sustainability and business models.

This deliverable (D7.6) has four main aims: (1) summarise the work performed thus far in the project, (2) describe more in-depth the lessons learned and best practices identified, supported by examples from local programs (3) evaluate the set-up and methodologies used in this work package, both on a program- and project level and (4) reflection on lessons learned, i.e. successes and failures.

A couple of lessons learned were noted in trying to perform economic evaluations in the project:

- Local needs, goals, indicators and outcomes for economic evaluations sometimes can differ from what the consortium agreed to collect in the evaluation engine and minimal data set.
- Data sharing between partners, even at aggregated level, is in some cases difficult. For example, due to difficulties in obtaining informed consent and legislation.
- The evaluation and data collected should support local programs in their scaling up ambitions. This is especially helpful for programs that are not in control of their data on a sophisticated level, for example in case data is stored and managed by third parties.

Regarding the development of alternative business models, an elaborate plan has been developed for the World of training program.

Program monitoring and economic evaluation over time provides crucial information for program managers, decision makers and payers (insurer or government) and should be integrated in normal deployment. We learned that outcomes might be surprising, neutral and negative, leading for example to termination of programs. However, it also leads to an opportunity to be adaptive and change the business model.

It is important to consider various approaches to reach a larger target audience, either by scaling up or scaling out services. Scaling up means expansion within the same target population and same/very similar settings (provision to a larger population) and scaling out involves expansion to either a new population or a new delivery system or both (broaden the delivery of the intervention).

One has to be careful when interpreting financial outcomes, as there might be a difference between intervention efficiency and system efficiency.

In order to tackle challenges in scaling up/out, program managers could benefit from an integrated approach across multiple domains, as it appeared that domains and drivers often interact and/or are related.

As such, realizing sustainable funding for a program is a joint challenge for multiple stakeholders (foremost with payers) and depending of the current health system in place. Sustainability & business models can go 'hand in hand' with stakeholder management.

Outline

The document is divided in 5 main chapters and two appendixes. Following a general introduction of work package in Chapter 1, a summary of the previous deliverables (D7.1 till D7.5) is provided in Chapter 2 highlighting the main results achieved. Chapter 3 will focus on the improvement actions undertaken by the different programs in terms of economic evaluations and business models development. A key message is that programs should adopt a continuous evaluation of their business models and economic data to support implementation and scaling up/scaling out of services. In Chapter 4 the lessons learned are described, containing specific examples of economic evaluations and innovative business models. These results highlight differences in developing business models for scaling up services in existing organisations or by scaling out towards other regions and settings. Also, disincentives residing in existing funding models for integrated care are emphasized, hampering further scaling up or even leading to discontinuation of programs. In Chapter 5 the recommendations are formulated based on the results obtained. One key message is that programs should operate with a certain degree of flexibility to support the evaluation of alternative business models within their region, and also in scaling out activities to other settings. Also, continuous collection of economic data should be promoted as they form the basis for testing and evaluating alternative business models supporting successful scaling up of programs.

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1. Sustainability and business models aims

Within the scope of scaling up integrated care and telehealth programs, the topic of sustainability and business models was recognised by the programs and the regions as one of the key drivers in achieving this ambition. The principal aim of this work package is to assess and evaluate this key driver of scaling up. It does so by identifying the elements of sustainability and viable business models, by monitoring the plan-do-study-act cycles and the progress of scaling up and by evaluating economic outcomes.

Business modeling involves all relevant stakeholders in value co-creating and helps to determine an implementation or scaling strategy. It contributes in identifying success factors that will impact the sustainability of telehealth programs (*van Limburg et al, 2011*).

To describe the structure of the programs, a baseline assessment is performed. This describes the current health care systems, the payment model, the business model and financial flows of the programs.

Plan-do-study-act cycles (based on the Break Trough Series methodology (*Institute for Healthcare Improvement, 2003*)) are used to implement changes for improving the sustainability of programs by tackling barriers and for the (re)design the business models.

To monitor the progress of scaling up, the programs sustainability capacity is assessed on eight domains, including funding, using a validated tool (*Luke et al, 2014*).

The outcomes of the scaling up activities are evaluated in terms of population served, care utilization and the costs of the programs.

These activities lead to extraction of best practices and lessons learned that will be transferred within the EU regions, for example in this deliverable and the organisation of transferability events.

Two main approaches can be distinguished:

* Structural indicators: collected using a baseline measurement describing qualitatively the current health care system, underlying business model and financial flows.

* Process indicators: included a combination of validated surveys and methods aimed at describing, more qualitatively, underlying processes and decision-making.

Sustainability and business models had the following outcomes:

- 1.General: including the total costs per program and the costs per user.
- 2.Cluster specific: unit costs and care consumption in primary, secondary and social care.
- 3.Program specific: to monitor and evaluate program specific improvement approaches.

2. Sustainability and business model progress

Deliverable 7.1

The first deliverable aimed to collect the baseline information of reimbursement methods and financial flows for all programs and regions participating in the ACT@Scale project.

Methods

A survey aimed at local program managers and program leaders was constructed based on available literature. The survey was sent out and the results were collected in month 5 following the start of the project. Descriptive statistics were used to present the data.

Results

In total 14 surveys were received from program managers of the five regions participating in the project (Basque Country, Catalonia, Northern Ireland, Northern Netherlands and South Denmark). Most programs (50%) were funded through fixed budgets, which was in most cases (50%) funded by the local government. Eight programs (57%) indicated to expect a change in funding within the next three years. Alternative business models included shared savings models in which one or more care providers and one or more health insurers form an agreement that savings relative to a benchmark can be returned to the providers and/or insurers or a capitation model meaning paying a provider or group of providers to cover the majority (or all) of the care provided to a target population, such as patients with multiple long term conditions (LTCs), across different care settings. Also a population coverage model was proposed in which care provider(s) receive a fixed amount of money per inhabitant or insured person in their population, irrespective if the inhabitant or insured uses this care or not. The care provider manages the budget, which is realized after negotiations with health care insurance companies and municipalities.

Conclusions

Most programs were funded through budgets financed by (local) governments. A small majority indicated to expect a change in funding of their program within the next couple of years, in which a wide variety of alternative business models are being considered. This finding may be relevant to policy makers aiming to scale-up integrated care models.

Deliverable 7.2

The second deliverable was mainly descriptive in nature. It provides a detailed description of the improvement approaches taken by several programs that have selected Sustainability and Business Models are one of their key performance indicators in scaling up their service.

Methods

The Plan-Do-Study-Act (PDSA) methodology was applied and described along the following domains: (1) Multidisciplinary team (profile and number), (2) Improvement areas, (3) Objectives, (4) Change package (interventions), (5) Key performance indicators. Following the choice of local programs for the driver Sustainability and Business model each program will define the intervention or improvement approach to be carried out. Following the collection of baseline information concrete actions to support the proposed changes are carried out. In total two annual improvement cycles were performed.

Results

During the first cycle, 7 out of 10 planned actions were realised along several domains. The domains described were chosen based on the information provided in the PDSA documents. An overview of the results is presented in Table 1.

Table 1. Overview of improvement actions in the first PDSA cycle.

Improvement action	1st cycle
	planned
evaluation current financial barriers	2
development of alternative business models	4
evaluation cost-effectiveness / care utilization	1
evaluation/assessment of alternative business model	2
reach agreement on financial plans needed for scaling up	1

Conclusions

Most program succeeded in realizing the planned improvement actions, suggesting that the approach was useful. The description of improvement actions was done arbitrarily and requires further study.

Deliverable 7.3

Deliverable 7.3 describes the results of the baseline assessment on financial systems and business models, the agreed upon indicators to monitor the progress made in terms of implementation changes locally and describes the proposed analyses plan adopted by the programs.

Methods

A combination of methods was used to describe the current health system and the business model. The Program Sustainability Capacity Tool (Calhoun et al., 2014)(SUSTAIN survey) was used to let program managers and leaders self-assess the sustainability capacity of their programs. Furthermore program managers were asked at baseline for general information, information about the payment model and future perspectives. The Business Model Canvas (Osterwalder and Pigneur, 2010) was used to describe all actors, key activities and costs structure of the programs. Also, a set of indicators were defined including regional population data on the costs per program and average costs of the program per user.

Results

The results of the sustainability surveys show that most programs achieve a 'medium level of sustainability capacity', with substantial differences observed within and between regions. In general, there seems to be a relation between the number of years a program had been running and the level of sustainability capacity observed. The Business Model Canvas filled out by the programs describes their value proposition, infrastructure, target group, and finances (costs and revenues).

Conclusions

The programs working in WP7 have agreed upon collecting costs items such as total program costs, cost of the program per user. Extended data collection will include care utilization.

Deliverable 7.4

Deliverable 7.4 describes the work done in the different phases of the PDSA cycles. Programs that had selected the driver Sustainability and Business models defined improvement actions and were evaluated for 12 months. The cycles describe key activities in the scaling up process of the program in their region.

Methods

A collaborative methodology approach was used in which 3 consecutive phases were followed: (1) a baseline measurement to agree on methods and indicators across regions and programs, (2) a learning cycle which consisted of a learning session with local stakeholders to discuss the PDSA cycle within the period of regional implementation, and (3) a coaching cycle in which lessons learned are discussed.

Results

All programs completed the full PDSA cycle. Most programs report a moderate to good implementation progress, meaning that the majority of the improvement actions were reached. Areas of improvement included an evaluation on current financial barriers hindering scaling up, a discussion on alternative business models and collecting data on care consumption of patient included in the various programs.

Conclusions

The PDSA cycles represents a flexible and easy to use methodology for bringing out improvement actions. It also provides local program managers and policy makers with a consistent evaluation methodology thereby supporting the transferability of knowledge between regions and programs.

Deliverable 7.5

This deliverable summarizes the work describes the work performed on the PDSA cycles, the sustainability survey for programs managers, analysis of payment and business models and the Key Performance Indicators (KPIs) collected for this analysis.

Methods

A mixed-method approach was chosen. The qualitative part included information on the collaborative approach employed in the second PDSA cycles, surveys to describe sustainability on a program level and to provide information on the typology of payment models using an adapted version of a previously published template. Quantitative information on program costs and care utilization were collected on a patient level where and if possible?.

Results

In total 7 out of 9 planned improvement actions were realized (Table 2). Most programs indicated to have experienced an improvement on whether they existed in a supportive state economic climate and whether there was sustainable funding for the program. The results on the typology of payment models showed apparant regional differences in funding schemes and subsequent levels of integratation for example when comparing the Northern Netherlands and Catalan programs. Regarding the quantitative indicators a total of 5 out

of 6 programs completed an economic evaluation of their program. Apparent differences between programs were observed in terms of methodology used, outcome and results based on differences in type of service delivered, target group and health sector.

Table 2. Overview of improvement actions in the second PDSA cycle.

Improvement action	2nd cycle planned
development of alternative business models	2
evaluation cost-effectiveness / care utilization	3
transitional care maturity model adaptation and implementation	1
modifications to operational elements of program to improve sustainability	1
training staff and facilitate strategic development	1
develop scalable digital tools	1

Conclusions

Most WP7 programs report positive outcomes in terms of economic evaluation. Results of these evaluations are input for redesign of the services or in developing alternative business models.

3. Sustainability and business models results

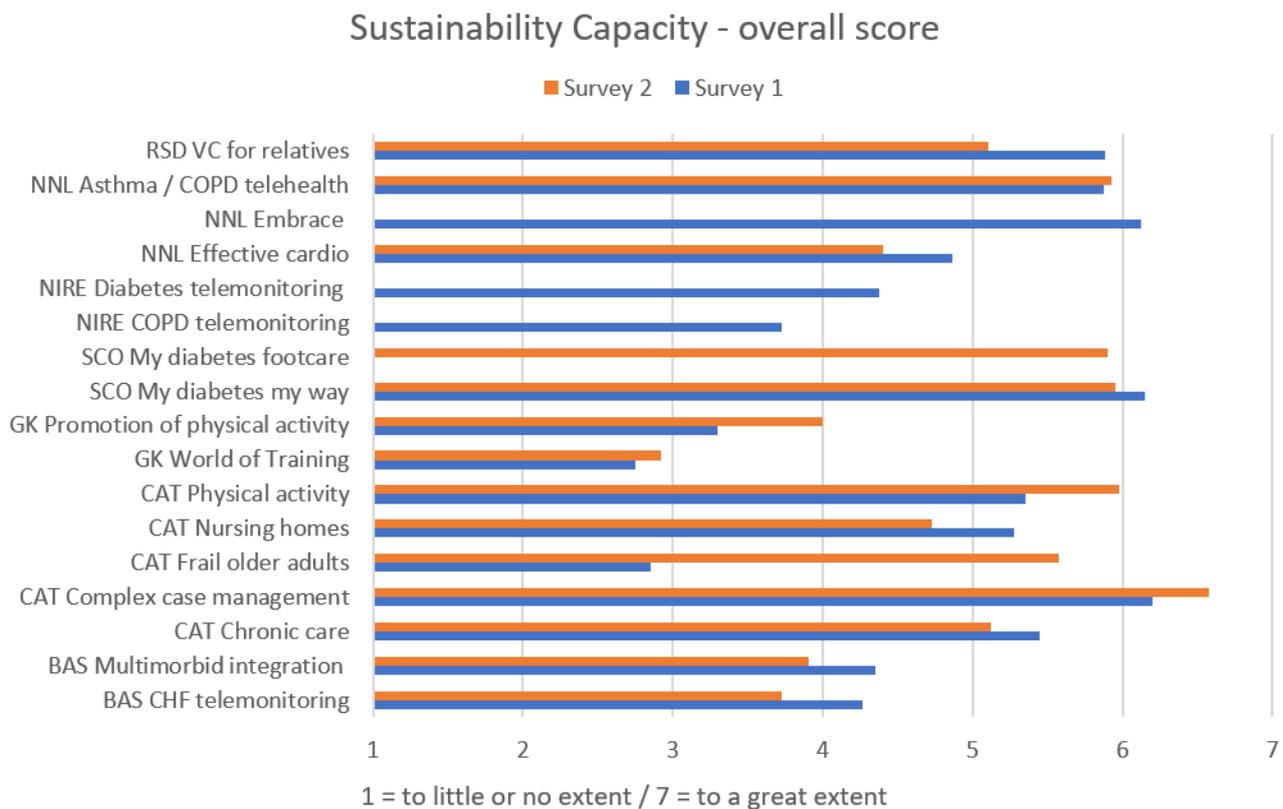
3.1 Sustainability capacity

The sustainability capacity was evaluated using the Program Sustainability Assessment Tool (SUSTAIN tool), which was done twice during the course of the ACT@Scale project. For the first wave programs, meaning those who performed the first PDSA cycle, the results were collected in 2017 and 2018. For the second wave program, those who participated in the second PDSA cycles, the results were collected in 2018. The SUSTAIN tool was used to monitor the progress made by programs on the driver Sustainability and business models. The overall scores per program and presented in Figure 1. Figure 2 provides an overview of the total scores of the different domains in the SUSTAIN survey over the years. In Appendix I an overview of SUSTAIN survey and the exact scores per program is provided.

Overview of the results:

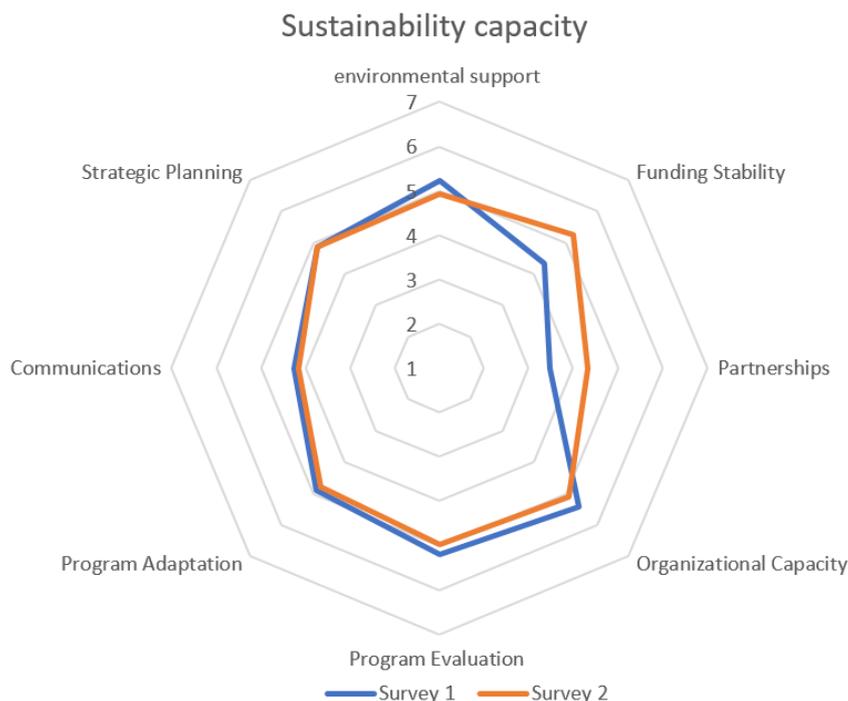
- On average there were no or marginal changes on domains of sustainability capacity between 2017 and 2018 for the first wave programs and between Q1 and Q3-4 2018 for the second wave programs.
- Some programs, for instance the Catalonia frail older adults program, showed a substantial higher average score due to a successful scaling up of the program which was mainly due to improvements in the organizational capacity.
- Within the domain of funding stability, the scores on individual questions show on average improvements.
- The SUSTAIN survey as an existing tool was integrated in the Program Manager survey that was developed for ACT@Scale.

Figure 1. Overall scores per program.



Survey 1 including 1st wave programs completed in 2017 (Q1) and 2nd wave programs completed in 2018 (Q3-4); Survey 2 including the 1st and 2nd wave programs both completed in 2018 (Q1 and Q3-4).

Figure 2. Overview of the total scores over all domains.



SQ1, survey 1 including 1st wave programs completed in 2017 and 2nd wave programs completed in 2018; SQ2, survey 2 including the 1st and 2nd wave programs both completed in 2018.

Message to the program managers:

The instruction manual of the SUSTAIN tool suggest programs to focus on the domains that score the lowest, in order to improve the sustainability capacity in general. Important considerations are:

- *Cultivating connections between your program and its stakeholders.*
- *Strategic communication with stakeholders and the public about your program.*

Both domains deal with external stakeholders and public and are relevant for reaching the support needed for scaling up.

3.2 Improvement actions

Most programs focused on one, some on multiple improvement actions. The two most common were:

- *Evaluate barriers and/or health outcomes, costs/utilization.*
- *Develop alternative business model.*

The majority of goals were reached, and improvement actions were adopted with or without (minor) adaptations. A summary on all improvement actions carried out is presented in Table 3.

Table 3. Summary on improvement actions.

Improvement action	1st cycle	2nd cycle
	planned	planned
evaluation current financial barriers	2	
development of alternative business models	4	2
evaluation cost-effectiveness / care utilization	1	3
evaluation/assessment of alternative business model	2	
reach agreement on financial plans needed for scaling up	1	
transitional care maturity model adaptation and implementation		1
modifications to operational elements of program to improve sustainability		1
training staff and facilitate strategic development		1
develop scalable digital tools		1

As shown there was a large variability in improvement actions, characterizing the customization and flexibility of the chosen methodology.

Some programs struggled with their progress and realization of the results. Others were able to modify operational elements of the program. The region of Catalonia managed to reach nearly all goals. PDSA methodology appears to be a useful and helpful methodology.

Message to the program managers:

Take steps in the correct order. First perform an economic evaluation and determine the barriers and improvement actions to overcome them. Then use this to develop an alternative business model if the current business model turns out non-sustainable or scalable.

3.3 Program evaluation

In terms of economic evaluation, 5 out of a total of 6 programs performed an economic evaluation before or during the ACT@Scale project. Table 4 provided an overview of the studies performed. In addition, an adapted version of the typology of payment models developed in the SELFIE project (www.selfie.eu) was used to study the payment models currently used in the different regions.

Table 4. Overview of economic evaluations performed.

Program	Region	Year published	Authors	Comparator	Method of analysis
Embrace	NNL	2018	Uittenbroek et al.	Care-as-usual	Cost-utility analysis/Cost-effectiveness analysis
Effective Cardio	NNL	2013	Veenstra et al.	Baseline measurement	Observational before-after study
AC telehealth	NNL	N/A	N/A	N/A	N/A
Complex case management	Catalonia	2018	Hernandez et al.	Baseline measurement	Observational study
Physical activity	Catalonia	2018	Barberan-Garcia et al.	Matched control group	Randomised controlled trial
Gesundes Kinzigtal	Southwest Germany	2017	Gröne et al.	Propensity scored matched control group	Synthetic quasi-experimental study, patient experience trend study

3.3.1 Economic evaluation

Regarding the economic evaluations, the following observations were made:

- Apparent differences in methodology, outcomes and results were observed due to differences in type of service, target group and health sector.
- Economic data supported the scaling up/out of several programs by showing the value of the resources invested.
- The type of economic evaluation performed by programs, depended on the local funding system in place. For example, programs that are supported by government budgets get more value out of budget impact analyses whereas programs funded by reimbursement rely more on cost-effectiveness and cost-utility analyses.
- In order to qualify for structural funding, it is important to provide payers with the correct information for financial decision-making (Soeters & Verhoeks, 2016). Scientific publications are not suitable for informing them. These documents have been written for a different audience and different purpose. Inform the decision makers in an accessible manner and in the language in place about the added value of the program. Write a business case in which all relevant information for the payers can be found and that addresses:
 - How and to what extent the innovation improves the quality of life of the target group
 - What the financial costs and benefits of the innovation are for the different stakeholders

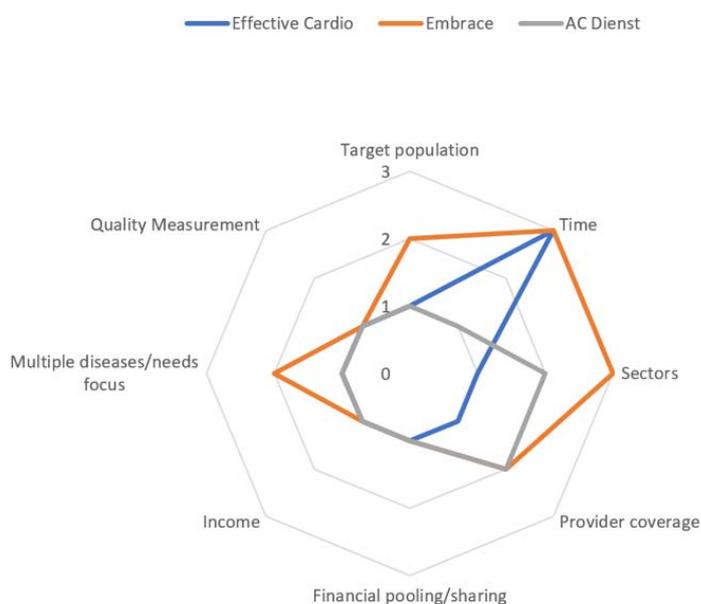
- Under which conditions and for which target group the innovation has the most effect
- Did economic evaluation help take barriers i.e. supportive of implementation?

3.3.2 Typology of payment models

Regarding the results from the typology of payment models, the following results were obtained:

- The results showed regional differences in in funding schemes and subsequent levels of integration.
- For example, the programs in Northern Netherlands were developed bottom-up with specific incentives for demonstrating cost-effectiveness of the program within a relatively short time horizon (see Figure 3). As a result, these programs score high in terms of the duration of the evaluation process, however they scored low in terms of income (indicating the proportion of the payment provided of providers' total income) and financial pooling/sharing (indicating no pooled funding/shared savings for providers).
- The typology has shown impact as a tool to show apparent process improvements in which policy makers could invest to increase the sustainability of the program.

Figure 3. Overview of the results for the Northern Netherlands program.



Message to the program managers:

Successful economic evaluation in programs was supported by a continued collection of costs items as part of the regular deployment and evaluation of the program.

4. Lessons learned

4.1 Economic evaluation and alternative business models

A couple of lessons learned were noted in trying to perform economic evaluations in the project:

- Local needs, goals, indicators and outcomes for economic evaluations sometimes can differ from what the consortium agreed to collect in the evaluation engine and minimal data set.
- Data sharing between partners, even at aggregated level, is in some cases difficult. For example, due to difficulties in obtaining informed consent and legislation.
- The evaluation and data collected should support local programs in their scaling up ambitions. This is especially helpful for programs that are not in control of their data on a sophisticated level, for example in case data is stored and managed by third parties.

Regarding the development of alternative business models, an elaborate plan has been developed for the World of training program, which is discussed here. A more detailed version of the business models is provided in Appendix II.

World of Training

World of training (WOT) belongs to the business unit gesund+aktiv of Gesundes Kinzigtal (GK). With WOT, GK foster physical activity to promote, maintain, and restore health. WOT is equipped with fully automatic devices, like cross trainers, treadmills, and leg presses, and owns further devices to train strength, endurance, and stretchability. The training is supervised by trainers who operate as personal coaches over time. The training is carried out at agreed training times. There is evidence showing that physical exercise can be considered as primary prevention, and as an effective supplement in the treatment of chronic conditions. Physical activity can thus result in a reduction of healthcare costs due to better health outcomes and fewer hospitalisation [Booth et al., 2012; Pedersen & Saltin, 2015].

Scaling up and scaling out

In order to promote the greatest public health impact, beneficial health programmes should be expanded as broadly as feasible. Such an expansion can be realised by two types of concepts for implementation: Scaling up and scaling out.

Scaling up describes the expansion of an intervention or programme within in the same target population and same or very similar settings under which the intervention or programme has already been tested. The intention is to provide the achieved benefits to a larger target population. In contrast, scaling out describes the expansion of an intervention or programme to either a new population or a new delivery system or both. The aim is to make use of strategies for implementing, testing, improving and sustaining the intervention or programme in new circumstances different from, but closely related to, the previous implementation settings (Aarons et al., 2017).

When implementing an intervention or programme, the design and/or delivery of an intervention or programme needs to be adapted to the particular setting (Stirman et al., 2013). Stirman et al. identify three types of modification:

- *Contextual modifications*, where format, setting, delivery channels and/or intervention recipients are changed, and the programme content is not.
- *Content modifications*, where changes are made to the programme content itself, i.e. programme procedures, materials and delivery.
- *Training and evaluation modifications*, refer to changes made to the procedures for training personnel or evaluating the programme. They do not necessarily impact the programme's content or the context of delivery.

The adaptations made or planned within WOT follow the concept of scaling up as changes were made within the same delivery system and for the same target population. For example, contextual modifications have been realised by extending the opening hours of the training area by 6 hours a week. This better meets the needs of users, especially the need of shift workers. This led to greater patient satisfaction and also to improved time-management of personalised physical training. Furthermore, training devices have been relocated to get more space for new devices and to handle a bigger group of customers. In the near future, it is planned to expand the training area by renting new spaces as the training capacity of WOT is almost exhausted. In addition, content modifications have been realised as mandatory appointment allocation were established to get a better control over the number of trainees and to reduce the waiting times. It is also planned to add more activities to the WOT offers, especially provided by physiotherapists. Training modifications have also been realised as defined office hours were set for each employee of the WOT team to work on strategic development.

Within the approach of scaling out, two different concepts are in the planning phase: 1. Implementation of an outdoor training concept; 2. Programme for people aged 80 years and older.

1. Implementation of an outdoor training

By addressing the same population but through a different delivery system, the outdoor training concept which includes e.g. Jogging classes, Nordic Walking, etc. should complement the offers of WOT. Such courses increase socialisation and create a sense of belonging which promotes the incentive and loyalty of users. By organising group courses for specific conditions, patients can exchange views and experiences with their problems.

Two payment models can be considered for offering additional outdoor classes:

1. People who want to participate in outdoor classes have to pay an additional membership fee of 10€ a month (scenario 1);
2. People have to buy a separate training card which allows them to participate 10 times in outdoor classes (scenario 2).

Our scenarios are based on the following assumptions:

- A new outdoor trainer must be hired;
- Nordic Walking sticks must be purchased; dumbbells are available from the indoor classes;
- The additional costs for the outdoor classes add up to approximately 40.000€ (personnel and equipment costs included);
- A profit of 20% of the expenses is included in the calculation;
- Every week 2 Jogging classes, 1 Nordic Walking class and 2 Fitness classes are offered by the outdoor trainer;
- The total amount of 48.000€ needs to be covered at least.

Scenario 1: Additional membership fee of 10€

In 2017, the average membership fee per person per month accounts for 34€ for a contract period of 24 months. These monthly costs would rise to 44€ when participating in outdoor classes which accounts for 528€ per person per year. To reach the targeted profit of 20%, at least 91 persons per year need to sign new member contracts which include outdoor training.

Scenario 2: Training card for ten participation sessions

A training card for GK members costs 100€, for non-members 130€. To reach the targeted profit of 20%, at least 31 non-members or 40 members (or a variation of that which covers 48.000€) need to buy a training card every month.

Based on experiences, scenario 1 seems to be more feasible to cover 48.000€. We think that people tend to spread their expenses instead of paying a big amount all at once. Furthermore, people who are interested in the outdoor classes consider to become a member of GK to benefit from discounts.

2. Programme for people aged 80 years and older

By addressing a different population but through the same delivery system, the WOT offers should be adapted to the special needs of older aged people. The intention is to help people aged 80 years and older to get physical active again. Normal fitness studios do not tailor their services to the needs of older aged people who often suffer from different health conditions like cardiovascular diseases, diabetes, etc. WOT can use this market niche. Modifications need to be considered in the delivery of the WOT programme. It is recommended to provide a separate training area for the elderly. As older aged people often are restricted in mobility, driving communities must be organised to take them to the WOT facilities. In addition, training devices need to correspond to the disease and age conditions. Also age friendly training plans including massages, cardio workout, strength and coordination training have to be developed and discussed with a patient's GP.

The already existing cooperation with the physician network makes it easier to reach this customer segment. Currently, nine persons aged 80 years and older are already registered in the WOT programme. In total, there are 3.040 persons aged 80 years and older who are insured in one of the statutory health insurances GK is cooperating with. 76% of those persons do not have any nursing needs, so they would be potential customers. This shows the high potential of scaling out the WOT programme to the new target population of people aged 80 years and older.

Intervention efficiency vs. system efficiency

WOT is not cost-efficient, but the negative result needs to be interpreted in the light of the overall shared-savings contract of GK. While the WOT unit may not be profitable, the increase in levels of health and independence of its users has a direct effect on the health care utilisation and thus on expenditure, i.e. the savings that result from health increase and a reduction in health care utilisation cross-subsidise the unit (Groene & Hildebrandt, 2017). Therefore, it's important to distinguish intervention efficiency and system efficiency and consider long-term effects. A Monte-Carlo Simulation of the effect of physical activity on health outcomes could be utilised to quantify savings due to improved health outcomes.

4.2 Conflicting stakeholder perspectives

Integrated care program may sometimes be viewed as disruptive initiatives

- Stakeholders might have different time horizons; e.g.: some interventions need long term evaluation while payers request for effects on shorter term.
- Alternative business models need to be aligned with the health system.

As an example, the development of the Embrace program in Northern Netherlands is described here.

The aim of this paragraph is to describe the process of development, implementation and scaling up/ scaling down of an integrated elderly care program in the region of Northern Netherlands between the period 2009–2019.

The Embrace program is an integrated elderly care initiative for older adults above the age of 75. The description of the program will be done along four main topics: (1) The Embrace program: aims and rationale, historical development, funding model and population health management (stratification into risk profiles), (2) Outcomes for older adults, professionals, quality of care and costs, (3) Barriers for sustainable implementation and (4) Further development, adaptive implementation and transformation into the Dutch healthcare system.

The Embrace program

The Embrace programs aims to improve the well-being of community dwelling older adults above the age of 75 in the region of Northern Netherlands. This region had approximately 1.7 million with a rising number of them reaching the age above 75 years old. Embrace connects the health system with community services, and reflects the four key elements of the Chronic Care Model (CCM): self-management support, delivery system design, decision support, and clinical information systems. These are combined with a population health management model in terms of the Kaiser Permanente triangle to classify community-living older adults into risk profiles (Robust, Frail and Complex Care Needs). Suitable levels of care and support are applied to each risk profile and differed in number of contacts, main focus, health-related versus social problems, and individual versus group approach.

Funding model:

The development of the intervention and a pilot study took three years and was funded by grants. From the implementation in 2012, there were three different funding models (Soeters and Verhoeks, 2016):

- 2012–2015: Intervention costs were available on an individual basis, from the records of funding, as granted by the Dutch Healthcare Authority (within National Program on Elderly Care) and reimbursed by the long-term care administration office. The evaluation costs were funded by the National Program on Elderly Care. The costs of health and social care were covered by the Health Insurance Act, the Chronic Care Act and the Social Support Act.. 2015–2018: Intervention costs were available on an individual basis, from the records of funding, as granted by the Dutch Healthcare Authority and reimbursed by the long-term care administration office. The evaluation costs were covered by in-kind and external funding. The costs of health and social care were covered by the Health Insurance Act, the Chronic Care Act and the Social Support Act.
- 2016–2017: in the province of Drenthe, the Embrace program was funded and reimbursed by a combination of health care and social acts, and regular organizational budgets.

Research outcomes.

- Older adults feel safe and secure.
- Case managers feel that they can act more proactive and preventive, which improved overall satisfaction with work.
- Long-term outcomes of Embrace are beneficial, particularly for older adults with complex care needs who received individual care.
- It seems that Embrace has halted the declining trends in general health and well-being associated with ageing.
- The costs of health and social care do not change over three years for older adults with complex care needs and those who are frail. For the robust older adults, the health care costs increase (primary care, hospital care and dental care) in the third year (*Uittenbroek et al, 2018*).

Barriers for sustainable implementation.

- The expected costs savings could not be demonstrated in a cost-effective study after year 1 of the intervention.
- Reform of long-term care and reimbursement in the Netherlands during the implementation phase.
- Integrated care programs are complex in implementing and will benefit from stability of the health system in place.
- Evolution of the reimbursement for separate elements of the intervention: e.g. the legislation of the Long Term Care Act (WLZ) does not make it possible to finance innovative preventive activities (*Soeters and Verhoeks, 2016*).
- Costs and benefits impact different funding systems.

Further program development: scaling up/ scaling down.

- The results of Embrace program have led to the development of a “national quality standard for persons-centered and integrated care for older adults”, based on the WHO Integrated person-centered health services framework.
- The Embrace program was scaled down in the province of Groningen after the long-term effects study did not show cost-effectiveness and was reason for the Health Care Insurer not to continue the funding.

In the province of Drenthe, a integrated care program for older adults has been developed based on the Embrace program and adapted to the local context. This program is being funded and reimbursed by a combination of health care and social acts and regular organizational budgets.

Conclusions

Sustainable funding of the integrated care program is technically possible by combining the payments and budgets from different reimbursement sources and organizational budgets. However, the fragmentation and the result that costs and benefits end up with different stakeholders make it a challenge in reality. Scaling up in such a health system, requires a bottom-up approach with commitment and perseverance, and a long breath from all stakeholders.

4.3 Integrated approach

The integrated approach towards evaluation taken by the ACT@Scale project contributed to the scaling up ambitions by:

- Raising awareness of program managers and organizations on a holistic approach including different domains/drivers.
- Providing program managers and policy makers with tools for self-assessment, stakeholder management, risk stratification, business modelling and economic evaluation.
- Expanding local knowledge on how to develop an integrated approach towards scaling up and/or scaling out.
- Experiences, tools, expertise and collaborations developed in the ACT@Scale project can be used to support national implementation and scaling up integrated care and telehealth programs by participation in new programs and initiatives.

In order to tackle challenges in scaling up/out, program managers could benefit from an integrated approach across multiple domains, as it appeared that domains and drivers often interact and/or are related.

As such, realizing sustainable funding for a program is a joint challenge for multiple stakeholders (foremost with payers) and depending of the current health system in place. Sustainability & business models can go ‘hand in hand’ with stakeholder management.

5. Recommendations

5.1 Evaluate and be adaptive

- Program monitoring and economic evaluation over time provides crucial information for program managers, decision makers and payers (insurer or government) and should be integrated in normal deployment.
 - Integrate data collection in the deployment and implementation process.
- We learned that outcomes might be surprising, neutral and negative, leading for example to termination of programs.
- However, it also leads to an opportunity to be adaptive and change the business model.

Example 1

Program Manager Embrace – Northern Netherlands:

- The long term effects of the Embrace program turned out to be positive but not cost-effective. Therefore, the preferred health insurer decided not to continue our contract and the program was terminated in the province of Groningen.
- The results of the study however, including its recommendations, led to a redesign / adaption of the business model of the integrated care program in the province of Drenthe.
- The adapted program was again based on the principles of Embrace (a combination of the Chronic Care Model and the Kaiser Permanente Triangle) however made changes in the screening procedures, the payment model and IT-systems, and coordination and training were decentralized.
- The program is not yet fully operational at all sites but the program manager is confident it leads to a more sustainable integrated care program.

Example 2

Program Manager Asthma/COPD telehealth service – Northern Netherlands

- “Our program was developed over ten years ago and has reached over 20.000 people suffering from asthma and/or COPD”.
- Within our evaluation we focused on relevant clinical outcomes such as health status (GOLD classification) and exacerbations.
- However, we never designed or performed an economic evaluation of this program.
- We miss the necessary information to have a strong business case and to show our economic value to other GP practices, labs and hospitals.
- This element of our business model is hindering us at this moment and it takes a lot of effort, time and money to repair.

5.2 Integrated approach

While the WOT unit may not be profitable, the increase in levels of health and independence of its users has a direct effect on the health care utilization and thus expenditure.

- shared-savings contract
- subsidize the unit

- Be aware that costs and revenues stream of integrated care and telehealth programs might impact different stakeholders and/or funding systems.
- Consider various approaches to reach a larger target audience, either by scaling up or scaling out services. Scaling up means expansion within the same target population and same/very similar settings (provision to a larger population) and scaling out involves expansion to either a new population or a new delivery system or both (broaden the delivery of the intervention).
- Be careful when interpreting financial outcomes, as there might be a difference between intervention efficiency and system efficiency.

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Appendix I: Sustainability survey

Description of the SUSTAIN survey

The Program Sustainability Assessment Tool is a 40 item self-assessment that program staff can take to evaluate the sustainability capacity of a program. Program sustainability capacity is defined as the ability to maintain program infrastructure and organization over time. In the context of ACT@Scale, this survey is a part of the Program manager survey.

The assessment is made up of 40 multiple choice questions across 8 sustainability domains, listed below.

Environmental Support

Having a supportive internal and external climate for the program.

Funding Stability

Establishing a consistent financial base for the program, also for the future.

Partnerships

Cultivating connections between the program and its stakeholders.

Organizational Capacity

Having the internal support and resources needed to effectively manage the program.

Program Evaluation

Assessing the program to inform stakeholders and document/disseminate results.

Program Adaptation

Taking actions that adapt the program to ensure its ongoing effectiveness.

Communications

Communication with stakeholders, patients and the public about the progress of the program and achieved results.

Strategic Planning

Using processes that guide the program's directions, goals, and strategies.

Evaluation of the survey / Rating

Each question is measured by using a 7 level Likert-scale (ranging from “1- To little extend” to “7-To a very great extent”). For each statement the user indicates the score that best represents the current state the program is in. If the user truly feels he is not able to answer an item, he may select “NA”. An example of the questions for the Environmental support domain is shown below.

Environmental Support: Having a supportive internal and external climate for your program

	To little or no extent					To a very great extent		Not able to answer
1. Champions exist who strongly support the program.	1	2	3	4	5	6	7	NA
2. The program has strong champions with the ability to garner resources.	1	2	3	4	5	6	7	NA
3. The program has leadership support from within the larger organization.	1	2	3	4	5	6	7	NA
4. The program has leadership support from outside of the organization.	1	2	3	4	5	6	7	NA
5. The program has strong public support.	1	2	3	4	5	6	7	NA

For the rating of domain, **Domain Total** is computed as the sum of the domain’s answers (excluding the NA answers). The **Average Score** for each domain is computed as the quotient of the Domain Total and the number of the answers with a score. The **Overall Score** is considered as the average number of all the domain scores.

		DOMAIN							
		Environmtl. Support	Funding Stability	Partnerships	Organizational Capacity	Program Evaluation	Program Adaptation	Communications	Strategic Planning
ITEM	1.								
	2.								
	3.								
	4.								
	5.								
Add up your scores in each column. Exclude 'NA'		Domain Total:							
Divide the domain total by the total number of items with a score. Exclude 'NA'		Average Score for Domain:							
Average together all the domain scores		Overall Score:							

Table 1. Overview of the SUSTAIN scores per program.

program	region	AVG SQ1	AVG SQ2	Delta
BAS CHF telemonitoring	Basque Country	4,26	3,73	-0,54

BAS Multimorbid integration	Basque Country	4,35	3,91	-0,44
CAT Chronic care	Catalonia	5,45	5,13	-0,33
CAT Complex case management	Catalonia	6,20	6,58	0,38
CAT Frail older adults	Catalonia	2,85	5,58	2,73
CAT Nursing homes	Catalonia	5,28	4,73	-0,55
CAT Physical activity	Catalonia	5,35	5,98	0,63
GK World of training	Germany	2,75	2,93	0,18
GK Promotion of physical activity	Germany	3,30	4,00	0,70
SCO My diabetes my way	Scotland	6,15	5,95	-0,20
SCO My diabetes footcare	Scotland		5,90	
NIRE COPD telemonitoring	Northern Ireland	3,73		
NIRE Diabetes telemonitoring	Northern Ireland	4,38		
NNL Effective cardio	Northern Netherlands	4,87	4,40	-0,47
NNL Embrace	Northern Netherlands	6,13		
NNL Asthma / COPD telehealth	Northern Netherlands	5,88	5,93	0,05
RSD VC for relatives	South Denmark	5,89	5,10	-0,79
Overall score		4,80	4,99	0,19

Appendix II: Lessons Learned – alternative business models

Gesundes Kinzigtal – World of Training

“Gesundes Kinzigtal” (GK) is the flagship model of an Integrated Healthcare System and the only fully population-based system in Germany, thus, focusing on the whole population living in that area. Since 2006, GK provides care services under a shared-care contract with two statutory health insurers (LKK and AOK Baden-Württemberg). The healthcare services are provided to all the policy holders of the two statutory insurance companies (n~33.000) residing in the Kinzigtal region (Southwest Germany) and who are enrolled, on a voluntary basis, in GK. Currently, one third of the AOK/LKK insured are enrolled in the GK model (n ~ 10,500 in 2016).

GK is based on the Triple-Aim approach: simultaneously pursuing to improve the health status, improving the inter-sectoral healthcare experience and reducing total costs of care. It offers a complete network of health actors such as physicians, therapists, hospitals, nursing homes, pharmacies, health & sport clubs and associations that work together in close collaboration to improve the health outcomes for the people voluntarily enrolled in the initiative. Through the provision of structured health and prevention programmes, it can significantly improve the health status of the citizens in the Kinzigtal region while counteracting inefficiencies arising from uncoordinated treatment and care pathways. GK focuses on preventive care management and in particular, on life style changes and disease prevention.

One of the health and prevention programmes is “**World of training**” (WOT) which belongs to the business unit “gesund+aktiv” of GK. With the programme, GK foster physical activity to promote, maintain, and restore health. WOT is equipped with fully automatic devices, like cross trainers, treadmills, and leg presses, and owns further devices to train strength, endurance, and stretchability. The training is supervised by trainers who operate as personal coaches over time. The training is carried out at agreed training times. Moreover, within gesund+aktiv, GK currently offers about 35 preventive and health promotion programmes for all ages in the region. Those programmes are categorised into five modules: Knowledge, activity, nutrition, relaxation, and further education. The module knowledge includes lecture series about health topics such as lectures on stroke, mental stability, and paediatric disease. Within the module activity, exercises like aqua fitness, back and neck training, and fitness for overweight persons are offered. The module nutrition focuses on information on healthy eating and offers cooking classes. The module

relaxation includes courses like Pilates, Yoga and Qi Gong. Within the module further education, different seminars are offered e.g. workplace health management, first aid course, and self-management.

World Of training was studied at part of the Act@Scale Project using the PDSA methodology. Based on the assessment, we report an assessment of a business plan for scaling up the programme.

We used the business canvas methodology to describe our approach to business planning: “Business Model Canvas is a strategic management and lean startup template for developing new or documenting existing business models. It is a visual chart with elements describing a firm's or product's value proposition, infrastructure, customers, and finances. It assists firms in aligning their activities by illustrating potential trade-offs.” (Wikipedia). An overview of our working Business Model Canvas is presented below:

Business Model Canvas: World of Training (Gesundes Kinzigtal)

Objective: <ul style="list-style-type: none"> ➢ Promote, maintain, and restore health ➢ Disease prevention ➢ Reduction of healthcare costs 		Problem: <ul style="list-style-type: none"> ➢ Burden of disease ➢ Disease progression ➢ Physical inactivity ➢ Increase in healthcare costs 		
Key Partners: <ul style="list-style-type: none"> ➢ Clinicians ➢ Physiotherapists 	Key Activities: <ul style="list-style-type: none"> ➢ Tailored and goal-directed training ➢ Targeted exercise therapy ➢ Rehabilitation (Orthopaedics + Diabetes) ➢ Sports therapeutic consultation and diagnostics ➢ Documentation of training progresses ➢ Workplace health promotion 	Value Proposition: <ul style="list-style-type: none"> ➢ Personalized training plan + goal setting ➢ Promote, maintain and restore health ➢ Better health outcomes ➢ Healthier employees ➢ Patient satisfaction 	Channels: <ul style="list-style-type: none"> ➢ Membership GK ➢ Referrals physician network ➢ Network „Gesunde Betriebe“ ➢ Website GK ➢ (Participating) healthcare providers + Praxis TV ➢ Social media ➢ Publications/leaflets/brochures 	Customers: <ul style="list-style-type: none"> ➢ Healthy as well as sick people ➢ all ages (Children, adolescents, adults, elderly) ➢ Members of GK + non-members of GK ➢ Network „Gesunde Betriebe“
	Key Resources: <ul style="list-style-type: none"> ➢ Staff (4,5 FTE, ab 01.10. 1x450€ + Studentin (nach Bedarf) ➢ Training area ➢ Diagnostic + fully automatic devices + individual chip cards + further equipment 		Customer Relationships: <ul style="list-style-type: none"> ➢ Through personalized training plan + goal setting 	
Cost Structure: <ul style="list-style-type: none"> ➢ Salaries ➢ Devices ➢ Training area ➢ Software ➢ Material 		Revenue Structure: <ul style="list-style-type: none"> ➢ 381 Teilnehmer (2016), 496 Teilnehmer (2017) ➢ Staggered contributions; mean: 48.50€ per program * 12 months = 582€ per year ➢ Revenue 2016: 221,742€; 2017: 288,672€ ➢ Contributions from employees of network “Gesunde Betriebe” ➢ Shared savings 		

In the following, we describe the components of the model before reflecting on the wider business transformation to facilitate its sustainability and scaling up.

Value Proposition

Health-related topics have been gaining in importance for several years. This is, among others, due to the increase in people's health awareness, health promotion efforts, and due to the continuous ageing of the population. There are nearly 24 million people in Germany aged 60 years and older, which corresponds to 30% of the whole population. This number is projected to rise continuously in the next years [Statistisches Bundesamt, 2015]. Ageing remains closely associated with deterioration in health, posing challenges for the German healthcare system. While people can, generally, look forward to longer years of good health, 64% of people in Germany aged 65 or above report living with one or more long-term chronic conditions [European Core Health Indicators, 2016]. The treatment of chronic conditions causes a significant share of the increasing medical expenses of an ageing population [Böhm et al., 2009].

The effectiveness of physical activity in the treatment of chronic conditions such as psychiatric diseases, metabolic diseases, cardiovascular diseases, pulmonary diseases, musculoskeletal disorders, or cancers is well established [Pedersen & Saltin, 2015]. Physical activity can thus result in a reduction of healthcare costs due to better health outcomes and fewer hospitalisation. The lack of sufficient daily physical activity is a primary cause of most chronic diseases. Physical inactivity affects almost every cell, organ, and system in the body, reduces functional capacity and thus, is detrimental to health. Continuous inactivity results in substantial decreases in quality and total years of life.

There is evidence showing that physical exercise can be considered as primary prevention against 35 chronic conditions, including type 2 diabetes, coronary heart disease, hypertension, cognitive dysfunction, depression, and anxiety among others [Booth et al., 2012]. With WOT and the additional preventive and health promotion courses, GK foster physical activity to not only address the disease, but also the cause of the disease. WOT differs from traditional fitness studios and sport clubs in that it focuses on prevention and rehabilitation. As part of GK, WOT is integrated into the already established network of providers. One of the networks is the "healthy companies" network which was co-founded and established by GK within three years. By now, the "healthy companies" network counts 18 members. Together with the network "healthy companies" but also non-member companies, special courses, seminars and workshops geared to working life are offered.

Experienced trainers and patients jointly develop personalised treatment plans and goal-setting agreements. Thus, WOT offers tailor-made plans and targeted exercise therapy composed of different strength, endurance, and stretching exercises. Dependent on the health impairment and the patient's prioritised health goals, the duration and volume of these elements vary. With the device "InBody" a professional body analysis allows many valuable conclusions about the health and fitness condition of a person and allows the derivation of appropriate measures. This health and fitness check is performed at the programme start and is repeated every three months. Thus, training progresses are well documented. All agreed health-related goals are checked and adapted (if necessary) on a regularly basis by the trainers. The training area is equipped with fully automatic devices. These allow a targeted training due to the regulation of individual smart cards where the individual fitness level is documented.

Market and Target Segment

WOT addresses all citizens of the entire Kinzigtal region with an interest in personalised physical training as well as preventive and health promotion courses. Citizens do not need to be enrolled in the GK programme to make use of WOT. However, an existing membership of GK makes it easier to offer patients targeted training courses. WOT also targets employees of companies belonging to the "Gesunde Betriebe" network, a network of companies which engages in workplace health promotion.

A market analysis revealed all providers who offer therapeutic training as well as preventive and health promoting training programmes within the catchment area of WOT. Currently, there are six different associations which offer rehabilitation sports comparable to the offers of WOT. However, these associations do neither provide a good selection of training devices nor do they own their own training area. This is why some of these associations work in partnership with WOT. Three physiotherapy practices offer disease-related exercises using training devices and multiple kinds of gymnastics. There are two ambulant rehabilitation facilities offering different kinds of rehabilitation therapies. Furthermore, there are two gyms offering therapeutic training apart from classic muscle training. Other classic gyms can only be reached with a longer travel duration.

The main difference between the mentioned providers and WOT is that WOT is embedded in an existing network of established health services of the Kinzigtal region. WOT continuously gain new members through the recommendations of physicians, cooperating sport associations and companies of the "Gesunde Betriebe" network. Therefore, WOT has reached a high utilisation rate in a short period of time.

Anonymised medical data from cooperating health insurances were used to analyse the needs for and the potential of WOT in the Kinzigtal region. These medical data were supplemented with the data from physicians' practices and physicians' experiences. Disease-related needs in physical activity were identified with the help of physicians specialised in orthopaedic and sports medicine as well as general practitioners. The analysis identified relevant disease fields which were considered in the development of the WOT programme. Therefore, a certain target group was marked out and the potential number of users was estimated.

Customer Relationship

WOT focuses on the whole person and his or her health status instead of only focusing on individual symptoms and their treatments. Therefore, members of WOT gain from holistic personalised training and goal settings within the programme.

All communication and media channels are used to reach potential members of WOT and to keep members informed about current and upcoming programmes and courses as well as GK news. This includes e.g. Facebook, YouTube, Twitter, a quarterly circulated newsletter and TV screens in waiting rooms of practices. Physicians who are part of the physician network can prescribe physical activity for at risk- and chronically ill patients and send their patients to WOT and cooperating sport associations. Employees of companies which are part of the "healthy companies" network receive workplace health promotion offers, including courses, seminars and workshops focusing on their specific work conditions. Furthermore, GK members benefit from different kinds of discounts including reduced fees for supervised training as well as preventive and health promotion courses. Such benefits result in increased customer loyalty [Wieseke et al., 2014].

Customer satisfaction is evaluated through surveys asking whether the WOT member likes or dislikes the experts' advice and supervision, goal settings and training plans, the devices provided as well as the overall WOT training offers. Also, members are asked about their perceived training progress. Even though 97% of the members are satisfied with the WOT offers, the survey outcomes revealed potentials of modification. For example, based on the survey, the training hours were adapted to the needs of shift workers, who now can use the WOT training area during day time. Therefore, surveys should be used on a regularly basis to detect room for improvement and therefore to achieve a greater customer loyalty and ultimately to increase health. In addition to that WOT trainer are also included into the

evaluation of a members training programme by reporting the progression of patients to his or her physician.

Financing

The following table shows the summarised cost and revenue structure of the preventive and health promotion courses in 2017.

World of Training	2017
Revenues	145.575,34 €
Bought-in services and materials	- 8.403,65 €
Personnel costs	- 216.059,10 €
Occupancy costs	- 98.816,28 €
Insurance contributions	- 545,62 €
Advertising costs	- 3.267,53 €
Repair and maintenance service	- 157,50 €
Other costs	- 9.605,81 €
Earnings before tax	-191.280,15 €
Earnings after tax	-225.734,15 €

Revenues: The major revenue source of the WOT programme are the member fees for using the training area. These revenues are complemented by selling merchandising and drinks. However, the latter covers less than 1% of the total revenues.

Important note: WOT is a business unit of “gesund und aktiv”, which is a business unit of GK. The revenues amount in 2017 to 145,575€, the earnings before tax amount to -191,280. This negative result needs to be interpreted in the light of the overall shared-savings contract of GK. While the WOT unit may not be profitable, the increase in levels of health and independence of its users has a direct effect on the health care utilization and thus expenditure, i.e. the savings that result from health increase and a reduction in health care utilization cross-subsidize the unit. The calculation of the contribution of the shared savings effect is in preparation.

WOT offers are open to all citizens of the Kinzigtal region, but members of GK benefit from reduced training fees. While GK members pay 34€ to 53€ per month, depending on the contract period, non-members pay 44€ to 64€ respectively. There are no extra costs for the supervision by the trainers. GK members also benefit from discounts for the preventive and health promotion programmes. The expenses for attending lecture series, activities or

relaxation courses, nutrition lectures and cooking classes vary between 5€ to 220€. Some lecture series can be offered free of charge for all participants. In 2017, about 25% of the total revenue were achieved by the preventive and health promotion courses.

Costs: Personnel costs are the largest part of the total expenses for running the programme. In 2017, there were four persons working full-time for WOT. Occupancy costs include the cleaning expenses and rents for additional premises. All other costs amount to around 7% of the total costs.

Although not all costs are covered by revenues, it must be highlighted that some costs may be off-set by savings associated with lower rates of hospitalisation and higher quality of life. Besides the revenues directly linked to WOT, GK finances the WOT also through returns from the shared-savings contract. The agreement was negotiated between the two above mentioned insurance companies AOK Baden-Wuerttemberg and LKK, the local physician network (Ärztenez MQNK) and the management company OptiMedis AG.

The shared-savings contract is based on healthcare savings that are mainly derived from improving the intersectoral quality of the services and self-care management among the population. Since now, health outcomes resulting from physical activity in WOT are not being directly monitored.

However, there is scientific evidence, that physical activity is beneficial to health. Herring et al. found a positive effect of exercise training on the anxiety symptoms in patients with a chronic illness [Herring et al., 2010]. A 2006 Cochrane Review investigated physical activity in patients with type 2 diabetes and found significant improvements in glycaemic control in the form of a reduction in HbA1c, increased insulin response, and decreased plasma triglycerides [Thomas et al., 2006]. A Cochrane Review from 2014 indicated that admissions to hospital were significantly reduced in patients with heart failure after exercise training whereas health-related quality of life improved. After one year of follow-up, there was a trend towards a reduction in mortality in people undertaking exercise [Taylor et al., 2014; ExTraMATCH Collaborative, 2004]. A positive impact of physical exercise for patients with COPD is also well documented. Thus, patients benefit from better quality of life, better functional and maximal exercise capacity [McCarthy et al., 2015], fewer days spent in hospitals as well as fewer primary-care home visits [Griffiths et al., 2000]. Furthermore, there is a great potential for reducing healthcare costs associated with treating chronic diseases by increasing physical activity [Rehn et al., 2013]. Brun et al. found a reduction in healthcare costs due to less treatments and fewer hospitalisations through targeted, moderate training in patients with type 2 diabetes. The total cost of healthcare over the study year dropped by 50 % in the trained group [Brun et al., 2008].

A Monte-Carlo Simulation of the effect of physical activity on health outcomes could be utilised to quantify savings due to improved health outcomes.

Scaling-up/ scaling-out

In order to promote the greatest public health impact, beneficial health programmes should be expanded as broadly as feasible. Such an expansion can be realised by two types of concepts for implementation: Scaling-up and scaling-out.

Scaling-up describes the expansion of an intervention or programme to other health delivery units within the same or very similar settings under which the intervention or programme has already been tested. The intention is to provide the achieved benefits to a larger target population. In contrast, scaling-out describes the expansion of an intervention or programme to either a new population or a new delivery system or both. The aim is to make use of strategies for implementing, testing, improving and sustaining the intervention or programme in new circumstances different from, but closely related to, the previous implementation settings (Aarons et al., 2017).

For expanding the use of interventions or programmes, modifications and adaptations must be considered. To facilitate implementation and sustainability, the design or delivery of an intervention or programme needs to be changed in order to improve the fit between the intervention or programme and the target population or the context into which it is introduced (Stirman et al., 2013). Stirman et al. identify three types of classification of modification:

- *Contextual modifications*, where format, setting, delivery channels and intervention recipients are changed, and the programme content is not.
- *Content modifications*, where changes are made to the programme content itself, i.e. programme procedures, materials and delivery.
- *Training and evaluation modifications*, which are changes made to the procedures for training personnel or evaluating the programme. They do not necessarily impact the programmes' content or the context of delivery.

In case of WOT, several modifications have been made or planned to be made. Most of them follow the concept of scaling-up, since changes are made within the same delivery system and for the same target population.

For example, contextual modifications have been realised by extending the opening hours of the training area to the needs of users. Now it is opened 6 hours longer per week than

bevor. This resulted in greater patient satisfaction and also improved time-management of personalised physical training. Furthermore, training devices have been relocated to get more space for new devices and to handle a bigger group of customers.

The capacity of the WOT training area is limited to 15 persons per hour. WOT is open 53 hours a week. Therefore, the natural limit of capacity of the training area is 795 persons a week, considering that one person uses the WOT more than once a week.

More contextual modifications are planned to implement by expanding the training area. In addition, content modifications are planned by adding more activities to the WOT offers (e.g. provided by physiotherapists). Training modifications have also been realised by implementing changes to the procedures for training personnel. Defined office hours were set for each employee of the WOT team to work on strategic development.

Scaling up through a different delivery system

By addressing the same population but through a different delivery system, the offers of WOT should also be scaled out. It is planned to implement an outdoor training concept which includes e.g. Jogging classes, Nordic Walking, etc. Such courses increase socialisation and create a sense of belonging which promotes the incentive and loyalty of users. By organising group courses for specific conditions, patients can exchange views and experiences with their problems.

Two payment models can be considered for offering additional outdoor classes:

3. People who want to participate in outdoor classes have to pay an additional membership fee of 10€ a month (scenario 1);
4. People have to buy a separate training card which allows them to participate 10 times in outdoor classes (scenario 2).

Our scenarios are based on the following assumptions:

- A new outdoor trainer must be hired;
- Nordic Walking sticks must be purchased; dumbbells are available from the indoor classes;
- The additional costs for the outdoor classes account for approximately 40.000€ (personnel and equipment costs included);

- Every week 2 Jogging classes, 1 Nordic Walking class and 2 Fitness classes are offered by the outdoor trainer;
- The additional costs of 40.000€ need to be covered at least.

Scenario 1: Additional membership fee of 10€

The first scenario is based on the assumption that persons who want to participate in outdoor classes need to pay 10€ on top of their current membership fees. In 2017, the average membership fee per person per month accounts for 34€ for a contract period of 24 months. These monthly costs would rise to 44€ when participating in outdoor classes which accounts for 527€ per person per year. To cover the costs of 40.000€, at least 76 persons per year need to sign new member contracts which include outdoor training and therefor the additional 10€ fees.

Scenario 1: Additional membership fee of 10€	
Additional costs for outdoor classes (including targeted profit of 20 %)	-48.000 €
Current average membership fee per person per month	34 €
Average membership fee with outdoor classes included	44 €
Number of persons who need to opt for additional 10€ fees	91 persons
Revenues from 76 persons participating in outdoor classes	48.048 €

Scenario 2: Training card for ten participation sessions

The second scenario is based on the assumption that persons who want to use the outdoor offers can buy training cards which allow them to participate in ten outdoor classes. A training card for GK members costs 100€, for non-members 130€. To cover the additional costs of 40.000€, at least 26 non-members or 34 members (or a variation of that which covers 40.000€) need to buy a training card every month.

Scenario 2: Training card for 10 participation sessions	
Additional costs for outdoor classes (including targeted profit of 20 %)	-48.000 €
Costs for a training card for GK members	100 €
Costs for a training card for GK non-members	130 €
Number of GK members who need to buy a training card per month	40 members/month
Number of GK non-members who need to buy a training card per month	31 non-members/month
Revenues from training cards bought by GK members	48.000 €
Revenues from training cards bought by GK non-members	48.360 €

The advantage of scenario 1 is that people can participate in outdoor classes whenever they want to. Outdoor classes are offered the whole year. Furthermore, people who are interested in the outdoor classes, consider to become a member of GK to benefit from discounts.

The advantage of scenario 2 is that people who buy a training card will feel more committed to participate in outdoor classes to fulfil the training sessions, especially when expiration dates for the training cards exist.

Based on experiences, scenario 1 seems to be more realistic as people tend to spread their expenses instead of paying a big amount all at once.

Scaling out by addressing a new target population

To scale out and further expand the WOT programme a new target population should be addressed. The intention is to help **people aged 80 years or older** to get physical active again.

Normal fitness studios do not aim the needs of older aged people with their offers. Especially not if this target group come with different health conditions like cardiovascular diseases, diabetes or joint and bone diseases, which are the most common diseases occurred in this age group. To realize such offer some modifications have to be made within the WOT programme.

First of all it is important to meet the demands of the new target population. In this case, WOT has to provide either a new location or a separate training zone within the WOT training area for elderly. The latter will not be possible to realize by now as the capacity of the training area is already limited. It also has to be considered that older people often suffer from restricted mobility what makes it almost impossible for them to reach any location which is not based in their neighbourhood. Therefore, driving communities should be organised in order to bring and pick up the older population group of the WOT catchment area. In addition to location modifications, special training devices need to be provided due to disease and age conditions. Also age friendly training plans including massages, cardio workout, strength and coordination training have to be developed. Training plans should be set up individually and always discussed with a persons physician.

The already existing cooperation between WOT and the physician network in the Kinzigtal region makes it easier to coordinate the arrangements with the physician. Currently 9 persons aged 80 years or older are already registered in the WOT programme. In total, there are 3040 persons aged 80 years or older who are insured in the statutory health insurance GK is cooperating with. 76 % of those persons are eligible for joining the WOT programme for 80 plus aged as they do not show to have any nursing needs. **This shows the high potential of scaling out the WOT programme to the new target population of people aged 80 years or older.**

What further makes this idea a considerable concept is the cost reimbursement of the German care insurances for the physical training services. Reimbursements can be used in the context of an ambulatory supervised flat-sharing for persons who are classified to the nursing level 1. In Germany it includes persons who show to have a minor impairment of caring for themselves or of their abilities. There are 25 supervised flat-sharing entablements in the catchment area of WOT. A concept for such reimbursement should be developed based on § 28a, SGB XI, (section 1, sentence 3).

Increasing Sustainability by the use of Medical- and Health-Apps

To meet the digital age, complementing an intervention or programme by using medical- and health-apps should be considered. medical- and health-apps show a high potential in supporting and improving healthcare systems due to their effectiveness and economic benefits. The number of apps has increased rapidly within the last years and different health delivery services already include them in their care programmes. There is a rising number of studies showing positive effects on a persons physical activity behaviour when combining physical exercise with medical- and health-apps.

Many health apps allow users to track and analyse their time, pace and covered distance when running, cycling, swimming or hiking. To supplement the WOT programme such apps can be used to sustain an already existing training programme by motivating the user with the help of app features and therefore increase the programme adherence. Medical apps could be used to combine a patient's therapy with physical exercise and therefore improve the disease progression.

How Health-Apps supplement the WOT programme

A lot of health app providers include goal setting features and online challenges to their apps for motivating the users. In case of the planned WOT outdoor training such apps could be used for documenting a person's individual fitness goal or a group goal of an association of people. The latter could rise people's regular attendance because of the feeling of being a part of the group. Challenges can be organised in a way that different groups (e.g. defined by diseases) compete against each other while gathering collectively for example their driven or walked kilometres. At the end of a predefined period, the most industrious group gets a reward.

Health apps can be implemented without high expenditure into the WOT programme process. There is no need for special expertise to use a health app. Neither for the trainer nor for the person who wants to supplement physical activity with an app. However, the large and non-transparent number of health apps makes it difficult to choose the most useful one. Therefore, it is important to analyse and compare potential effective and secure apps before integrating them into the WOT programme. To get a better overview of the range of functions and other important criteria for choosing and implementing a health app to the WOT programme the following table was set up. The table lists four different health app providers which show to fit in the same category but differ in some criteria.

	Runtastic	Strava	Human	Radbonus
Range of sport disciplines	Ranges 63 sport disciplines including running and cycling	Ranges 25 sport disciplines including running and cycling	Walking and cycling	Cycling
Company location	Austria	USA	USA	Germany
Tracking function	Time, pace, distance, pulse, calories	Time, pace, distance, pulse	Time, pace, distance, calories	distance
Performance analysis and evaluation function	Run statistics, fluid requirement	Run statistics, competition performance analysis, pace analysis, pulse frequency analysis, fitness and freshness analysis	Limited walking and cycling statistics	No analysis function included
Motivating features	Set up networks and share data, set up and participate in challenges, goal setting, music player, compare data with others of the same network	Set up networks and share data, set up and participate in challenges, goal setting, saving route data, music player, compare data with others worldwide	Set up networks and share data, set up and participate in challenges, compare data with others world wide	Receiving bonuses for covered km, participate in challenges
Training plans	3 x training plans categorised in beginner, summer body, lose weight and running	10 x four-weeks-plan for cycling 4 x training plans for different race distance	No specific training plans included	No training plans included
Costs and reimbursement	49,99€/ year No reimbursement models	59,99€/ year No reimbursement models	Free of charge	Free of charge
Privacy	DSGVO conform	DSGVO conform	Human privacy policy: http://human.co/privacy/#	DSGVO conform

In case of WOT all four app providers seem to fit into the programme.

“Runtastic“ and “Strava“ do not differ a lot in case of their purpose. Both apps intent to help users to track and manage their sport performance data and to motivate users for regularly being physical active and to built up networks of linked-minded people. Even though “Runtastic“ ranges more sport disciplines both apps cover the most common disciplines practiced. What makes “Strava“ more attractive is the inclusion of different types of performance analysis and evaluation functions. This kind of information linked to the automatic collected data the fitness devices of WOT is providing could help to modify and improve the training plan of a WOT participant. However, to much data as well as a too many app functions can be confusing. This is why the person who uses the app and his or her personal trainer should only concentrate on the data and functions which are relevant to the set goals. What makes both “Runtastic“ and “Strava“ considerable for usage is the number of motivating features provided. The options of challenging others, set up networks and share performance data release a kind of commitment to further use the app and to not cut off the sport performance progression. However, this kind of apps do not necessarily have to be integrated into an already existing programme for physical activity. They seem to have a high potential for running themselves. Nevertheless the combination of the WOT programme and the implementation of one of those apps could sustain the usage and the intensity of usage of both. Also both apps have the same price level. When considering to implement one of those apps WOT has to set up contracts with the app providers in case of buying user licences and negotiate discounts. These licences can than be offed for free or resell at a discount for WOT members.

Although the health app “human“ follow the same purpose as “Runtastic“ and “Strava“ its offering is provided on a smaller scale. “Human“ only includes walking and running into its range of sport disciplines and does not provide a detailed performance analysis in comparison to the first two apps. However, it also includes similar motivating features. To avoid the management of the large amount of data and probably confusing app settings “human“ shows to be a good option for supplementing the WOT programme in the context of walking and running exercises. In addition, it is free of charge.

WOT already promotes the online reward application called “Radbonus“ where cyclists can record their driven distance, gather the driven kilometres and transform it into a bonus. This bonus can then be redeemed in form of price reductions at various providers throughout Germany such as sportwear producers or providers for sport nutrition. The bonus can also be redeemed at special providers in the Kinzigtal region. With this cooperation, GK wants to incentivise its members to more activity and inspire them for

cycling. A further step could be that Radbonus users also receive a discount on their membership fees for WOT or rewards on special GK offers. By offering members for example one month of free training, new members could be attracted and tied to WOT and whole GK. In this way, people get encouraged to ride their bicycles, feel incentivised to win a price/bonus and get socialised. The app itself is free of charge. Although WOT has to negotiate contracts to adapt the programme specific features and characteristics to a “Radbonus” app exclusively provided for WOT members. This will cause some costs.

Benefits and limits of Medical Apps

In contrast to health apps, medical apps which include therapy-supporting features bring a much higher expenditure when integrating them into the WOT programme.

The purpose of such apps are to support physicians and medical staff as well as patients with the diagnose, therapy or monitoring the progression of disease. In many cases medical apps are integrated in the treatment of chronic sick people. E.g. diabetes apps can support the therapy by analysing documented blood glucose level measures and calculate the needed amount of insulin. Other medical apps, such as therapy apps for depression, show a high potential in the context of supporting a patients healthcare process. Benefits include the missing waiting time for starting a therapy, flexibility, anonymity and the data (e.g. daily mood, diet or daily activity) collected over the therapy time. From this data therapy progresses can be analysed. In case of WOT the implementation of medical apps could bring benefits to the organisation as it is proven, that physical activity improves the progression of chronic diseases. E.g. health data collected with the help of medical apps could help to modify an individual training programme of an person with cardiovascular conditions and adapt it to his or her needs. Furthermore weekly training sessions could be integrated into an exercise diary within the app and squared to the persons medical condition. What limits the use of medical apps is the safety factor which can not be neglected. The use of medical apps should always be coordinated with the patients physician and the physicians treatment recommendation. Therefore WOT has to develop an implementation process for the use of medical apps which realizes an integrated care model for physicians and WOT trainers in order to exchange information about the patient and the patients disease progression. This is what increases the expenditures considerably.

To promote the use of fitness apps communication channels such as website, newsletter and social media platforms should be used.