

## 1<sup>st</sup> Open Call - SME Project Proposal template

<b>Proposal Title</b>	Coaching smart application to empower people with chronic pulmonary diseases
<b>Proposal Acronym</b>	LungApp

### Leading Individual<sup>1</sup>

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### SME Information<sup>2</sup>

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<b>Website</b>	www.optimov.com	
<b>Are you a SME according to the Commission Recommendation 2003/361/EC? (YES/NO)</b>	YES	
<b>Headcount in Annual Work Unit (AWU) (last closed financial year or "N/A" if a start-up)</b>	8	
<b>Annual Balance Sheet in EUR (last closed financial year or "N/A" if a start-up))</b>	4500	
<b>Annual Turnover in EUR (last closed financial year or "N/A" if a start-up))</b>	57500	

<sup>1</sup> All fields in the cover page are mandatory

<sup>2</sup> If the proposal is selected, the information below will be validated during the negotiation phase.

Any linked or partner enterprises to your SME? (YES/NO)	YES
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## Summary

To guarantee individuals with chronic lung diseases a high quality service from health care organizations in the coming decades and economically save the national health systems for an expensive bill from treating them, new actions plans has to be taken into use in order to treat more patients with less human resources while still sustaining or even improving today’s services.

Optimov ApS offers remote physiotherapy through our software as a service to the mass market. We use video consultations, an internal messaging system, customizable training programs in 3D and subjective feedback questions as tools to remotely diagnose and treat the patients.

Our goal applying to Fi-Adopt is to obtain a scientific proof of our treatment method using the free available resources from Fi-ware to finish, test and market our LungApp mobile application. We aim to treat chronic lung patients from a distance with tele rehabilitation and perform clinical research with two different diagnosis as Chronic Obstructive Pulmonary and Idiopathic Pulmonary Fibrosis enrolling 183 patients in three different trials during a period of 15 months.

## Domain(s)<sup>3</sup>

### Addressed Domain

- Corporate and citizen’s learning/training
- Healthy behaviour and wellbeing shaping
- Social cultural integration
- Other (please specify):.....:

Relevance Order
<b>X</b>

**Total Requested Funding<sup>4</sup>: 149,799 .€**

<sup>3</sup> Select the thematic domains addressed by the project. In case it applies to more than one, provide them in numerical order

<sup>4</sup> Winning proposals may be funded with grants typically ranging from € 50,000 to €150,000

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## 1 Technical Excellence

### BACKGROUND:

To guarantee chronic patients and elderly a high quality of service from health care organizations in the coming decades, new technologies have been implemented to treat patients from a distance. However, evidence is still sparse and the right application and patient groups need to be proven scientifically.

Studies of tele-rehabilitation (TR) in chronic diseases such as lymphedema, Chronic Obstructive Pulmonary Disease (COPD) or in patients with orthopedic diseases of the lower back, knee and shoulder show that technology has been developed to a level where it is possible to treat, test and follow-up patients from a distance. TR might be an advantage in many aspects such as i.e. no travel or waiting times at hospital and less risk for hospital-acquired infections. Due to the increasing number of elderly and people with chronic diseases, the society is expecting higher expenses due to treatment and also transportation cost, especially in these groups. There is, therefore a need for creating and improving solutions that can overcome such healthcare challenges.

TR is a new approach to reach patients in low inhabited areas, going from health care to self-care, empowering patient's awareness of their disease and increasing the flexibility patients need in order to acquire healthier behaviors. Although the interest in TR research is high, there is still a need for high quality studies on the efficacy and cost-effectiveness of TR just as also the long-term effects of TR have to be determined.

Idiopathic Pulmonary Fibrosis (IPF) is a progressive fibrotic lung disease of unknown cause with a median survival of 3-5 years. As the disease progresses, worsening of lung function and gas exchange impairment cause hypoxemia during physical activity leading to a downward spiral; dyspnea and fatigue lead to a reduction in daily physical activities, exercise tolerance, muscle strength and quality of life. Problems reported by IPF patients are social isolation, increased level of dependency and immobility.

No curative treatment exists. Pulmonary rehabilitation (PR) is recommended by expert opinion for the majority of IPF patients to improve quality of life and exercise tolerance. These programs are mostly offered in specialized clinics with an average duration of eight weeks. Not all patients with IPF are fit for these programs or want to participate in an extensive external program due to among other reasons distance to the clinic. Tele-rehabilitation may offer these patients an alternative.

COPD is among the most resource costly diseases. In Denmark, approx. 430,000 people have COPD of which around 50,000 have severe COPD (stage 3 or 4, according to GOLD criteria). It is stated that up to 40% of patients with COPD discharged from hospitals are readmitted the following year. 17% of patients treated in emergency departments require hospitalization. Danish pulmonary physicians concluded that COPD cost the Danish society three billion DKK in 2002 and up to 20% of the most severely ill COPD patients consume over 70% of total health expenditure in COPD. Nowadays some municipalities has already difficulties with offering rehabilitation services to many such individuals in parts of Denmark. Actions implementing TR for COPD patients have been started and research has begun to show some improvements.

The objective of treatment for patients with COPD and IPF is to delay the progression of the disease, prevent acute exacerbations, improve quality of life, and reduce symptoms and mortality. Rehabilitation includes among others factors physical training and patient education. In addition, studies in COPD show that PR can prevent exacerbations. Wide ranges of interventions are commonly used by physiotherapist to treat COPD and IPF. Studies have shown significant effects on general condition, long-term survival, sputum clearance, health-related quality of life, physical activity, days of hospitalization, dyspnoea and morbidity. Although the advantages of PR are many, its implementation should be placed alongside the routine treatment options. Lawlor has shown that the frequency of hospital readmissions with COPD patients was significantly reduced after participation in early discharge rehabilitation with ongoing follow-up support.

TR with COPD at home is feasible and well accepted by patients, although sometimes the technology has been perceived as difficult, but it can be performed in a practical way, both clinically and technically. TR seems to improve walking capacity, dyspnea, quality of life and daily physical activity. The interaction between the COPD patients at home and the healthcare professionals at the clinic through TR has evolved as a dialogue channel creating the basis for mutual learning processes and new relationships. Here, patients exhibit four types of attitudes towards their

tele-rehabilitation: indifference, learning as part of situations in everyday life, feeling of security and motivation for performing physical training. Preliminary evaluations from tele-rehabilitation initiatives in Scotland showed tele-rehabilitation to be more cost effective with patients living in remote areas than with the outreach- or centralized model.

**Conclusion:** TR has shown beneficial effects with respect to exercise capacity, perception of dyspnea and quality of life. In addition, reduction of exacerbations in COPD patients has been shown after participation in early discharge care with ongoing follow-up support. There is still a need for higher quality studies on the efficacy and cost-effectiveness of TR, just as the long-term effects of TR have to be determined. To guarantee individuals with COPD and IPF a high quality service from health care organizations in the coming decades and economically save the national health systems for an expensive bill from treating COPD and IPF, new actions plans has to be taken into use in order to treat more patients with less human resources while still sustaining or even improving today's services. The importance of such welfare action plans (WAP) has to fall in to maintain a quality of service that individuals with COPD and IPF are willing to accept. Here, TR seems to be a good WAP. Despite some improved cost effectiveness, no scientific proof of TR based on COPD patient 's adherence and security, treatment, efficacy and improved quality of life is shown, and no scientific research focusing on the treatment of IPF with TR has been found.

Optimov ApS offers remote physiotherapy through our software as a service to the mass market. We use video consultations, an internal messaging system and subjective feedback questions as tools to remotely diagnose and treat the patients. This saves a tremendous amount of time and money for our patients.

A 3D animated trainer performs the personalised home exercises, guides patients and helps to stay motivated and have fun. Together with the 3D trainer, patients can exercise safely in the comfort of their home as if no one is watching, or do quick and easy desk excises during work hours.

Wearable devices with biometric sensors will in the future improve the treatment and the diagnosis, by providing objective feedback to the physiotherapist.

We select only the best physiotherapists from around the world to treat our customers. This way we ensure the highest quality and can cater to preferences for a certain geographic location or language preference.

The platform has been designed to adopt to multiple patient groups needs and an easy update will be useful to treat chronic lung patients from a distance with our coming mobile LungApp that will be available in smart devices as tablets and bigger touch screens.

## 1.1 Background and concept

The idea come during José's Cerdán work at Frederiksberg (2011) and Hvidovre Hospital (2013), where he was in charge of research and develop a self-managements tool (<http://www.patientpjecken.dk/kol/>) and a tele-rehabilitation platform (<http://optimov.com/en/register/lungeforening> ) for Chronic Lung Diseases .

The telerehabilitation platform was tested with few lung chronic patient members of the Pulmonary Patient Association of Denmark with great success during the spring of 2014. Such patients obtained a great value using our web app and encouraged their doctors at Århus University Hospital to enter in contact with us. Here the doctors were introduced to Optimov and asked us to use it for research purpose with the two patient groups explained above (COPD and IPF). The goal was to obtain a scientific proof of such methodology.

## 1.2 Objectives

General Objectives:

1. Creation of a mobile application to treat chronic lung patients from a distance with tele rehabilitation
2. Perform clinical research using the LungApp for the tele rehabilitation treatment of COPD and IPF patients with the goal of obtaining a scientific proof of the LungApp implementation in chronic lung patient's treatment.

## Specific Objectives:

1. Migrate Optimov web app from its server location to the Fi-Ware server space.
2. Develop an Android application version of Optimov named LungApp for the tele rehabilitation of chronic lung patients
3. Obtain scientific proof that:
  - activities of daily living and health-related quality of life are equal or improved with the use of the LungApp compared to conventional rehabilitation.
  - physical functions are equal or improved with the use of the LungApp compared to conventional rehabilitation.
  - the rehabilitation costs are lower or equal implementing the LungApp compared with conventional rehabilitation.

### 1.3 Innovation

In the last decade, technological advances in telecommunication, Internet, wireless access, remote sensing & computing technologies have become much more prominent, low cost & universally available at home. Tele-rehabilitation has been proved to be effective for various patient groups, such as cognitive rehabilitation (e.g. brain injury) using Internet, constraint-induced physical therapy (e.g. stroke, COPD & the elderly) using motion tracking & sensory information to guide the patient through exercises, & speech pathology. Various research & pioneer studies on ICT-based tele-rehabilitation have been conducted, such as previous funded EU projects CLEAR, H-CAD & HelloDoc. The success of these projects has demonstrated the viability of a possible tele-service model, new opportunities, & raised the possibility of a large potential market for tele-rehabilitation in assisting & enhancing the delivery of rehabilitation services to home.

Even though hundreds of fitness apps exist on the market and there are various tools for improving conventional physiotherapy, they fail to cater to customers who want to be able to:

- talk to a physiotherapist online, without barriers
- train at home with supervision from a medical professional
- be flexible, independent and in control during treatment
- get personalised and tailor-made exercises
- make physiotherapy fit into their lives, instead of having to adapt to the physiotherapist

We uniquely offer the above, by allowing customers to get in control of their own health with the supervision of a specialist, by improving the communication channels to medical professionals and by giving customers a tool that allows for safe exercising anywhere and anytime.

### 1.4 Technical description

Today the platform is based as a software as a service offering two different interfaces:

- For physiotherapists: They can create exercise sets and rehabilitation programs that fit the individual needs of a patient. Our large database of interactive 3D exercises with various training tools, e-learning programs and musical integration allows the physiotherapists to produce a training program, which the patient will carry out correctly and enjoy. In addition, the physiotherapist receives subjective feedback from the patient before and after the exercise, as well as objective feedback through biometric sensors and motion tracking systems during exercises. We offer physiotherapists the opportunity to create a public profile, so they can be found on a public map. This increases their exposure and fills their schedules. Furthermore, physiotherapists can offer video consultations and chat sessions to anyone who speaks their language and has a computer connection.
- For Patients: Exercising alone is hard for many people, and thanks to us unnecessary. Our 3D trainer does every move together with the end user, to motivate them and to make sure they train correctly. The user trains whenever and wherever they want, because a comfortable environment is key for motivation and long-term impact on health. This is why Optimov works on all popular platforms, and instead of just sending reminders, we allow users to access their training program from their own devices. We give

independence and control back to the Mover, with a shared patient journal, progress tracking and e-learning programs, which explain diagnosis, training methods and promotes an active life style.

The activities we will carry out are: 1-to move our functional platform working on Microsoft Azure servers to the Fi-Ware technology server platform. 2- Create the mobile LungApp as customized version for chronic lung patients, 3- Perform clinical research using such application with chronic lung patients with the goal of obtaining a scientific proof. A Gantt chart of the activities schedule is shown in attachment1.

### 1.4.1 Deliverables List

No <sup>5</sup>	Deliverable Name/Description <sup>6</sup>	Type <sup>7</sup>	Delivery Date <sup>8</sup>	Cost (€)
1	Draft Sustainability Plan (DSP): This report will explain in more details the business and sustainability plan of the proposed solution <sup>9</sup>	R	M2	13.687
2	Optimov Deployment in Fi-ware: Report that the Optimov platform has been moved to the Fi-ware technology platform and is fully functional as before.	R	M2	5.832
3	LungApp ready: The android mobile is created and a deliverable example is attached or download opportunities will be available from Google play	OTHER	M3	61.893
4	Clinical trials report: with results from the 3 clinical trials performed	DEC	M15	68.386
<b>Total Deliverables Cost</b>				<b>149,799</b>

<sup>5</sup> Deliverable numbers in order of delivery dates.

<sup>6</sup> Give a meaningful name, followed by a concise description.

<sup>7</sup> Use one of the following codes:

R: Document, report (excluding the periodic and final reports)

DEM: Demonstrator, pilot, prototype, plan designs

DEC: Websites, patents filing, press & media actions, videos, etc.

OTHER: Software, technical diagram, etc.

<sup>8</sup> Measured in months from the project start date. Please also consult the call text for the maximum allowed funding per reporting period.

<sup>9</sup> Draft Sustainability Plan (DSP): This deliverable is mandatory in order to get the initial 10% of the project funding at month 1 of the project

## 2 FIWARE Adoption Acceleration

### 2.1 FIWARE Technology to be utilized

We would use the Fi-ware technology to deploy in it our software as a service and our multimedia database of 3D music and audio loops. We would be able to put in contact patients with their therapist from a distance and them to create customizable training programs via such platforms.

FI-WARE technology	Use in the project <sup>10</sup>
IaaS Data Center Resource Management GE - IBM Implementation	We need server space to run our software as a service and from this technology, we think it will be possible.
3D-UI-XML3D	In Optimov you can create 3D exercise sets the patients will perform at home. Today we use Unity 3D and we think we would be able to adapt it to this 3D technology

### 2.2 FI-PPP Use Cases Technology to be utilized

FI-PPP Use Case Project	FI-PPP technology	Use in the project <sup>11</sup>
,Fi-Star Krakow' Category	Easy to Use Tablet with Medical Sensors connected to Central Monitoring Service	Our LungApp can be installed in such tablets and offer a service for chronic lung patients to improve their physical activity and follow up with a specialist.

### 2.3 Testing and Validation plans

The testing and validation plans are showed in attachment 1. Here we want to perform three trials with two chronic patients groups. The first trial will involve 80 COPD patients during their eight weeks training program at the hospital. The second will involve another 80 COPD patients and be performed from a distance during the six following months. The last trial will involve 24 IPF patients during 8 months from the date they get their diagnosis. The three trials are going to involve 184 patients and expects to give a scientific proof of the Optimov technology and method of treatment.

<sup>10</sup> Explain where and why you are using this generic enabler (e.g. uniqueness or advantages vis-à-vis other existing similar technologies)

<sup>11</sup> Explain where and why you are using this domain specific enabler (e.g. uniqueness or advantages vis-à-vis other existing similar technologies)



### 3 Market Readiness<sup>12</sup>

#### 3.1 Value proposition

##### 3.1.1 For Physiotherapists

With our platform, physiotherapists can create exercise sets and rehabilitation programs that fit the individual needs of a patient. Our large database of interactive 3D exercises with various training tools, e-learning programs and musical integration allows the physiotherapists to produce a training program, which the patient will carry out correctly and enjoy. In addition, the physiotherapist receives subjective feedback from the patient before and after the exercise, as well as objective feedback through biometric sensors and motion tracking systems during exercises.

We offer physiotherapists the opportunity to create a public profile, so they can be found on a public map. This increases their exposure and fills their schedules. Furthermore, physiotherapists can offer video consultations to anyone who speaks their language and has a computer connection, which increases their market and income significantly.

##### 3.1.2 For Movers

Exercising alone is hard for many people, and thanks to us unnecessary. Our 3D trainer does every move together with the end user, to motivate them and to make sure they train correctly.

The user trains whenever and wherever they want, because a comfortable environment is key for motivation and long-term impact on health. This is why Optimov works on all popular platforms, and instead of just sending reminders, we allow users to access their training program from their own devices.

We give independence and control back to the Mover, with a shared patient journal, progress tracking and e-learning programs, which explain diagnosis, training methods and promotes an active life style.

#### 3.2 Market scope – Competition

We have two types of competitors: tele-health solutions that cater to people who want to live a healthy lifestyle or suffer from a chronic disease, and tele-rehabilitation services that allow the physiotherapist to provide their patients with content, and/or monitor and intervene remotely.

For both types, we face competition from Scandinavia, Europe and the rest of the world. We are located in Scandinavia and enter this market first, because the population is known for being especially health-conscious and adaptable for new technologies. Our competitor's analysis is therefore focused on Scandinavia, but does not exclude global players.

Prominent publicly available platforms for tele-health are [helpout.google.com](http://helpout.google.com), [fitorbit.com](http://fitorbit.com), [totalchoaching.com](http://totalchoaching.com) and [fitocracy.com](http://fitocracy.com). As of today, with google helpout one can only arrange a video consultation with for example a personal trainer, but not with medical professionals. We assume that this will be possible soon though. Fitocracy is focused on sharing progress within virtual social groups, where points can be earned and levels can be gained. Fitorbit and Totalcoaching are systems to connect personal trainers with their clients. Neither solutions offer a platform where people can connect with medical professionals or follow exercise instructions.

Tele-rehabilitation solutions are on the market in different variations, ranging from fully integrated solutions with motion tracking sensors that only work on specific hardware (e.g. <http://welfareDenmark.dk/> and <http://virtualrehab.info/>) to solutions that let medical professionals deliver exercising videos and descriptions via email to their patients (e.g. <http://exorlive.com/> and <http://www.perfectfithealth.com/>). None of the available solutions offer the level of customizability, flexibility and interaction as Optimov.

#### 3.3 Sustainability Plan – Potential Customers

##### 3.3.1 Business to Business

##### Communication Guidelines:

<sup>12</sup> Describe your past experience in this field its relevance to the proposed project

We believe that business customers require personal and if possible face-to-face contact in order to form long lasting relationships. Business customers are individual physiotherapists, clinics, hospitals and rehabilitation centers, but also companies and insurances. We therefore sell two distinct products and services to business customers: our SaaS as a professional tool for physiotherapy and Optimov as a tool and guide for a healthy and active lifestyle.

**Acquisition:**

We will spread awareness and sell our SaaS as a professional tool for physiotherapy to clinics and physiotherapists through events, workshops, email and phone calls. We communicate our SaaS as a tool that allows to work more efficiently, achieve faster recovery rates and increase revenue.

We will initially focus our efforts to sell preventive exercises as a subscription to companies on the Danish healthcare market, as companies here do a lot to keep their employees healthy and happy. We want to get a proof of concept for this service with one or more companies from our personal network, refine our product and eventually start selling to larger companies. Acquisition will be done in face-to-face meetings at first, other channels will be used later.

**Orientation:**

We decrease the barrier to use Optimov as a professional tool by allowing free sign-ups, and access to the full feature range for up to three patients. During the orientation phase, we use our analytics tools to find out at which point users might have trouble using the system, and generate automated calls to action. If a physiotherapist for example does not connect with a patient within the first week of sign-up, we send an automated email with a specific explanation of how to connect with a patient and how to get started creating exercising material for them.

**Monetization:**

The paid subscription plans can be paid for monthly, semi-annually and annually. The pricing strategy has been developed in close relation with potential customers and with consideration of competitors' prices.

**Retention:**

To retain physiotherapists in the paid subscription plan, we use direct communication tools that integrate into our website to find out which features are missing or which bugs are preventing proper use. In addition, we continue testing with physiotherapists in hospitals and students of physiotherapy as well as patients.

Long-term users will be offered a loyalty bonus, where the renewal of a subscription will give substantial discounts.

From the activity on the SaaS, which we can monitor with google analytics, we can see which users are being less active and therefore likely to churn. We will be targeting potential churners directly by contacting them via E-Mail or telephone, to find the reason for their diminishing interest.

**Winback:**

If a physiotherapist seized to renew his monthly subscription, we will contact them via E-Mail or telephone, in order to find the reason for the decision. If a missing feature is the reason for the decision, we will consider adding the feature into our product roadmap. If the price is the reason, we will consider the adjustment of our pricing strategy and offer a discount.

**3.3.2 Business to Customer**

**Communication Guidelines:**

By joining the Optimovement, end-customers will move more and live active, healthier lives. We offer guidance and entertainment in conjunction with medically correct exercises.

**Acquisition:**

Given the large range of age and computer affinity, we need to target end-consumers accordingly. People in the age group 20-40 are assumed to be highly familiar with technology and to frequent social media often. We therefore assume to find early adopters in that age group. For this age group we concentrate our marketing

efforts on engaging social media campaigns on Facebook and Twitter, blogs, forums and campaigns in patient associations. We also plan to sell packages of 6-month memberships including monthly video consultations on services like Groupon. Because we have no initial marketing cost while getting large exposure, we believe that this strategy can give us substantial traction. For people above 40 we will use some other channels as Duka PC (www.dukapc.dk) who sell easy to use computers with online service to elderly and has access to more than 14.000 people using their devices in Denmark.

**Orientation:**

By minimizing barriers to get started, we hope to make the orientation phase for end-customers an experience that quickly engages them into our product. We minimize barriers by focusing on user experience and user interface during the design phase and by including introduction videos as well as email with specific calls to action. A call to action could for example be a personalized link to an exercise when the user has not done any exercises after signing up.

**Monetization:**

Regular offers, recommendations as well as training challenges and customizations will keep the content for the user exciting and will boost sales.

**Retention:**

Our efforts to retain end users are similar to the ones for physiotherapists. Direct communication tools will help us to find out which features are missing or which bugs are preventing proper use, before a user gets frustrated.

Long-term users will be offered a loyalty bonus, where the renewal of a subscription will give substantial discounts.

Calls-to-action and motivational e-mail will be used to keep people exercising, which is the key for our success.

**Winback:**

We track the activity of all users and can therefore generate automated calls-to-action, when we notice a decline. If for example a user does not do their planned exercises 3 times in a row, we will send a personal motivating email or SMS. If the user does not return to our website at all, we will make randomized personal enquiries to figure out why the user has not returned and offer discounts if applicable.

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**3.4 SME description**

Optimov ApS is a limited liability company founded in 2010, today owned by José Cerdán and Johannes Scheibe. We are currently located at Porcelænsøen 26, first floor, 2000 Frederiksberg, Denmark. We are a role player in the e-health industry specifically in the physical tele rehabilitation of patients in the need. During 2014 we have had nine people working fulltime in our business. In September 2013 we released our BETA version for therapist that was received with great success around the world. February 2013 we released our version for end users and in May 2014 we obtained our proof of business. Right now we focus in obtaining a scientific proof and strategies to scale our businesses.

**3.5 Personnel description**

**José Cerdán** is the CSO and founder of Optimov. He has a Bachelor and a Master’s Degree in Physiotherapy and has worked as physiotherapist in ambulatories, rehabilitation centers, private clinics and elderly residences in Sweden, Spain, France, Norway and Denmark. Moreover, he has a Master’s degree in IT E-business from the IT University of Copenhagen. Due to his extensive experience as a physiotherapist, he is responsible for providing scientific evidence for effects on individuals, organizations and society when using Optimov.

**Johannes Scheibe** is CEO of Optimov. He has obtained a Bachelor degree in industrial engineering from Ilmenau University of Technology and The University of Nottingham. He has three years of experience as entrepreneur, process engineer and management consultant. His experience guiding high-tech start-ups to become sustainable

businesses is crucial for our own growth and success. He puts scientific breakthroughs to use by developing innovative products and services that provide great user experience

**Traian Popa** he is the CTO of Optimov. He finished his Master's degree in Computer Science in November 2012 at the University of Copenhagen, specializing in game development. He is Optimov's main Unity developer with experience in the gaming industry. He will improve the quality of our application and make it more user-friendly and fun. He is the driving force to provide a great interaction between the user, the platform and the sensors during exercises.

**Pablo Arqueros** is mobile developer with dominance of the two major mobile platforms (iOS, Android). His main role is the analysis, design and implementation of applications for different mobile devices. His background as an architect has given him great skill and sensitivity for good interface designs and good user experiences. With Advanced knowledge in UX (User Experience) and Interface Design, Pablo is able to assume responsibility with the challenges and goals he sets. Java and Python are his main languages. His favourite quote is "Innovation distinguishes between a leader and a follower".

### 3.6 Earlier projects

We have developed part of a self-management portal for patients at Hvidovre University Hospital. Here their chronic patients with diagnosis as Lymphedema, Chronic Obstructive Lung Disease and Heart Failure has access to content created with Optimov tool. [www.patientpjejen.dk](http://www.patientpjejen.dk)

We have developed Optimov demos working with biometric sensors as:

- Optical motion tracking systems: <https://www.youtube.com/watch?v=F6ZQ6LYnuQc>
- Pulse Oximeter and inertial motion tracking systems: <https://www.youtube.com/watch?v=G0qtKsFNOVQ&list=UUS98wmK4sJNDnWcMjHchISg>
- Sensors added to the training equipment as an elastic: <https://vimeo.com/69417419> password protected with: 14271990

### 3.7 Budget and cost justification<sup>13</sup>

The budget is explained in Attachment 2.

Deliverables	Cost included in the grant in Euro
Delivery 1: Send application to Fi-Adopt	0
Delivery 2: Draft Sustainability Plan (DSP)	13.687
Delivery 3: Report Optimov moved to Fi-ware	5.832
Delivery 4: Android App LungApp ready for download	62.893
Delivery 5: Clinical trials report with results	67.386
<b>Total</b>	<b>149.799</b>

Other Cost	Cost in Euro
Self-financing	24.000
Research financials from Århus University	252.373
<b>Total</b>	<b>276.373</b>

<sup>13</sup> Please justify in the budget table only cost items that you request to be included in the grant. If the Deliverables Cost represent more than 90% of your total requested funding you may remove this section. Otherwise, a justification is needed.

## 4 Annex: Ethical/Security Checklist<sup>14</sup>

### ETHICAL ISSUES TABLE

	YES	PAGE
<b>Informed Consent</b>		
• Does the proposal involve children?	no	
• Does the proposal involve patients or persons not able to give consent?	no	
• Does the proposal involve adult healthy volunteers?	no	
• Does the proposal involve Human Genetic Material?	no	
• Does the proposal involve Human biological samples?	no	
• Does the proposal involve Human data collection?	no	
<b>Research on Human embryo/foetus</b>		
• Does the proposal involve Human Embryos?	no	
• Does the proposal involve Human Foetal Tissue / Cells?	no	
• Does the proposal involve Human Embryonic Stem Cells?	no	
<b>Privacy</b>		
• Does the proposal involve processing of genetic information or personal data (e.g. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)	no	
• Does the proposal involve tracking the location or observation of people?	no	
<b>Research on Animals</b>		
• Does the proposal involve research on animals?	no	
• Are those animals transgenic small laboratory animals?	no	
• Are those animals transgenic farm animals?	no	
• Are those animals cloned farm animals?	no	
• Are those animals nonhuman primates?	no	
<b>Research Involving Developing Countries</b>		
• Use of local resources (genetic, animal, plant etc)	no	
• Benefit to local community (capacity building i.e. access to healthcare, education etc)	no	
<b>Dual Use</b>		
• Research having direct military application	no	
• Research having the potential for terrorist abuse	no	
<b>ICT Implants</b>		
• Does the proposal involve clinical trials of ICT implants?	no	
<b>I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL</b>	YES	

<sup>14</sup> Please complete the following table

## 4.1 Ethics

*We do not have any ethical challenges in this study*

## 4.2 Security

**Please indicate if your project will involve:**

- Activities or results raising security issues: NO
- 'EU-classified information' as background or results: ....NO



## Attachment 2 -Budget and financing of the project's main activities

Project: Optimov LungApp

Project leader: José Cerdán

Activities	period start-end		Specific budget			Financials				Cost by Delivery		
			Salary *	* Direct external costs.	Total	Grant requested	Grant percentage	Self-financing	Other financials	Total	Total	Grant requested
1 Prepare & write Sustainability plan	01-12-2014	25-12-2014	17.287	-	17.287	13.287	76,9	4.000		17.287		
2 <Delivery 2>	25-12-2014	25-12-2014	400	-	400	400	100,0	-		400	17.687	13.687
3 Moving Optimov platform to Fi-ware	08-12-2014	22-12-2014	5.310	-	5.310	5.310	100,0	-		5.310		
4 <Delivery 3>	22-12-2014	22-12-2014	522	-	522	522	100,0	-		522	5.832	5.832
5 Creation Android app	01-01-2015	12-02-2015	15.931	2.000	17.931	12.931	72,1	5.000		17.931		
6 <Delivery 4>	12-02-2015	12-02-2015	789	49.173	49.962	49.962	100,0	-		49.962	67.893	62.893
7 Implementation 1st clinical trial	23-02-2015	06-04-2015	41.935	7.467	49.402	13.775	27,9		35.627	49.402		
8 Implementation 2st clinical trial	06-04-2015	11-01-2016	209.675	18.667	228.341	35.208	15,4	15.000	178.133	228.341		
9 Implementation 3st clinical trial	01-06-2015	07-03-2016	41.935	9.733	51.668	16.042	31,0		35.627	51.668		
10 Write Clinical trials report	08-02-2016	14-03-2016	3.909	-	3.909	922	23,6		2.987	3.909		
11 <Delivery 5>	15-02-2016	15-02-2016	773	667	1.440	1.440	100,0	-		1.440	334.760	67.386
<b>Total</b>			<b>338.466</b>	<b>87.707</b>	<b>426.173</b>	<b>149.799</b>	<b>35,1</b>	<b>24.000</b>	<b>252.373</b>	<b>426.173</b>	<b>426.173</b>	<b>149.799</b>
Grant Percentage							35,1%					

\* Direct external costs.

Unities Hardware 100

Activities	Accountancy	Tax revisor	Hardware	Hardware insurance	Server	Licens	Mobile internet	Travel	Total
1 Prepare & write Sustainability plan									-
2 <Delivery 2>									-
3 Moving Optimov platform to Fi-ware									-
4 <Delivery 3>									-
5 Creation Android app								2.000	2.000
6 <Delivery 4>	667		43.973	4.000	400	133			49.173
7 Implementation 1st clinical trial					800	2.000	2.667	2.000	7.467
8 Implementation 2st clinical trial					4.000	1.333	13.333		18.667
9 Implementation 3st clinical trial	667	2.000			800	267	4.000	2.000	9.733
10 Write Clinical trials report									-
11 <Delivery 5>	667								667
<b>Total</b>	<b>2.000</b>	<b>2.000</b>	<b>43.973</b>	<b>4.000</b>	<b>6.000</b>	<b>3.733</b>	<b>20.000</b>	<b>6.000</b>	<b>87.707</b>

\*Salary Cost

Activities	Coordinator	Business specialist	Researcher	Therapist	IT developer	Admin empl	Specific employee	Specific employee	Total
Honorees/h In euros	80	60	75	37	53	61	58	0	
1 Prepare & write Sustainability plan	120	120				8			17.287
2 <Delivery 2>	5								400
3 Moving Optimov platform to Fi-ware	10				80	4			5.310
4 <Delivery 3>	5					2			522
5 Creation Android app	30				240	12			15.931
6 <Delivery 4>	5				5	2			789
7 Implementation 1st clinical trial	40		320	320	40	16			41.935
8 Implementation 2st clinical trial	200		1.600	1.600	200	80			209.675
9 Implementation 3st clinical trial	40		320	320	40	16			41.935
10 Write Clinical trials report	10		40			2			3.909
11 <Delivery 5>	5		5						773
<b>Total</b>	<b>470</b>	<b>120</b>	<b>2.285</b>	<b>2.240</b>	<b>605</b>	<b>142</b>	<b>-</b>	<b>-</b>	<b>338.466</b>