



**LUT School of Engineering Science**

**CS40A0130 LUT- Open and Collaborative Innovation 2023**

# **Huawei Challenge**

## **Team 2**

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## ABSTRACT

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Your school: LUT School of Engineering Science  
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### **Physiotherapy Quick App for Huawei**

OCI Company Challenge Solution - Project report  
2023

xx pages, xx figures, xx tables and xx appendices  
Keywords: Quick App, physiotherapy, healthcare

This project paper aims to identify and search market opportunities for Quick App solutions in European market for Huawei company. Subject of project is outlined for physiotherapy solution which provides easy access to training bank, which serves the end-users and the service providers. The report includes analysis of market research and feasibility study that was conducted with interview and survey. Different business opportunities and revenue streams were analysed and suggested in outcome of research and in the conclusion.

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## 1. Introduction

In recent years, technology has played an increasingly important role in all industries, including healthcare. As digital solution providers increase, patients have access to a wide range of tools and resources that can help them manage their health conditions and improve their quality of life. Physiotherapy Quick App is a tool that provides a personal training plan including videos and descriptions agreed with the physiotherapist along with notifications to remind when to practice.

This report aims in presenting the development process of creating a physiotherapy Quick App that provides a personal training plan including videos and descriptions agreed with the physiotherapist along with notifications to remind when to practice. The app is designed to help patients with issues that require physiotherapy, such as mobility issues and chronic pain. Besides the personal training plan, the app also includes a general video and movement bank, messaging with the physiotherapist, and appointment booking. The video and movement bank provides users a library of exercise videos and descriptions that can be utilized in addition to the personal training plan. Message feature allows users to communicate with the physiotherapist and receive guidance and support if needed. Appointment booking feature allows users to schedule appointments with their physiotherapist and track the progress. The report will represent various aspects of the app development process, including theoretical findings, market research, business model canvas, and wireframes.

## 2. Content

Our team approach to challenge was to provide viable solution for Huawei company by providing an innovative idea Quick App idea to enter market and find a solution that has not been created yet. Our team of five persons started with streamlining project plan and planning specific activities and timelines (Figure 1). Project kick-off started with brainstorming of ideas and feasible options for Quick App solution. Ideas were validated and presented to stakeholders, arguments and feedback from audience was included into planning. Project includes four different main activities, which are theoretical findings, feasibility study via survey, business canvas analysis and creating demo for Quick App via wireframe.

Theoretical findings and research were conducted on Quick App solutions. Feasibility study was conducted and shared via social media networks and our personal community by each team member. Business model canvas analysis was made for health care physiotherapy app and finally the demo for Quick App was created for healthcare physiotherapy solution.

Continues collaboration and communication was taken in several forums, we had arranged weekly calls in team to address progress and if any challenges were faced. Besides weekly meetings we had instant messaging in WhatsApp. Apart of our internal collaboration several touch base and progress meeting were addressed and scheduled with Huawei representatives and University community. Alongside with our project we were actively working on our final Telano report and to conduct finally presentation to our solution.

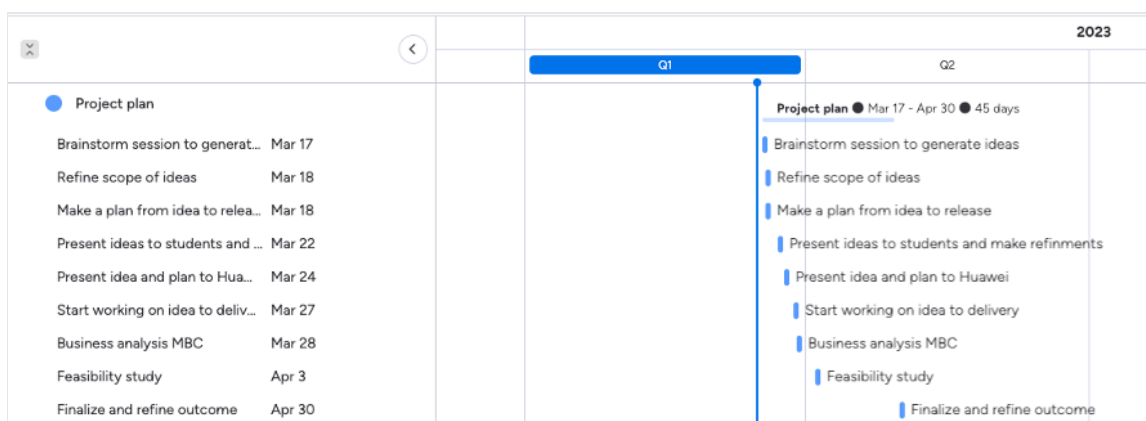


Figure 1. Project plan activities and timelines

## 2.1 Literature review

**a. Quick Apps can improve patient outcomes.** Quick Apps can help to improve patient outcomes by providing timely access to healthcare services and information. They can also help to improve medication adherence and reduce hospital readmissions (Free, C. et al., 2013).

Quick Apps have the potential to improve patient outcomes by providing timely access to healthcare services and information. By allowing patients to access health information, track their health data, and communicate with healthcare providers, Quick Apps can help patients to manage their health more effectively.

For example, a Quick App that reminds patients to take their medication on time can improve medication adherence and lead to better health outcomes. Similarly, a Quick App that allows patients to track their blood sugar levels can help individuals with diabetes to manage their condition more effectively. In addition, Quick Apps can help to reduce hospital readmissions by allowing patients to receive follow-up care and support after leaving the hospital. This can help to prevent complications and ensure that patients receive the care they need to recover fully.

However, it is important to note that the effectiveness of Quick Apps in improving patient outcomes will depend on factors such as the quality of the app, the patient's engagement with the app, and the patient's overall health status. Quick Apps should be designed with these factors in mind to ensure that they are effective in improving patient outcomes.

**b. Quick Apps can increase patient engagement.** According to Ng, M. M., and Fong, S. S. (2018) Quick Apps can help to increase patient engagement by providing personalized health information, reminders, and notifications. They can also allow patients to track their health data and communicate with healthcare providers.

This Quick App has the potential to improve patient engagement in healthcare by providing patients with easy access to health information and tools to manage their health. Patients can use mobile health apps to track their symptoms, monitor their medication use, and communicate with their healthcare providers. It can also improve patient engagement by providing patients with personalized health information and reminders. By receiving

targeted health information and reminders, patients are more likely to stay engaged with their healthcare and take an active role in managing their health.

Additionally, this Quick App addresses healthcare disparities by providing healthcare services to underserved populations who may not have access to traditional healthcare services. Patients in remote or rural areas, for example, can use mobile health apps to access healthcare services and receive medical advice without having to travel long distances.

## **2.2 Market research**

Market research was completed by conducting a survey among potential Quick App users, both patients and physiotherapy specialists, a short interview with a physiotherapy specialist and a desktop study on existing physiotherapy applications. Primary research questions were “What are existing solutions for physiotherapy self-exercises?”, “Would potential customers see the value in a Physiotherapy Quick App?”, “What Quick App features would be attractive for potential customers?”. Full survey results and a transcript of the interview are available in the Appendix.

### **2.2.1 Survey and interview findings**

Survey for potential physiotherapy Quick App users collected 133 responses from patient side and 2 responses from physiotherapy specialist side. 55% of the respondents were female and 42% male. 74% (91) of the respondents were familiar with physiotherapy treatment, most of them in the age between 25 to 44 years old (Figure 2).

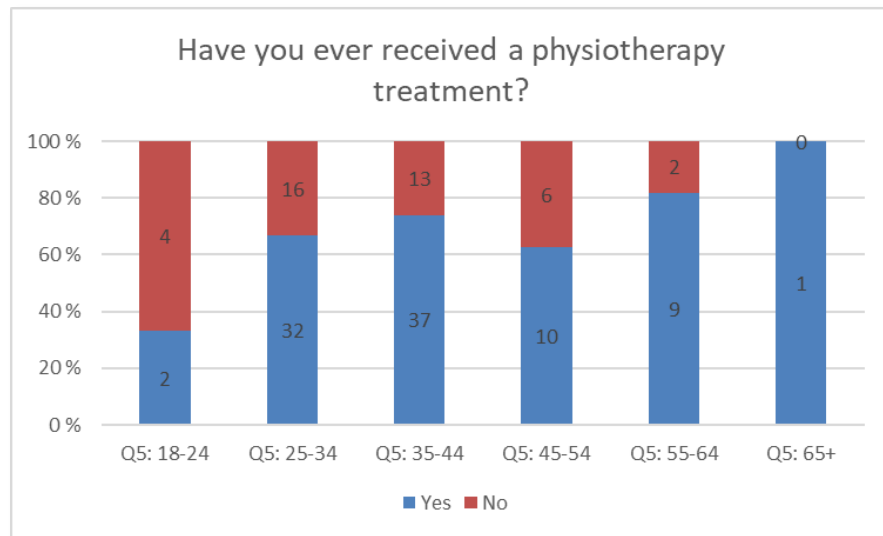


Figure 2. Number of respondents per age category that are familiar with a physiotherapy.

In general, 85% of respondents would see the value in using a Quick App for physiotherapy, 12% of respondents were not sure. As presented on figure 3 there was no significant difference in the answer to this question between those respondents who has received physiotherapy (88% find such an application valuable) and those who are not familiar with physiotherapy (78%).

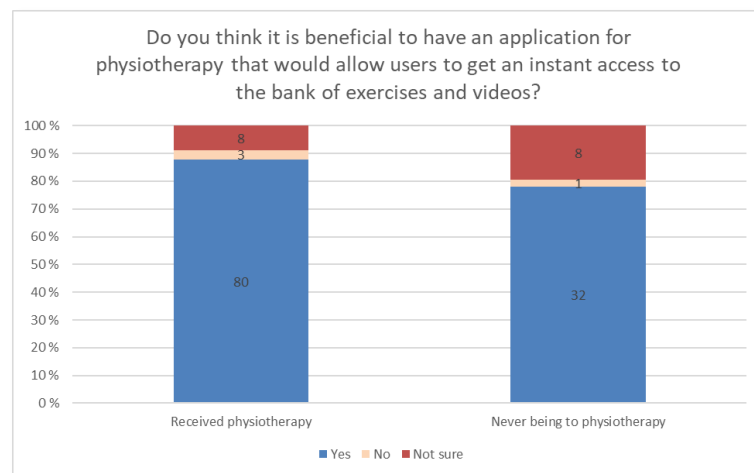


Figure 3. Respondents' perception of the physiotherapy Quick App vs physiotherapy familiarity

Also, based on a survey we can conclude that respondents of all age groups support the idea of the application, especially younger generation: respondents between age of 18 to 34, since there was no negative answer to this question among those respondents (Figure 4).



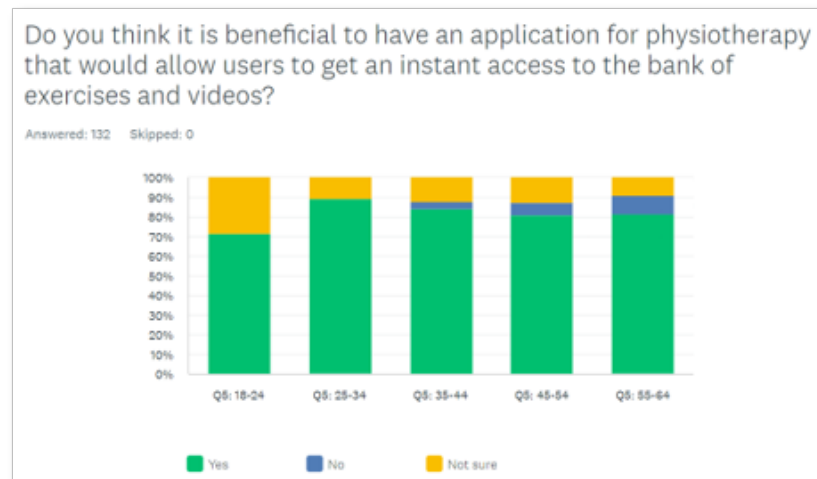


Figure 4. Respondents' perception of the physiotherapy Quick App vs age

As for the Quick App features, bank of exercise videos and exercise plan were the key functionalities that users expect to have in the application with 81% and 72% of respondents selecting these features. 62% of respondents believed that the application should have exercise explanations and reminders. 56% of respondents thought that activity tracking would be a beneficial feature as well. In-app purchases and equipment examples seemed to be less desirable app functionalities based on the survey results with only 14% and 40% selections respectively (Figure 5).

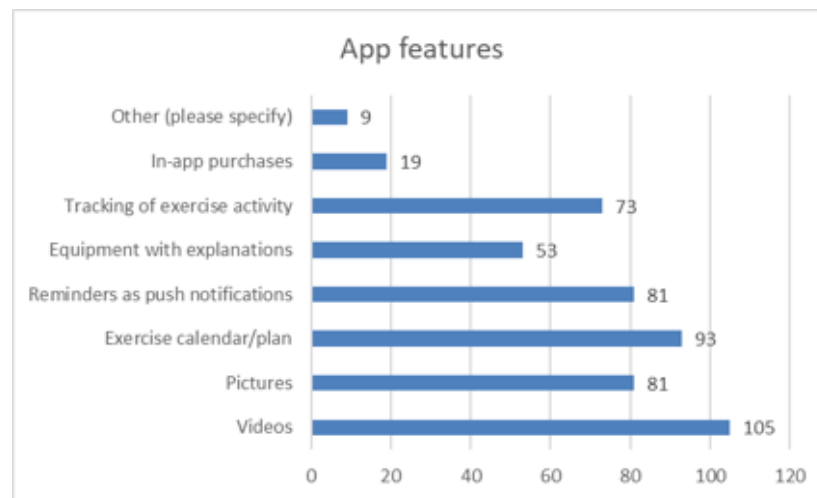


Figure 5. Respondents' preference of a physiotherapy Quick App features

There were a few other features suggested by respondents:

- Possibility to chat with a specialist
- Progress bar

- Motivational elements like points.

Also, respondents highlighted that such an application should be combined with in person visit to a specialist since the need for a physiotherapy shall be determined by a doctor and every physiotherapy need is unique. So, generic exercises might not help to ease the pain. Another important comment was that such an application will bring value only when there is a need for physiotherapy. Hence, a conclusion can be drawn that Quick App can be more attractive to the users since it doesn't require installation and registration and can be easily removed when the need for it is over. Some of the respondents emphasized that the application should be free for the patients or be part of the social healthcare or work healthcare package.

Physiotherapy specialists highlighted that firstly physiotherapy exercises are always individually planned, hence some generic exercises from YouTube might not help a patient. Secondly, systematic training is crucial for a soon and successful recovery. As specialist X said in the interview "At the appointment you mostly have time to go through the exercises, and it is expected that a patient has to take care of the exercises by him/herself". Thirdly, quite often patients do not do exercises after the session. "The more exercises are given, the less they are done. The exercises should be integrated into the patient's everyday life", commented specialist X.

Hence, a conclusion can be made that there is a need on a market for a solution that would provide immediate access to the specialized physiotherapy exercises during the session with a specialist, help users track their progress and remind about the exercises regularly. A mobile application seems to be the right solution and based on a survey for physiotherapy specialists some big healthcare centers in Finland (Terveystalo in particular) have a way to provide video exercises to patients via the main app of that healthcare provider. In general, both respondents would recommend such an application to their patients (6,5 average number for 2 responses on a scale from 1 (not likely to recommend) to 7 (highly likely to recommend)).

Like end users, specialists highlighted that bank of video and picture exercises is the key feature for such an application together with exercise calendar and reminders that would support the systematic way of exercises (Figure 6). It was suggested by one of the respondents that a motivational element like point collection/gamification should be added to stimulate regular exercises.

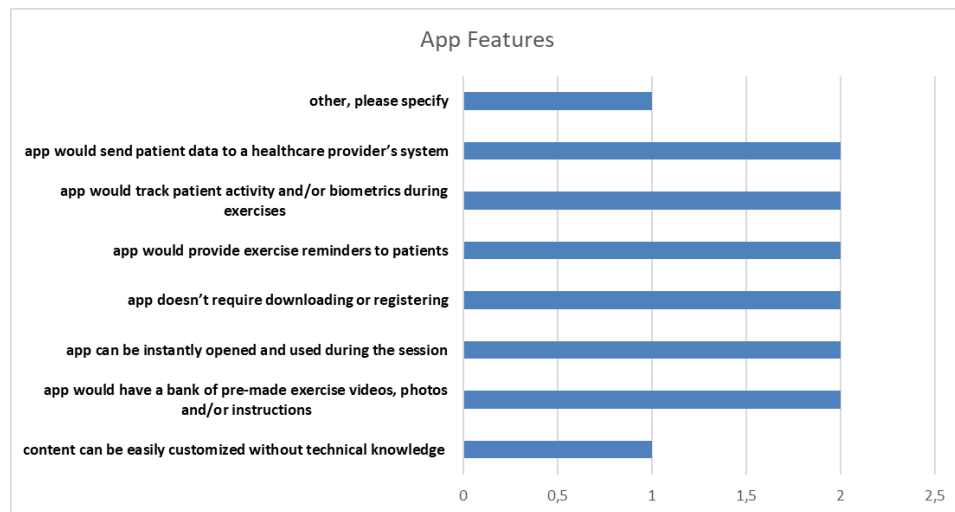


Figure 6. Specialists' preference of a physiotherapy Quick App features

Specialist X in the interview suggested that a Quick App could be an excellent solution for small and medium sized healthcare centers or private practices that do not have any application for their practice so far.

### 2.2.2 Desktop study on physiotherapy app market

Desktop study was conducted by comparing physiotherapy applications in Health and Fitness category that could be found on both Apple and Android markets against several criteria. Summary of the findings is presented in the Table 1.

In general, it seems that all the solutions for the end user that exist on the application market must be linked to the main application of the healthcare centre or can be used only when a specialist sends the program to the end user application. Program is activated by a program code assigned by the specialist. Some of compared apps require a registration. Basic feature offered in all applications is detailed exercise instructions with pictures and videos. Daily reminders and progress tracking were offered in Physiotools Trainer and Physio.coach by Medbase, while PhysiApp offers progress tracking and feedback in real-time allowing healthcare provider to better support a patient based on clear outcome data. Physio in a Box offers a diagnostic of your problem first, but then suggests that a visit to a doctor is necessary before accessing the exercises. PhysiApp and Physio.coach by Medhouse allow access to the program also off-line after the app is downloaded. PhysiApp works on all both Android and iOS devices, there is also a possibility to play videos on larger screens via AirPlay and Chromecast. Same time exercises can be accessed via web link in case customers don't want to use a mobile application (Physitrack, 2023).

Table 1. Existing physiotherapy Apps comparison

	Physiotoools Trainer	PhysiApp	Physio in a Box	iPhysio; Patient Edition	Physio.coach by Medbase
Registration	x			x	
Content availability	Only when a specialist sent it to your account	Only when a specialist sent it to your account	Only when a specialist sent it to your account	Only when a specialist sent it to your account	Only when a specialist sent it to your account
Videos	x	x	x	Pictures and explanation	x
Reminders	x	x			x
Progress tracking	x	x			x
Data sharing with healthcare provider		x			
Feedback in real-time		x			
Motivational elements (points, awards)			x		
Diagnostics			x		

PhysiApp offers a free version for specialists which includes a library of fully narrated exercise videos, exercise templates and educational articles, unlimited printed exercise program and customised program in line with patients' needs (Physitrack, 2023). Solution requires for both a specialist and a patient to register and log in. Premium content for 13,95€ a month per a practitioner includes content from a free version, plus unlimited number of programs for unlimited amount of patients, patient exercise tracking, creating own content and messaging with patients. There are also plans for mid-size clinics and institutions.

Physiotoools (Physiotoools, 2023) offers only premium subscription at a price of 179€ per user per year and includes a library of video exercises and templates. Users can download app for free and get individual exercise plan only when a specialist sends one to their account.

### 2.3 Open innovation: possibility to adopt the paradigm to this challenge solution

Business model canvas is a tool which is used to support and map out business models and to communicate what is being done and why it is worth, for companies and institutions. The tool includes important aspects of business model and there are nine different building blocks as an element that represents and indicates who are the customers that you are

trying to pursuit and holistic view of what it requires and how value is being created (Merenych 2021).

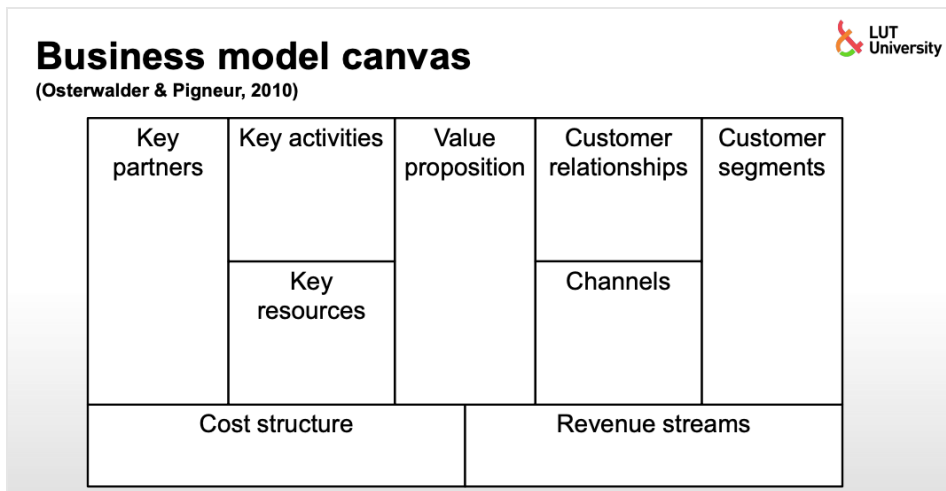


Figure 6. Lecture slides Road to OI.

### 2.3.1 Customer Segments

For healthcare and physiotherapy Quick App we can see that there are opportunities for two-sided markets Customer A and Customer B. Customers for Quick App are defined the actual users of app (Customer A), who are the patients, and the service provider is (Customer B) the healthcare provider/ centre and physiotherapists. Healthcare centres and organizations can either be from private sector or governmental owned healthcare organizations.

### 2.3.2 Value proposition

As value proposition our aim is to solve customers and users' problems and challenges what comes to 1. Getting proper training instructions to physiotherapy and for health and training programs. 2. Providing novel and innovative solutions to existing challenge, that has not been resolved before and does not stand to current efficient standard of healthcare instructions. 3. Proving value to users and service providers being timesaving, efficient and gives immediate access. 4. Provide users ability to track and monitor detailed input and data of their exercise results and progress.

### 2.3.3 Channels

#### Sales channels

Quick App sales channels and purchasing methods serve for different kinds of purposes and aims, therefore it is important to utilize different channels to reach different segments of users to build awareness in new customers and retain existing customers. We have listed

four models of different sales channels, that are niche channels for Quick App solution and for promoting the product:

1. Use Premium Subscriptions to Deliver Stable Revenue
2. Use In-App Purchases to Create Repeating Customers
3. Non-Commercial- Government funded and
4. Private sector licensed.

#### Advertising channels

To enable scale app distribution channels when promoting a mobile app, advertising and marketing is required. Advertising directly business to business sales can come to option, when building a product detailed for certain company needs like in instance for private healthcare organization. App store advertising is more to reach new users, who are used of purchasing new apps in app- stores and has the know how to find certain products. TV advertising and campaign are viable option to increase awareness in elder population and reach mass market media.

#### 2.3.4 Customer relationships

Objective in creating customer relationships is to attract potential customers and users and to create connection between service providers and with end-users. Acquire new users and retain them, potentially grow in time in healthcare industry. Physiotherapy existing customers are already using physiotherapy services so the migration to Quick App-based service may attracts users and make the transition run smoothly.

#### 2.3.5 Revenue streams

Our healthcare service offers a free option that targets a large pool of users and customers, while a premium option is available for a more personalized experience. The premium option includes features such as tailored suggestions with notification options, physical monitoring, and progress tracking. Revenue for the service is generated through advertising, as well as potential partnerships with healthcare providers or in-app purchases for additional features or services.

There are multiple options and solutions for various app product revenue streams, such as usage fees, subscription fees, asset sales and advertising. Second is a licenced option. Second solution for revenue streams is the licenced option, where we are looking in option where this product will be available in private healthcare for private customers as in app

purchase available. On the private healthcare and physiotherapy sector, another customer segment is the occupational healthcare services. Companies and institution are a segment where it can be seen large potential of either licencing and purchasing this service for employees as a free of charge service, which is included in company benefits and compensation packages.

Revenues from advertising is an option to consider when implementing Quick App, it is necessary to think of ad placement, getting to know the ad-networks. According to Salter (2022, p. 140) revenues can be generated with multiple different ways such as, pay per click, cost per impression, cost per action, cost per view, cost per mile, and click-through rate.

Table 2. Revenues from advertising

<b>Pay Per Click (PPC)</b>	This is the amount you will get paid every time a user clicks on an Ad that is displayed in your app
<b>Cost per Impression (CPI)</b>	This is the amount you will get paid every time an Ad is displayed in your app
<b>Cost per Action (CPA)</b>	How much you will get paid for every completed action by the end user.
<b>Cost per View (CPV)</b>	This is the amount that you will get paid every time a user watches a video or clicks on the video. Currently with Google Ads the end user must watch at least 30 seconds of the Ad or the whole Ad if it is shorter than 30 seconds long.
<b>Click-Through Rate (CTR)</b>	The amount you will get paid each time the user clicks on an Ad
<b>Cost per Mile (CPM)</b>	Payments for every thousand ad views.

### 2.3.6 Market potential

This research paper suggests the market potential based on ideas that were validated between different audiences and refined during the process even more specific and to focus solely on physiotherapy quick app solution and delimited other suggestions due to seeing that current solutions do not exist in Finnish market. We have identified our target audiences and users and provided suggestions for different target segments. List of small and medium

size physiotherapy healthcare centres with number of facilities are listed in Appendix 2, to support further market potential calculations and regional revenue forecast. Also included to the list of healthcare centres and large companies who partner with municipality partners by joint venturing the healthcare services.

In summary, the development of a physiotherapy Quick App has the potential to revolutionize the healthcare industry by providing a convenient and accessible way for patients to manage their health conditions. By implementing the insights and recommendations outlined in this project, healthcare providers can create a more personalized and effective way to provide physiotherapy services.

### 2.3.7 Key resources

Every business requires assets and resources to make it work. Alexander Osterwalder and Yves Pigneur (2009, p.35) write that key organizational resources enable companies to generate customer value proposition, enter and expand to different markets, successfully work with customer segments, and earn revenues. These resources are unique and vary depending on the type of business model. Key resources are categorised as physical, financial, intellectual, or human and financial (Osterwalder & Pigneur, 2009).

In our case of a Quick App for physiotherapy needed resources would be IT infrastructure, intellectual resources to complete application development and content development. It is very important to have physiotherapists as a key resource for developing the content and creating exercises. Another key resource would be marketing, partnership management as well as advertising.

### 2.3.8 Key activities

According to Alexander Osterwalder and Yves Pigneur (2009, p.36) key activities are the most important actions a company must do to make its business model work. Like key resources, key activities depending on business model type.

Key activity for developing quick app solutions for physiotherapy and to ensure the business proposal to be succeed, the first activity is the human resource management. That is to maintain and manage resources and the knowledge in technology to develop and design the solution. For maintaining the solution, it requires the DevOps pipeline and continues software development lifecycle. The second activity is about reaching the niche for quick



app, and it is to identify the core customers and to build the relationship with them to reach the wanted potential market. Also, to build and maintain customer relationships and by networking with potential new customers. Third key activity is the quick app sales, marketing and customer support. Third-party vendors are the ones who support these activities, therefore the management and contracting with the network for these activities is essential.

### 2.3.9 Key partners

We believe that it is important to establish cooperation with potential partners, suppliers, and buyers so that Physiotherapy Quick App could successfully enter Finnish market in the segment of healthcare and wellness. Partnerships are believed to help market entry, reduce risk, or acquire resources (Osterwalder & Pigneur, 2009).

In particular, we suggest that one of the partners could be Finnish association of Physiotherapist. At the moment the association has about 9000 members and provides different educational opportunities for its members (Suomenfysioterapeutit, 2023). We think that cooperation with this association can provide access to potential app users among specialists, as well as potential resources for the content of the app (video exercises etc). Same time it will help to create awareness in the market about such an application. It is probably the easiest way to reach out to small and medium sized healthcare centres, and private practices.

There is also a possibility to have collaboration with the Finnish public healthcare system to offer this Quick App as part of the national healthcare services. In this case, Huawei will own the key resources for IT infrastructure and app development, while physiotherapy knowledge and customer base will come from a public healthcare system.

Cooperation with big healthcare centres like Pihlajalinna, Mehiläinen or Terveystalo could be considered as well. These companies are potential competitors since they have own applications that can offer certain similar functionalities for physiotherapy app, but they don't have benefits of a Quick application and hence could use the technology to complement or develop their current proposition.

### 2.3.10 Cost structure

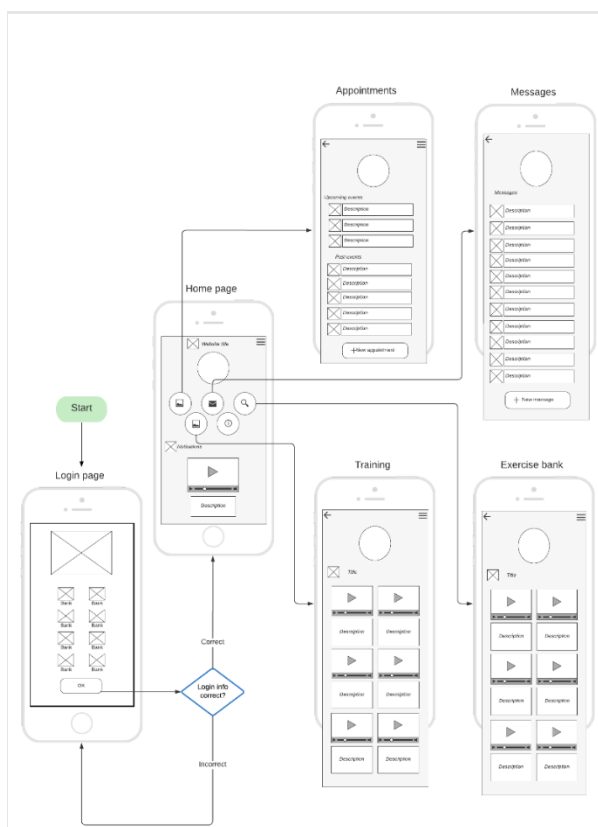
The cost structure for physiotherapy quick app can be divided to fixed cost and variable cost. For example, the human resource and management cost what comes from expertise

of the team that is hired to design, develop and maintain the quick app solution are seen as variable cost. Cost is also determined how simple or complicated the solution is and how much budget needs to be planned in terms of complexity. In the development lifecycle the resources might vary, in the beginning of solution it might require more than in the maintenance phase. There can be possible consultant and contractor cost in the beginning of establishing business in new marketplace. Fixed costs can be the software maintenance cost and possible infrastructure partner cost with third-party vendors that determined for certain fixed time of period in example for sales, customer support and marketing activities. Also, to above mentioned there are cost for companies such as taxes, insurances, technology, tools involved and hardware cost.

## 2.4 Solution presentation and justification

This chapter aims to provide considerations and recommendations for the next steps to complement the solutions and to add its effectiveness or implementation.

Figure X illustrates the main features of the Quick App. The main features include appointment booking, messaging, personal training plan, and exercise bank.



## Picture X. Wireframes of the Quick App

Next steps in the implementation process would be building iterative design and development and user testing and feedback. Building a Quick app is an iterative process, and it is essential to keep iterating until we achieve the desired outcome. The wireframes serve as a starting point and refining continues based on the feedback received from users. It is also important to collaborate with developers to ensure that the app is technically feasible and scalable. It is essential to identify any pain points, usability issues, or missing features that might impact the user experience. Based on the feedback, the Quick App design and functionality is modified to meet the user's needs and expectations. Conducting user testing and gathering feedback can be done through various methods such as online surveys, focus groups, or one-on-one interviews (Invonto, 2022).

### **3. Discussion & conclusions**

This chapter aims to summarize the findings of this report. The report demonstrates that the physiotherapy Quick App has the potential to improve the quality of life of patients with any issues that require physiotherapy. The Quick App provides a convenient and accessible way for patients to manage their health conditions, with personalized training plans that include videos and descriptions agreed with the physiotherapist. Other features include reminders to practice, a video and movement bank, messages with the physiotherapist, and appointment booking. The most significant benefit of the Quick App is that users can start using it immediately and delete it after their need is over.

The research presents several key insights into the development and implementation of a physiotherapy Quick App. The survey respondents see the value in a Quick App for physiotherapy, and it should be used together with live sessions of physiotherapy. Basic features such as video and an exercise calendar are essential, while satisfying features such as pictures, instructions, and reminders are necessary for user engagement. The app's exercises must be physiotherapy-specific, and sometimes custom-made for each patient. Other features would include a chat with a specialist and motivational elements, points or awards, when finishing exercises.

The research highlights the potential niche in Finnish market for a physiotherapy Quick App in private SMEs/public healthcare or in combination with existing regular applications.

Currently, existing physiotherapy apps are available to end user only after a downloading it from the App market, registration and receiving a program from a specialist. The project suggests that there are a few options how to enter the market. First, a subscription-based model for specialists and providing it free of charge to patients. The competitive advantage of a Quick App would be immediate use during the session with a physiotherapist and the possibility to build a program on-site. It will enable patients to start exercising immediately after the session and free time for a specialist. Alternatively, the app could be made freely available via app market, but premium content would be charged for. The app could also be offered as an occupational healthcare benefit.

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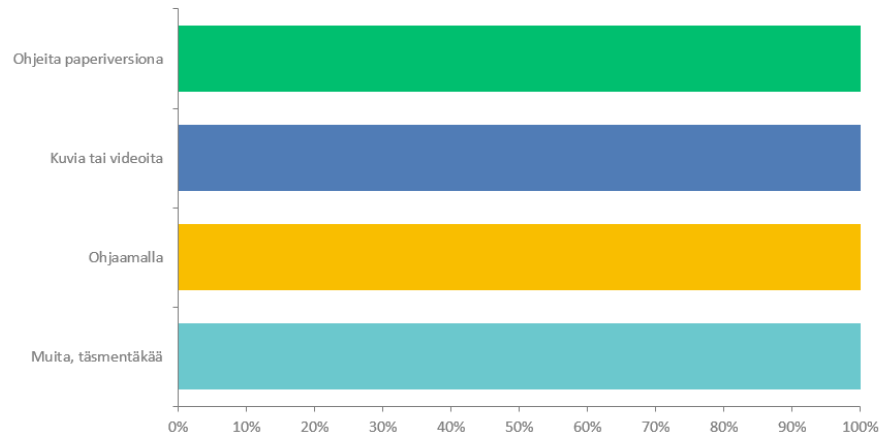
Orton revenue 2023. Available at <https://www.asiakastieto.fi/yriytkset/fi/orton-oy/22809791/taloustiedot>. (Accessed 6th of May 2023).

## Appendix 1

### Survey results for physiotherapy specialists (in Finnish).

#### Q1: Minkälaisia harjoitusmateriaaleja tällä hetkellä tarjoatte potilailenne?

Answered: 2 Skipped: 0



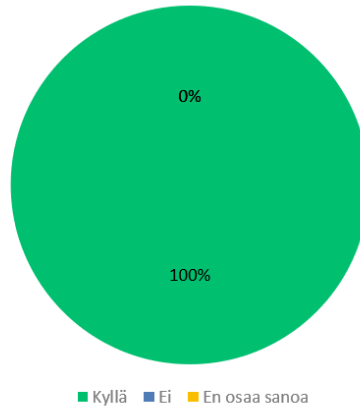
#### Q1: Minkälaisia harjoitusmateriaaleja tällä hetkellä tarjoatte potilailenne?

Answered: 2 Skipped: 0

ANSWER CHOICES	RESPONSES	
Ohjeita paperiversiona	100%	2
Kuvia tai videoita	100%	2
Ohjaamalla	100%	2
Muita, täsmentäkää	100%	2
<b>TOTAL</b>		<b>8</b>

**Q2: Luuletko, että potilaille olisi hyödyllistä saada fysioterapiaharjoituksia varten sovellus, jota voidaan käyttää heti fysioterapiaistunnossa hoidon suunnitteluun?**

Answered: 2 Skipped: 0



**Q2: Luuletko, että potilaille olisi hyödyllistä saada fysioterapiaharjoituksia varten sovellus, jota voidaan käyttää heti fysioterapiaistunnossa hoidon suunnitteluun?**

Answered: 2 Skipped: 0

ANSWER CHOICES	RESPONSES	
Kyllä	100%	2
Ei	0%	0
En osaa sanoa	0%	0
<b>TOTAL</b>		<b>2</b>

**Q3: Millaisia ominaisuuksia tällaisessa sovelluksessa olisi fysioterapeutin näkökulmasta hyödyllistä olla?**

Answered: 2 Skipped: 0





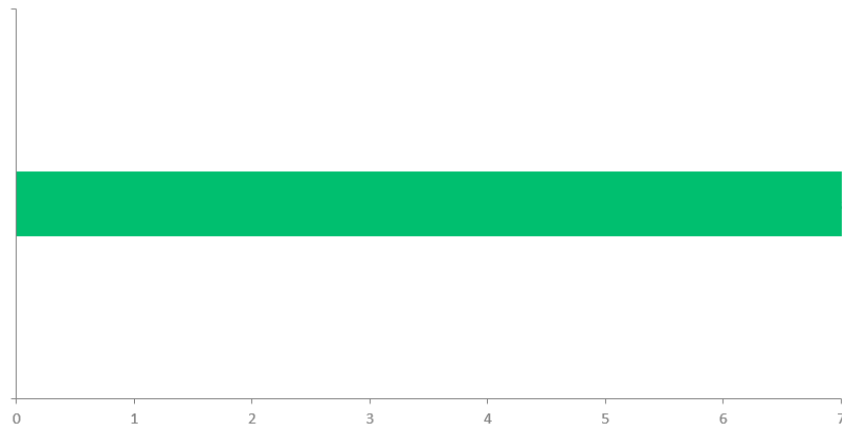
### Q3: Millaisia ominaisuuksia tällaisessa sovelluksessa olisi fysioterapeutin näkökulmasta hyödyllistä olla?

Answered: 2 Skipped: 0

ANSWER CHOICES	RESPONSES	
Sisältää voidaan helposti muokata ilman teknistä osaamista (esim. voidaan lisätä koulutusvideoita, kuvia ja ohjeita)	50.0%	1
sovelluksessa olisi pankki valmiita harjoitusvideoita, valokuvia ja/tai ohjeita	100%	2
sovellus voidaan avata ja sitä voidaan käyttää istunnon aikana	100%	2
sovellus ei vaadi lataamista tai rekisteröitymistä	100%	2
sovellus tarjoaisi potilaille muistutuksia harjoituksista	100%	2
sovellus seuraisi potilaan aktiivisuutta ja/tai biometriikkaa harjoitusten aikana	100%	2
sovellus lähettäisi potilastietoja terveydenhuollon tarjoajan järjestelmään	100%	2
Muita, täsmentäkää	50.0%	1
TOTAL		14

### Q4: Kuinka todennäköisesti käyttäisitte tällaista sovellusta käytännössä?

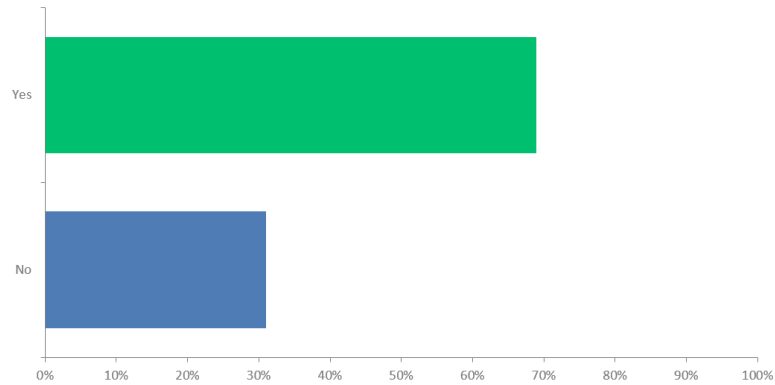
Answered: 2 Skipped: 0



## Survey for end users

**Q1: Have you ever received a physiotherapy treatment?**

Answered: 132 Skipped: 1



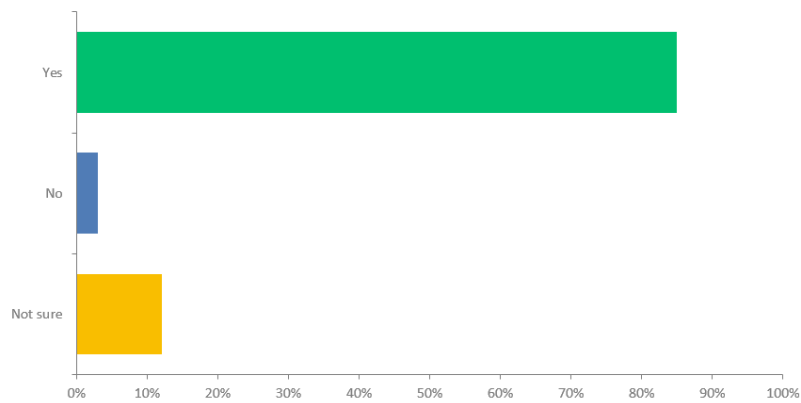
**Q1: Have you ever received a physiotherapy treatment?**

Answered: 132 Skipped: 1

ANSWER CHOICES	RESPONSES	
Yes	68.94%	91
No	31.06%	41
TOTAL		132

**Q2: Do you think it is beneficial to have an application for physiotherapy that would allow users to get an instant access to the bank of exercises and videos?**

Answered: 133 Skipped: 0



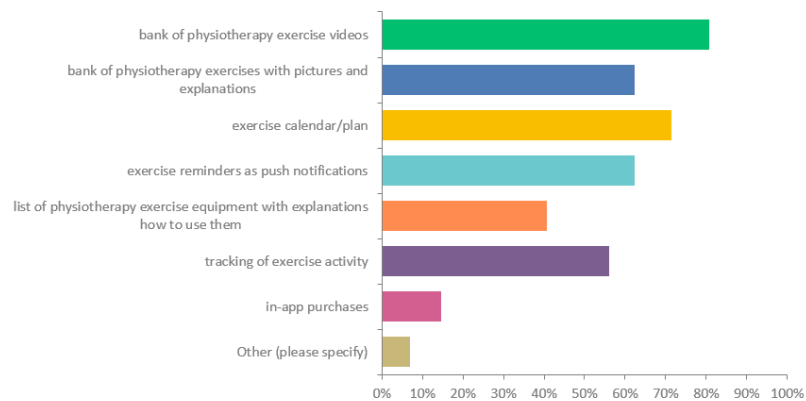
### Q2: Do you think it is beneficial to have an application for physiotherapy that would allow users to get an instant access to the bank of exercises and videos?

Answered: 133 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	84.96%	113
No	3.01%	4
Not sure	12.03%	16
<b>TOTAL</b>		<b>133</b>

### Q3: What features would be beneficial to have in such an application?

Answered: 130 Skipped: 3



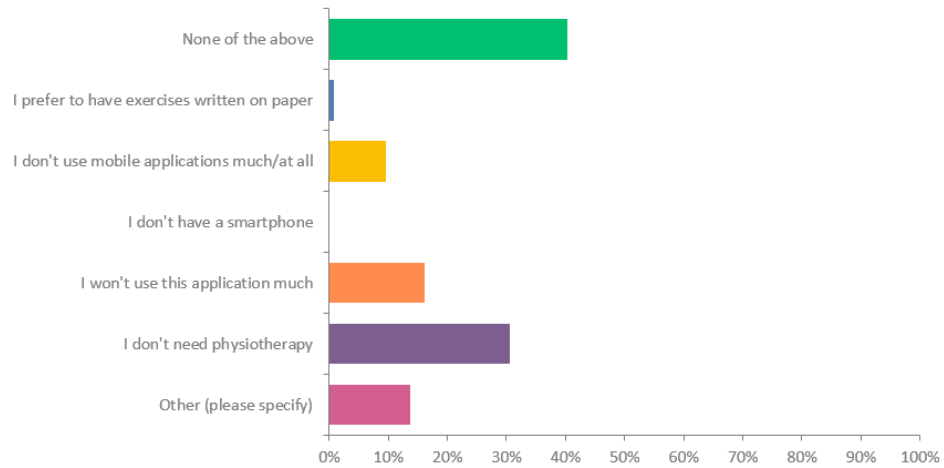
### Q3: What features would be beneficial to have in such an application?

Answered: 130 Skipped: 3

ANSWER CHOICES	RESPONSES	
bank of physiotherapy exercise videos	80.77%	105
bank of physiotherapy exercises with pictures and explanations	62.31%	81
exercise calendar/plan	71.54%	93
exercise reminders as push notifications	62.31%	81
list of physiotherapy exercise equipment with explanations how to use them	40.77%	53
tracking of exercise activity	56.15%	73
in-app purchases	14.62%	19
Other (please specify)	6.92%	9
<b>TOTAL</b>		<b>514</b>

#### Q4: Why do you think a physiotherapy Quick App\* might not be of value to you? (\*no need to download or register)

Answered: 124 Skipped: 9



#### Q4: Why do you think a physiotherapy Quick App\* might not be of value to you? (\*no need to download or register)

Answered: 124 Skipped: 9

ANSWER CHOICES	RESPONSES	
None of the above	40.32%	50
I prefer to have exercises written on paper	0.81%	1
I don't use mobile applications much/at all	9.68%	12
I don't have a smartphone	0%	0
I won't use this application much	16.13%	20
I don't need physiotherapy	30.65%	38
Other (please specify)	13.71%	17
TOTAL		138

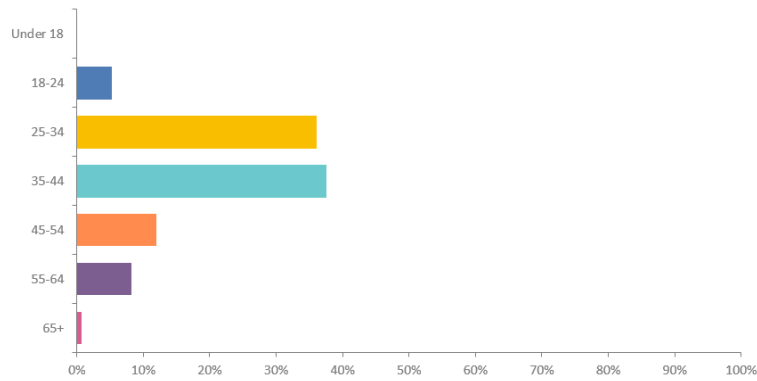
**Q5: Please select your age group**

Answered: 133 Skipped: 0

ANSWER CHOICES	RESPONSES	
Under 18	0%	0
18-24	5.26%	7
25-34	36.09%	48
35-44	37.59%	50
45-54	12.03%	16
55-64	8.27%	11
65+	0.75%	1
<b>TOTAL</b>		<b>133</b>

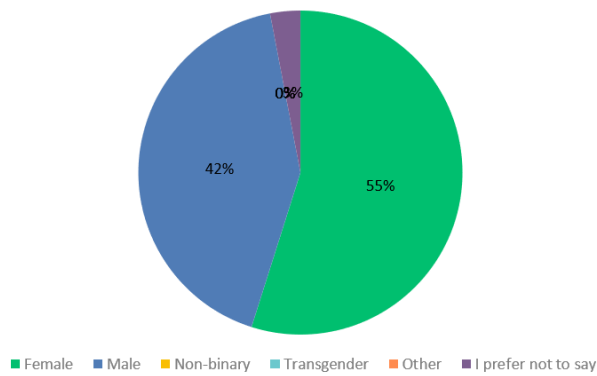
**Q5: Please select your age group**

Answered: 133 Skipped: 0



**Q6: What is your gender?**

Answered: 133 Skipped: 0



## Q6: What is your gender?

Answered: 133 Skipped: 0

ANSWER CHOICES	RESPONSES	
Female	54.89%	73
Male	42.11%	56
Non-binary	0%	0
Transgender	0%	0
Other	0%	0
I prefer not to say	3.01%	4
<b>TOTAL</b>		<b>133</b>

### Phone interview with a specialist X

- Why it is important to do prescribed exercises in a systematic way?

“Systematic training is important in order to see how physical therapy works. At the appointment, you mostly have time to go through the exercises, and the customer must take care of the exercises by himself.”
- How often in your practice you see that patients don't do exercises at home diligently?

“Very often. The more exercises are given, the less they are done. The exercises should be integrated into the client's everyday life. In some cases, reminders via the app would work, however in specific cases, like the problem with urinary incontinence when pushing exercises can be done situationally only”.
- What's the difference between physiotherapy exercises prescribed by a doctor vs exercises patients can find on the internet?

“The exercises prescribed by a physiotherapist are always individually planned. They are created based on researching the customer's problem. The exercises found on the Internet are general.”

## Appendix 2

Company name	Number of facilities in Finland	Company size	Partnering	Revenue for all

				healthcare services
Piilajalinna	55	Large	Joint venture with municipality SOTE	EUR 154 million / 2022
HUH Hieronta urheilu ja hyvinvointi	6	Small	Private	EUR 0,814 million / 2021
Suomen urheiluhieronta keskus	12	Medium	Private	EUR 1,19 million / 2021
Orton Joint and Back Surgery center as well as Pain Management and Rehabilitation	1 main Orton center joint with HYKS 11 facilities	Large	Orton private hospital and HYKS municipality healthcare united during summer 2020	EUR 20,3 million / 2022

Appendix list of Finland small and medium size physiotherapy healthcare center and facilities and municipality owned and joint venture organizations.