



EU Countries' mHealth App Market Ranking 2015

Which EU countries are best for doing mHealth business

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A benchmarking analysis of 28 EU countries about their
market readiness for mHealth business

11th May 2015

In partnership with



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1 SUMMARY

The EU Countries' mHealth App Market Ranking is a part of mHealth App Developer Economics, the largest global mHealth research program. This year more than 4,400 app developers, healthcare professionals and mHealth practitioners have shared their opinion on the global and EU market conditions.

This practitioners view is combined with a detailed facts based market readiness assessment for each country, based on five dimensions and 26 market condition criteria including eHealth adoption, level of digitalization, market size and health expenditure, ease of starting a business and the mHealth regulatory framework.

Denmark, Finland, The Netherlands, Sweden and the UK offer the best market conditions for mHealth companies in the EU. These countries score high in the market readiness assessment and mHealth practitioners confirmed that these countries offer good market conditions for mHealth. Any mHealth company should consider those top ranked countries as good starting points for their EU mHealth business.

Germany and France are the most complicated markets in the EU for mHealth. On one hand their market potential in terms of number of patients, doctors, hospitals as well as healthcare spending is a fact and is seen by most of the mHealth practitioners. On the other hand mediocre rankings in regulations, eHealth adoption by doctors and patients and the level of digitization in the healthcare system is offsetting the market potential to a great extent. Companies from these countries equally recommend and refuse doing mHealth business in these countries.

Greece, Romania and Latvia are ranked low. These countries offer below average market conditions for mHealth and have also a bad reputation among mHealth practitioners.

In general countries differ in their market readiness for mHealth. In the market readiness criteria (e.g. smartphone penetration, tablet penetration, share of GPs using ePrescription) the best performing countries often offer more than twice as good market conditions compared to the countries with low rankings. mHealth companies must be aware of countries' differences and be very selective in their go-to-market approach.

Most EU countries have not started yet to target mHealth companies to attract the best talents and to get the best solutions for their countries to improve patient outcomes and to reduce healthcare costs. As a consequence these countries don't have an mHealth roadmap nor any guidelines that mHealth companies would value to securely invest in the country.

2 SCOPE AND METHODOLOGY OF THE STUDY

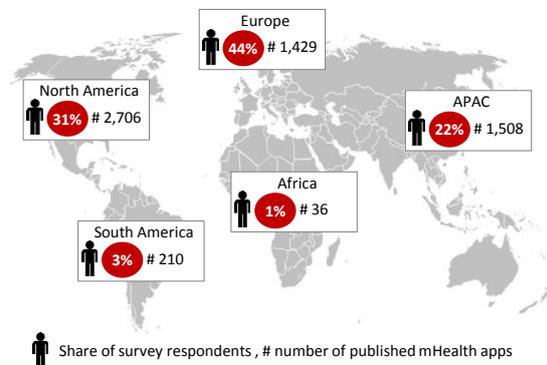
The report is part of the “mHealth App Developer Economics” research program, which has been executed for the fifth time this year. The research program represents the largest knowledge base of mHealth app developing and publishing globally. This year more than 4,400 mHealth app publishers have shared their views on the current status of their work and how the mHealth app market will evolve over the next years.

5,000 mHealth practitioners have been asked to rank EU countries for their mHealth market conditions

The EU countries' mHealth App Market Ranking builds on the results of the research program in terms of how do mHealth app publishers evaluate the EU member states for their mHealth business. The participants have been asked to rank the best and worst 3 countries from within the 28 EU countries for doing mHealth business. In addition they have provided reasons for their rankings. This is often a very pragmatic view based on their own experience with doing business in that country but also on what they have heard from others.

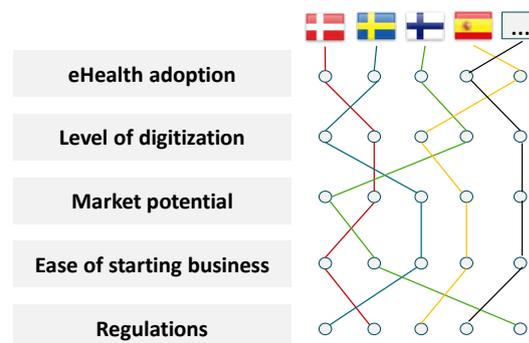
THE EU MHEALTH APP MARKET READINESS STUDY IS BASED ON THE RESULTS OF TWO RESEARCH PROGRAMS

1 MHEALTH APP PUBLISHERS MARKET ASSESSMENT



How do mHealth app publishers rate the EU mHealth market conditions ?

2 EU MHEALTH APP MARKET READINESS ASSESSMENT



How can 26 EU countries be rated according to 5 mHealth app market readiness dimensions?

The second pillar of the EU country mHealth market readiness study is a fact based country assessment along 5 dimensions.

The 5 mHealth app market readiness dimensions characterise the main market conditions in a country which have an impact on the business of an mHealth company, an established healthcare player or a start-up. Each country has been ranked along the 5 dimensions and their 26 market condition criteria.

eHealth adoption dimension

A set of criteria which illustrates how doctors and patients use the online channels (mobile or web) to communicate, inform and exchange information. One would expect that the more the stakeholders in a country use these channels the easier it is to explain, market and integrate a new mHealth service. The criteria of the eHealth adoption dimension are:

- GPs using electronic networks to transfer prescriptions to pharmacists (% of GPs)
- Patients making an appointment with a practitioner via a website (% of internet users)
- GPs exchanging medical patient data with other healthcare providers and professionals (% of GPs)
- Internet users seeking online information about health (% of internet users)

Level of digitalization dimension

A set of criteria that captures the penetration of capable devices within the population and their usage. The higher the penetration of smartphones and tablets and usage the better for any mHealth app business.

- Smartphone penetration (% of population)
- Tablet penetration (% of population)
- Number of used apps (average)
- Mobile internet usage (% of population)
- Regular internet users (% of population)

mHealth market potential dimension

The market potential for mHealth apps is linked to the number of potential users/patients/hospitals and the level of the healthcare spending in the country.

- Population (total)
- Number of doctors, nurses, hospitals (total)
- Number of hospitals (total)
- Health expenditure out of pocket (% of total)
- Health expenditure (% of GDP)
- Health expenditure (per capita)

Regulatory dimension

Regulation in a country can support mHealth business in providing clear guidelines of what is allowed and what is not allowed, which can reduce uncertainty. Countries differ in how they support electronic health records (EHRs) and ePrescription which is not relevant for all mHealth business models but having an open EHR and ePrescriptions available in a country widens the options for mHealth companies significantly.

- Acceptance of ePrescription
- Implementation of EHR
- Standards on EHR interoperability
- Permission for secondary uses of data from EHR
- Permission of remote treatment
- Existence of e/mHealth guidelines
- Acceptance of health data transfer
- Restrictions on mHealth data storage

Ease of starting a business dimension

Countries also differ in how complex it is to open up a new business, not only in mHealth.

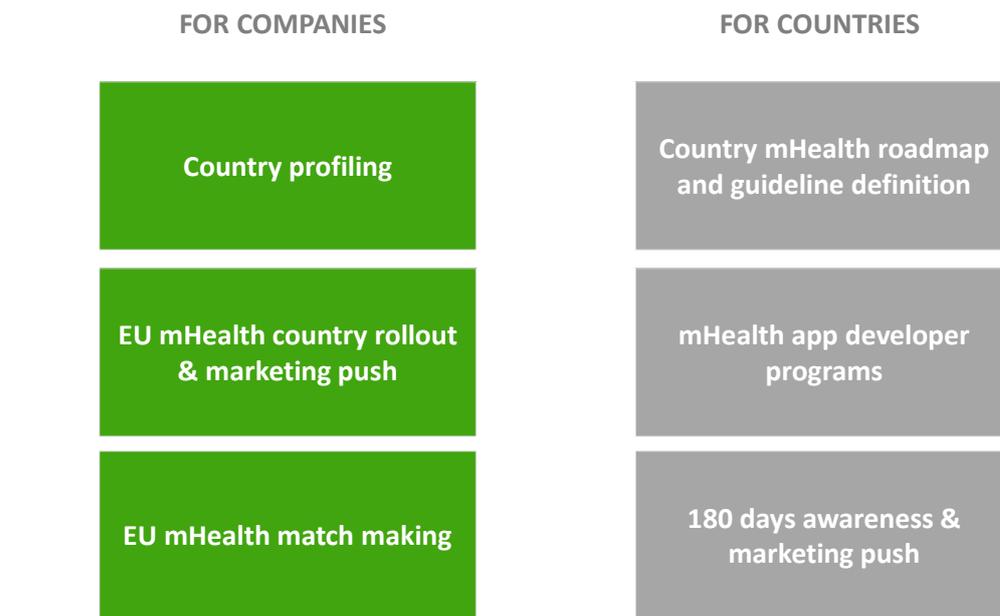
- Time needed to start business (days)
- Number of necessary procedures (total)
- Taxes (%)

The report gives valuable insights and guidelines for any company that wants to start an mHealth business within the EU as well as for government organizations in the countries that want to better leverage and stimulate the potentials of a flourishing mHealth ecosystem within the country to create jobs that require skilled labour, reduce national healthcare costs and ensure high levels of quality of care.

3 EU mHEALTH APP BUSINESS ACCELERATOR

The EU mHealth app business accelerator consists of a set of service offerings to help mHealth app publishers and country organizations to develop their go-to-market approach and market entry strategies and to improve the country readiness for mHealth start-ups.

EU mHEALTH APP BUSINESS ACCELERATOR SERVICE OFFERING



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The service offering is built upon a large database of mHealth app developers in Europe, decision makers in government institutions, established mHealth marketing channels as well as a team of experienced mHealth consultants with a track record of creating value for clients.

For further information and to find out how you can benefit from the mHealth App Business Accelerator please contact:

Rainer Herzog, Managing Director HIMSS Europe, rainer.herzog@himss.com

Ralf-Gordon Jahns, Managing Director r2g, rgj@research2guidance.com

SERVICES FOR COMPANIES:

Companies from within and outside the EU can use the EU mHealth App Accelerator program to get support for their go to market strategy.

Country profiling and prioritization:

- Healthcare system profiling (analysis of healthcare systems' overall set-up, care and payment processes)
- Barriers and stimulators of market entry for mHealth businesses
- Competitors
- Stakeholders
- Ecosystem partners
- Country prioritization for the respective mHealth service to be launched

EU country rollout & marketing push:

- Identification of partner in the pilot countries
- mHealth service localization incl. identification of key needs and key clients to start mHealth business and adapting existing mHealth products to local needs and requirements
- Pricing and business model elaboration and adoption to country specifics
- Recruitment of mHealth app developers and business developers and mHealth
- Onboarding and start-up of local team support and office search
- Develop a detailed market entry strategy, including business models
- Set up 180 days marketing and business development campaign

Match making:

- Connection with key players, stake holders of the healthcare system and investors
- Deal preparation

SERVICES FOR COUNTRIES:

Country institutions that want to drive the mHealth business within their home countries can benefit from the mHealth App Business Accelerator three ways.

Country mHealth roadmap and guideline definition:

- Analysis of country-specific market situation and readiness to embrace mHealth businesses
- Assessment of key market requirements allowing for the development of a dynamic mHealth business in the country
- Identification of the key strengths and barriers in the country
- Benchmarking with other markets/countries and identification of gaps and areas to take action on; lessons learned from best practice
- Assessment of suitable incentive models to drive the adoption of mHealth in a regional and national context
- Establishing national mHealth roadmaps
- Analysis of the potential economic impact of mHealth, as well as of implications on the quality of patient care

mHealth App Developer Program:

- Assessment of mHealth app developer and publishers needs
- Develop business offering for mHealth app developer
- Run mHealth developer country events to promote business offerings

180 days awareness and marketing push:

- Development of a marketing strategy to attract mHealth app developers to do business in the country
- Campaign management

4 MHEALTH APP MARKET EU COUNTRIES RANKING

EU countries are offering very different market conditions for mHealth companies. It is essential to know the differences before launching an mHealth service in a country.

The best market conditions can be found in those countries which score high in the 5 mHealth market readiness dimensions and where mHealth practitioners confirm good market condition.

This set of countries is ideal to pilot mHealth app business models in Europe.

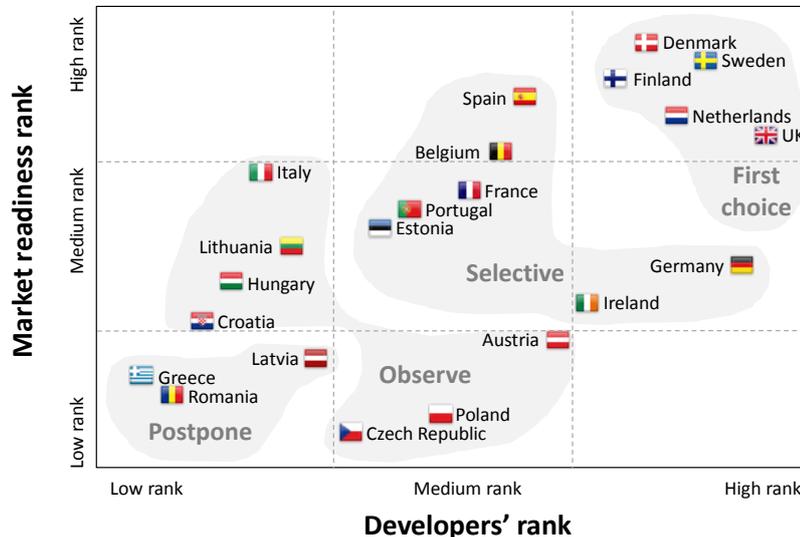
The EU countries can be segmented into four groups according their market readiness and their reputation among mHealth app practitioners:

- **First choice** – Denmark, Finland, The Netherlands, Sweden and UK. Countries performing the best in key market prerequisites and mHealth practitioners confirm its high potential. They are excellent countries to start an mHealth business in Europe.
- **Selective** – Belgium, Estonia, France, Germany, Ireland, Portugal, Spain. Countries which depending on the type of business model might be still interesting for developers. This group of countries should be selectively included into an mHealth EU country rollout plan as the prerequisites for starting a business within these countries are more difficult than in the first group.
- **Observe** – Austria, Croatia, Czech Republic, Hungary, Italy, Lithuania and Poland. A set of countries which either has a low rating from mHealth app developers or a low market condition rating. The market conditions should be observed to find out if market conditions improve within 2-3 years.
- **Postpone** – Greece, Latvia and Romania. Countries which have a bad reputation among mHealth developers and comparable weak market conditions for mHealth companies. These countries should be kept on a “waiting list” until market conditions will improve.

The countries of Bulgaria, Cyprus, Luxembourg, Malta, Slovakia and Slovenia are not included in the mHealth app market readiness benchmarking because there were too few ratings from app publishers.

5 COUNTRIES OFFER THE BEST MARKET CONDITIONS FOR STARTING AN MHEALTH BUSINESS IN EU

Comparison of country's rank in market readiness score and developer index



Developers rank – country rank by developers and decision makers,
 Market readiness rank – rank of country based on eHealth adoption, level of digitalization among population, market potential, ease of starting business, mHealth regulations

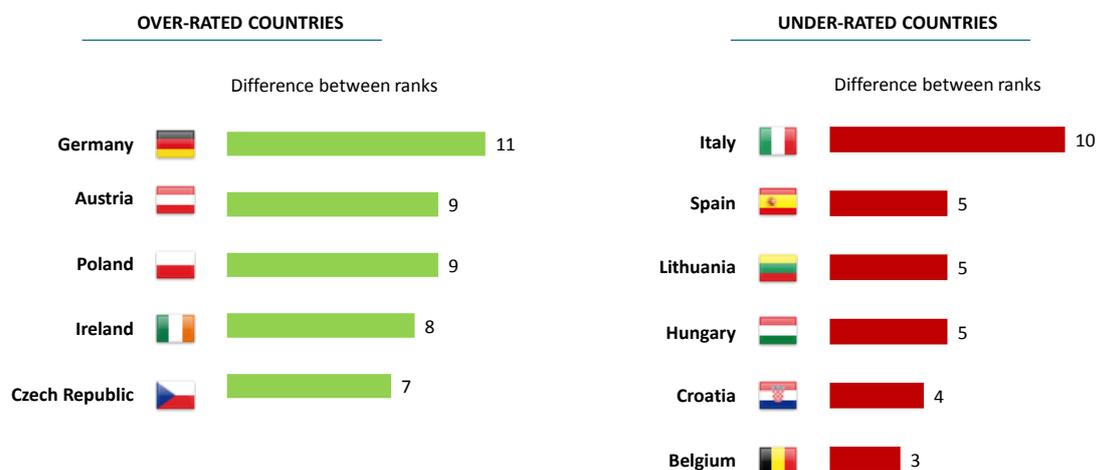
For almost half of the countries there is a match between the market readiness conditions of a country and mHealth practitioners' perspective. That means that mHealth companies have a realistic view on the mHealth market conditions in these countries.

For Germany, Ireland, Austria, Poland and the Czech Republic the mHealth practitioners seem to have too positive a view on the market readiness for developing and marketing mHealth solutions.

On the other hand countries like Spain which do offer comparably good market conditions for mHealth have not managed to deliver this message across to the mHealth app developer community.

GERMANY IS THE MOST OVER-RATED COUNTRY BY DEVELOPERS

Difference between country rank in market readiness score and by developers



For most of the countries there is a need to define an mHealth roadmap

For most of the countries there is a need to define an mHealth roadmap. The mHealth roadmap of a country should summarize the steps a country undertakes to improve the mHealth market conditions within the next 2-3 years and pay specific attention to set up clear guidance of what is allowed and what is not.

Second it becomes more and more important to set up an mHealth developer marketing strategy to attract the best mHealth companies to come to the country and create jobs as well as to help to take out costs of the healthcare systems through innovative solutions.

4.1 THE MHEALTH APP PUBLISHERS' ASSESSMENT

Between 20% and 50% of mHealth practitioners lack knowledge about EU mHealth market conditions

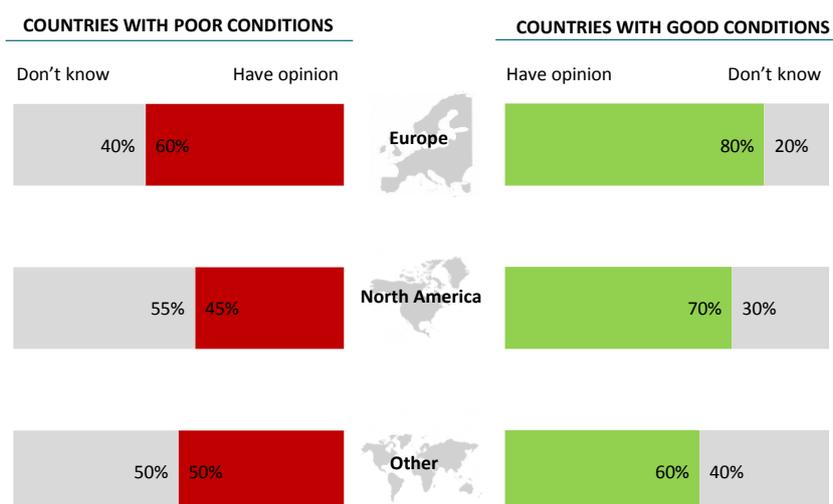
Not surprisingly mHealth practitioners from the EU more often have an opinion about the market conditions for mHealth compared to those from North America or from Asia or other regions of the world.

The majority of all mHealth practitioners (70%) have their top 3 countries in mind but only 50% are able to identify the countries with bad market conditions for mHealth.

The analysis also shows that between 20% and 50% of all mHealth practitioners have not enough knowledge about the healthcare systems and general mHealth market conditions in the EU to assess the country markets and to potentially develop a go-to-market strategy for their mHealth service.

80 % OF EUROPEAN COMPANIES HAVE AN OPINION ON WHICH EU COUNTRIES OFFER FAVORABLE CONDITIONS FOR MHEALTH

Share of participants with an opinion on EU market conditions by region



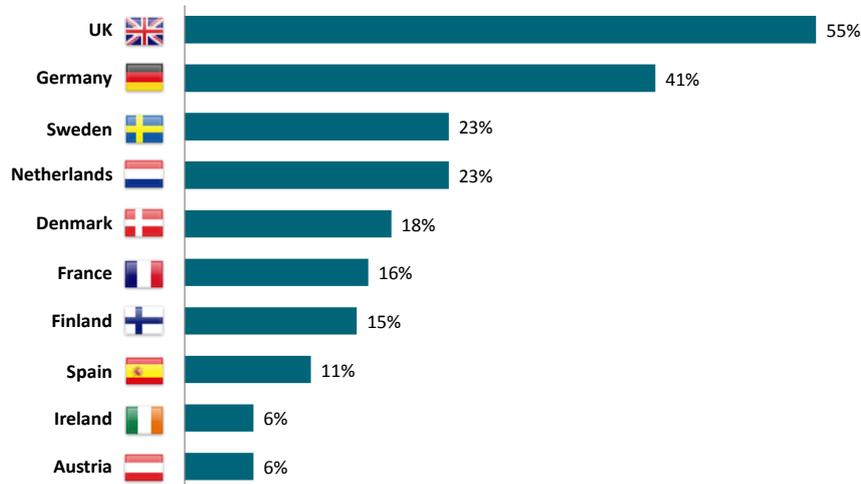
If mHealth app practitioners are able to assess a country's market, they have very clear preferences for countries in which they would like to do mHealth business in with UK being the leading country.

55% of mHealth practitioners state that the UK offers a good market environment for doing mHealth business. Germany (41%), Sweden (23%), Netherland (23%) and Denmark (18%) also get positive feedback.

The last 5 countries – Portugal, Romania, Lithuania, Greece and Hungary were each mentioned by only 1% of participants.

UK IS THE LEADING COUNTRY ACCORDING TO 55% OF MHEALTH PRACTITIONERS

Country preference by mHealth app publishers and decision makers



Share of participants ranking country in Top 3 countries with most favorable market conditions for mHealth business

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Source: research2guidance - EU countries' mHealth app market ranking 2015, n = 4,471

mHealth practitioners view the attitude of doctors to adopt and use new technology as the main indicator for a country which offer good market conditions. 50% of the mHealth practitioners say that a good country ranking depends on how open doctors are for applying and integrating mHealth solutions into their patient treatments and communication.

Doctors' acceptance of mHealth is driving country ranking

As there is no general reimbursement of mHealth services in all EU countries, this high rating of the doctor channel in the top country builds more on their general openness to use new technologies rather than the existence of business models for doctors and mHealth services that work already today.

The second most important factor for a good country ranking are hospitals and their level of digitization (39%). The ability to integrate their mHealth services e.g. electronic patients records and hospital-to-workflow-systems is seen as a major benefit for developing mHealth solutions in a country.

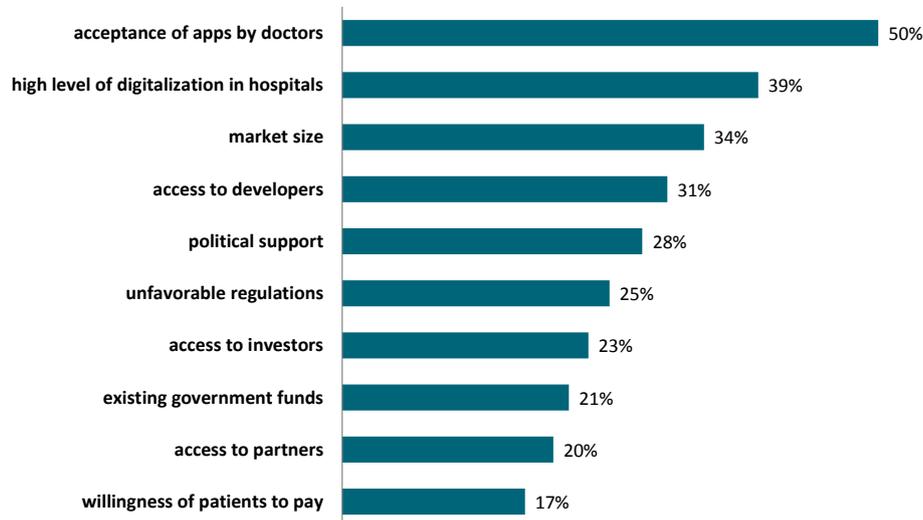
Market size in terms of e.g. number of inhabitants, patients, doctors or health care spending is another important factor for mHealth practitioners to give a high country rating.

Access to developers is mentioned by 31% of mHealth practitioners as an important factor that constitutes good market conditions.

The willingness of patients to pay for the mHealth service is only seen by 17% of the mHealth practitioners as a factor that positively influences their country preference.

50 % OF PARTICIPANTS STATED DOCTORS' ACCEPTANCE OF APPS AS MOST IMPORTANT FOR MHEALTH BUSINESS

Top 10 reasons why country offers favorable market conditions



Share of participants stating reason in 3 most important for country offering poor market conditions

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There are more factors that determine a good market environment for mHealth companies. In countries with low acceptance of mHealth solutions by doctors and patients themselves are seen as the main driver for the mHealth market in that country or as one mHealth practitioner puts it:

“The key for success of mHealth is consumer willingness and demand and disruption of existing business models. I.e. you need broadband internet, high penetration of mobile devices, and well developed and educated society and social environment.”

There are different reasons why a country offers good market conditions according to mHealth practitioners. In the UK, Sweden, Denmark and the Netherland doctors' acceptance of apps and high level of digitalization are seen as main drivers. Germany is attractive mainly because of its substantial market size and its big number of potential users.

“Scandinavian countries and the Netherlands seem to lead on the health-tech front. In the Netherlands there is a very good climate for start-ups.”

Some practitioners also positively mention the high number of available app developers, the need for remote medicine the high level of connectivity among patients and user in general for countries like Finland, Sweden and Denmark.

mHealth practitioners also have an opinion about the countries with poor market conditions.

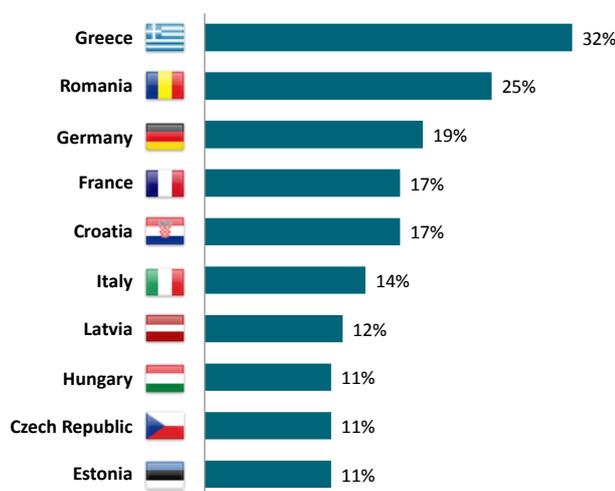
Developers see Greece as the country with the worst market conditions (32%) for offering mHealth solutions. This might be influenced by the actual discussion around their country financial condition but is also backed up by mHealth specific factors that retrain mHealth developers to go to Greece with

their mHealth business. Romania (25%) is ranked number two in terms of bad market conditions for mHealth.

Croatia, a country which claims to invest in the digital healthcare system and is often cited as an advanced country for its attempt to use ICT to make its healthcare system more efficient is ranked among the countries with poor market conditions by mHealth practitioners. Country representatives should revise their communication strategy as it seems that it does not reach one of its main target groups, the mHealth app developers.

GREECE AND ROMANIA ARE THE LEAST ATTRACTIVE COUNTRIES FOR MHEALTH BUSINESS

Country poor market conditions ranking by mHealth app publishers and decision makers



Share of participants ranking country in Low 3 countries with most prohibitive environment for mHealth business

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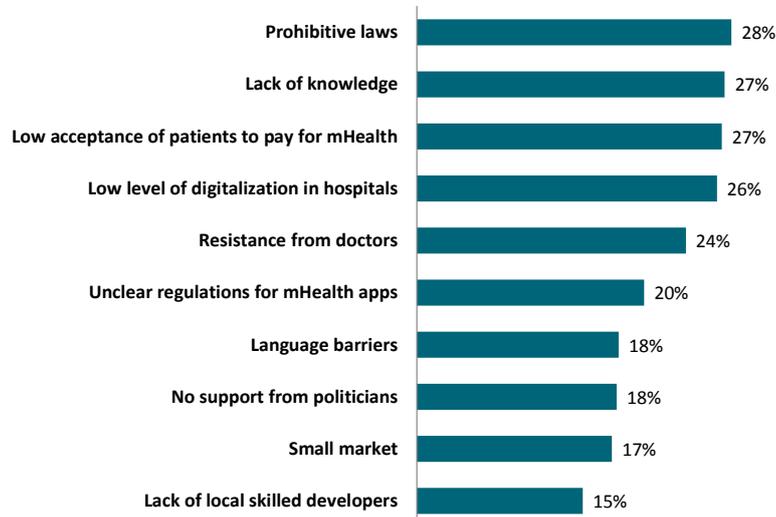
There are four main reasons which are almost equally important for developers. Prohibitive laws are the biggest country barrier with 28% stating it as one of the main reasons for not starting a business in a country. Prohibitive laws are followed by low acceptance of patients to pay for mHealth (27%) and lack of knowledge about the market (27%). High competition or need of a local partner doesn't seem to be a significant barrier to market entry.

In general mHealth companies claim that in Europe the health industry is kept a closed shop, with little transparency and communication between doctors and doctors and doctors and patients. One practitioner summarizes this disadvantage by comparing it with the USA:

"European countries are not used to share health industry information (innovations, roadmaps, standardization, etc.) to a wider public. In the US digital health industry there is more information available for public. This is the problem in Europe that information is kept just inside the inner circle."

PROHIBITIVE LAWS ARE THE BIGGEST BARRIER FOR A COUNTRY

Top 10 reasons why country offers poor market conditions



Share of participants stating reason in 3 most important for country offering poor market conditions

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Interestingly Germany (19%) and France (17%) are also seen by a great share of mHealth practitioners as countries with poor market conditions for mHealth. mHealth practitioners have a mixed view on these two countries. On one hand they see the potential mainly because of the market size but they also see the barriers coming mainly from the perceived resistance from the traditional healthcare players like doctors but also from legal barriers like the prohibition of remote patient treatment.

Nordic countries like Sweden, Denmark or Finland as well as the Netherlands were almost never mentioned by developers as countries with poor market conditions.

GERMANY IS THE MOST CONTROVERSIAL COUNTRY AMONG 22 EU COUNTRIES

Comparison of country rank in poor market conditions and good market conditions



Regarding the German and French mHealth market as controversial is confirmed by mHealth practitioners that are based in those countries. In Germany 36% of local businesses see their country positively and a little more (38%) see their country negatively, the rest (26%) either doesn't have an opinion on their country's conditions or do not see it as either good or bad. Practitioners from Germany who placed their country within the lowest 3 countries usually ranked it with 1 – the worst country to do mHealth business in.

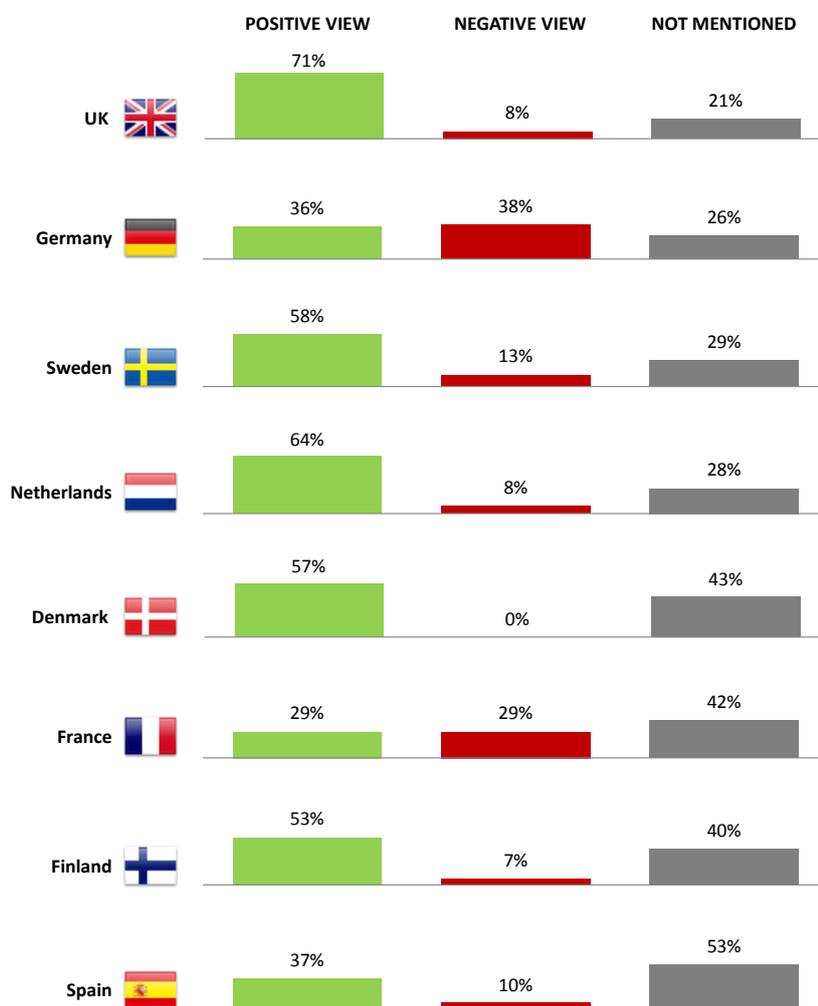
French mHealth practitioners rate the market conditions in their home country equally (29%) as good and as poor.

For all other countries that have been rated positively, local companies tend to be commonly satisfied with the market conditions in their home countries. The UK proves to be the leading mHealth country as 71% of local companies stated it as the country with favourable conditions and only 8% saying it offers rather prohibitive environment. The second highest number of local companies thinking positively about their country is in the Netherlands (64%) and in Sweden (58%).

Another interesting example is Denmark which was ranked as good by 57% and it was never mentioned as a country with poor conditions by any mHealth practitioners based in Denmark.

GERMAN AND FRENCH COMPANIES ARE NOT COMPLETELY SATISFIED WITH MARKET CONDITIONS IN THEIR COUNTRY

Share of local companies with positive/negative view on their country conditions



Share of participants from local companies ranking their country in Top 3/Low 3

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The mHealth practitioner rating of the country conditions is a good indicator for mHealth companies where to start their mHealth business. The country preference of mHealth app practitioners does not depend on the company size or type, the main business model and the size of the mHealth app portfolio. The country prerequisites for a successful mHealth business seem to be equally good or bad for start-up companies or established healthcare companies.

For country institutions that support the digitization of the healthcare systems, the mHealth practitioners rating is a good indicator how well their activities are known and accepted among the mHealth ecosystem.

4.2 THE EU COUNTRY MHEALTH MARKET READINESS

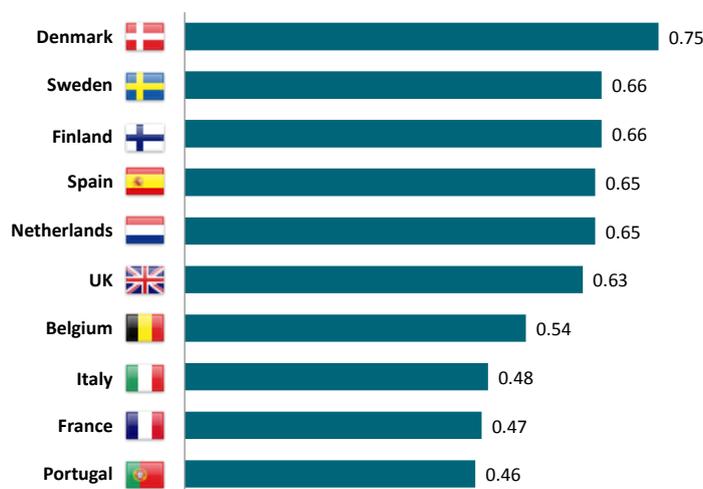
This chapter provides a fact based assessment on the market readiness for mHealth business based on the rating of 5 market readiness dimensions and their 26 market condition criteria. The market readiness dimensions describe the market environment that is relevant for most of the mHealth business models. They include the general acceptance and capability of stakeholders to use mobile solutions for healthcare but also market size, ease of starting business and regulatory aspects.

In order to compare and rank the 28 EU countries in the 5 dimensions and 26 criteria the data (e.g. smartphone penetration in % of the population) has been normalized between 0 and 1. For example the country having the highest smartphone penetration gets the value 1 and the country with lowest smartphone penetration gets the value of 0. The EU country ranking within one dimension results from the unweighted average of the criteria values.

Based on all dimensions and criteria Denmark offers the best market readiness condition for mHealth business in the EU even though it doesn't offer the biggest market size, in all other dimensions it is ranked within Top 5.

DENMARK OFFERS THE BEST MARKET PREREQUISITES NEEDED FOR MHEALTH BUSINESS

Country ranking by mHealth market readiness score (Top 10)



Market readiness score – average of the scores in 5 categories: eHealth adoption, level of digitalization among population, mHealth market potential, ease of starting mHealth business, mHealth regulatory framework. Values of the scores are between 0 and 1, where score 1 represents country which has the highest value in all criteria (e.g. for level of digitalization category criteria are smartphone penetration, mobile internet users, number of used apps, ...)

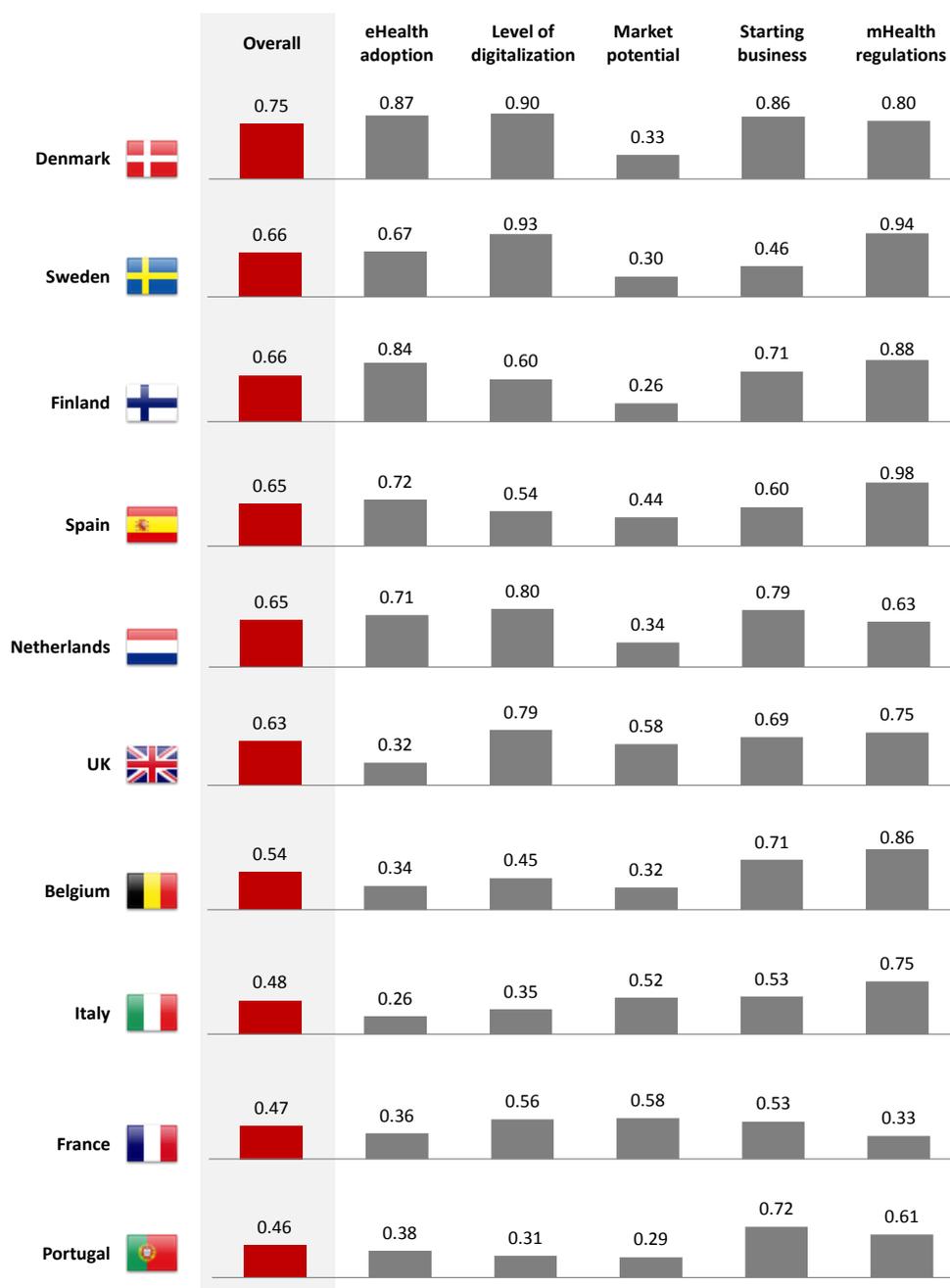
Denmark is followed by Sweden, Finland, Spain and the Netherlands. All Top 5 countries each have a very digitalized society, they are already used to using technology in healthcare and have a supportive regulatory framework.

The countries with the lowest market readiness are Czech Republic, Poland and Romania mainly because of their low acceptance of eHealth, low digitalization and low internet usage.

Germany is offering the biggest market potential in terms of the number of potential users and the high potential cost savings. In all other dimensions Germany is ranked low and it is ranked as 12th best country to do mHealth business in.

DENMARK OFFERS THE BEST MARKET PREREQUISITES FOR MHEALTH BUSINESS

Country overall score and dimension's scores (Top 10)



The performance of each country differs significantly between dimensions:

eHealth adoption dimension:¹

The eHealth adoption dimension describes the degree to which doctors use ePrescriptions, share medical patient data with other healthcare professionals or patients making appointments with practitioner via website and searching online health information.

91% of doctors in

Denmark exchange

EHR data electronically

The most advanced country in eHealth adoption is Denmark; almost all doctors use ICT at work, the electronic transfer of data (laboratory results, communication between healthcare practitioners, etc.) as well as using ePrescription is very common. Denmark is the only country where exchanging patients medical data electronically is very common (91% of doctors), average of other covered countries is only 34%.

Finland has high patient involvement in eHealth – seeking health information online (66% of internet users) and making online appointments (35% of internet users) which were high above average of EU. In seeking online health information only Germany was doing better than Finland (69% of internet users).

In Sweden, Estonia and Denmark ePrescriptions are already routinely used, all prescriptions are transferred to pharmacist electronically and patients are also able to reorder medication via web-services. In Croatia and Netherlands ePrescriptions are used by more than 95% of doctors. Croatia has high usage of ePrescription but in other criteria it is performing rather poorly.

The share of GPs using ePrescription vary between 1% (Lithuania) and 100% (Estonia)

There are some countries in which ePrescriptions are almost not used at all (less than 5 % of GPs) – Belgium, Hungary, Lithuania, Poland and Portugal.

Highest number of appointments made online (more than 30% of internet users) can be found in Spain, Denmark and Finland.

Level of digitalization dimension:²

The level of digitization dimension in a country describes the penetration of capable devices (esp. smartphones and tablets) and their usage. The higher the penetration and usage the better are the market conditions for any mHealth app business. Patients are the main drivers of mHealth and affordability, availability and acceptability of compatible devices will all play a key role in achieving mHealth adoption on a mass scale.

In general countries which are doing well in level of digitalization are also doing well in eHealth adoption.

In more than half of the countries more than 50% of their respective population own a smartphone, with even higher numbers among young people.

Smartphone penetration varies between 33% (Romania) and 75% (Sweden)

The most digitalized society is in Sweden with 75% of adults having a smartphone on which they in average use 13 apps. Half of Swedish smartphone owners are also using mobile internet. Sweden has also one of the highest shares of smartphone owners older than 45, twice as high as EU market average of 25%

¹ Digital Agenda (2014)

² Google Public Data (2014), Google Mobile Planet (2013), Digital Agenda (2014)

Countries with the lowest level of digitalization are Romania, Poland and Greece. In Romania only 33% of adults own a smartphone (higher number among young population – 60% for adults until 34 years old) and only 13% of population own a tablet.

Average tablet penetration in the 22 EU countries is 25%, the highest is in the Netherlands (51%) and Denmark (47%) and the lowest in Hungary (9%), the number of tablet users has grown by 20% since 2013 in the EU countries.

The average number of actively used apps is 10, with very little differences between countries.

In average 16% of smartphone owners use mobile internet, the highest number of internet users are in Sweden, where almost every second smartphone user is connected online with mobile internet. The lowest usage of mobile internet is in Czech (1%), Latvia (4%) and Poland (4%).

Within the EU on average 74% of population uses the internet on a regular basis. The internet usage is highest (more than 90%) in Denmark, Netherlands and Sweden. The lowest internet usage can be found in Greece and Portugal (60%).

mHealth market potential dimension:³

The mHealth market potential dimension describes the number of potential users (patients, doctors, nurses, hospitals) and height of expenditures for healthcare by patients (out-of-pocket) and total spending.

Countries with high out of pocket spending like Latvia (37%) might offer easier market access for B2P mHealth offers

Germany, UK and France are by far the biggest potential mHealth markets.

Low ranked countries are generally small countries with low health expenditure such as Lithuania, Croatia and Estonia.

Latvia is the country with the highest out of pocket expenditure – 37% of all expenditures followed by Portugal and Greece (around 30 %). Lowest out of pocket expenditure can be found in the Netherlands (6%), UK (10%), and France (7%). The average in 22 EU countries is 20%.

Nordic countries and Austria have the highest expenditure for health per capita. In Denmark the healthcare spending is 6,300 USD per capita. On the other hand Romania's health expenditure per capita only accounts 420 USD per year.

Ease of starting mHealth business dimension:⁴

This dimension describes how easy it is to start and maintain a new business based on the number of days needed to start a business, the number of necessary start-up procedures to register a business and the taxes level.

Smaller countries like Denmark and Ireland tend to better support new business compared to bigger countries.

The time needed to start business in the 22 covered EU countries varies between 2 to 30 days, with 2 – 9 necessary legislature procedures. In Portugal and Lithuania it

Number of days to start a business varies between 2 (Portugal) and 30 (Poland)

³ WHO, World Bank, OECD (2012-2014)

⁴ World Bank (2014)

takes less than 3 days to start a business. The longest time it can take to open a start-up is 30 days in Poland and 22 days in Austria.

Start-up procedures are those required to start a business, including interactions to obtain necessary permits and licenses and to complete all inscriptions, verifications, and notifications to start operations. The average time it takes to navigate those procedures is 5 days, and a minimum of 3 for Belgium, Finland, Lithuania and Spain and maximum 9 for Czech Republic and Germany.

Total tax rate measures the amount of taxes and mandatory contributions payable by businesses after accounting for allowable deductions and exemptions as a share of commercial profits. The lowest taxes are in Croatia (only 18% of commercial profits) and Ireland (26%), highest taxes in France and Italy (more than 65%)

mHealth regulatory framework dimension:⁵

The “ideal world” for mHealth business would be a country where remote treatment is allowed by doctors also coming from outside the country, prescription of medicine could be done electronically, the mHealth services are being reimbursed and medical data from EHR could be easily accessed and exchanged between doctors, companies and countries. To have a clear mHealth guideline of what is allowed and what not would be of great value for mHealth companies.

In this environment mHealth companies would have the maximum flexibility for their business model as well as certainty for their investment.

Most of the EU countries don't have mHealth guidelines

Most of the countries don't have an mHealth roadmap or guidelines. The country with the most friendly mHealth regulations is Spain especially in regions of Catalonia and Galicia.

EHR systems are in use in all countries, although the level of implementation is very different. EHRs are fully implemented in Bulgaria, Denmark, Hungary, Estonia, Finland, the Netherlands, Sweden and UK. In Finland and Estonia all patients' data must be stored electronically. Czech Republic, Germany and Ireland are only at the stage of policy initiatives to develop shared EHR systems. In other countries the shared EHR is either in its testing stage or deployment stage.

Less than half of the countries implemented specific rules and standards on EHR interoperability. EHR legal requirements in some of these countries are only available in draft versions of EHR systems, or not yet implemented and these requirements may only cover certain specific elements of EHRs.

In most of the countries ePrescriptions rules are already operational. In countries like Sweden, Estonia, Denmark and Croatia ePrescriptions are routinely used and patients can reorder medication by themselves. On the other side in countries such as Austria, France, Germany, Ireland, Latvia and Poland ePrescription are not supported by the regulatory bodies.

In addition there are some laws that could have an impact on mHealth. For example in Germany and Austria remote patient treatment is prohibited, in Austria telemedicine can be only used in case of emergency. In Portugal it is still preferred to examine a patient personally and remote consultation can be done only by a patient's regular doctor. However, in some countries such as Spain and Denmark,

⁵ European Commission (2014)

telemedicine is already widely used and it is not seen as a second-class medicine and it is perceived as a complement to traditional healthcare.

RESEARCH2GUIDANCE WILL PUBLISH A DETAILED COUNTRY MHEALTH RANKING REPORT SOON.
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5 GUIDANCE

There are different learnings that could be drawn from the EU countries' mHealth App Market Ranking. mHealth is still a niche market in all EU countries. mHealth solutions are not an integrated part of all the EU countries' healthcare systems today and they are very different starting positions for mHealth solutions within the 28 EU countries. These starting positions must be understood by any mHealth company that wants to invest in EU market. In general companies that want to invest in mHealth business or just wants to market their mHealth solution in one or more of the EU countries should pay special attention to the 5 market dimensions described in the report. Within their go-to-market strategy mHealth companies should:

- **Identify institutions that support mHealth business in each country.** There might be help.
- Understand the market criteria and conditions that have an impact on the business model. There are a lot and they differ.
- **Get a clear understanding on how the healthcare system works.** There are a lot of players involved that one should know.
- **Be very selective with the EU countries where the service should be launched.** Being able to report a success in one country is better than mediocre results in several countries.
- **Prioritize countries from the top 5** (Denmark, Finland, Netherlands, Sweden and UK) if no other reason stands against it.
- **Make use of practitioners' experience** from the countries you are interested in and consult at least 10 of them before market entry by e.g. using the research2guidance mHealth database
- **Test the doctors' and patients' willingness** to use your service in the country before the launch.

On the other hand country institutions should understand that they are competing against each other for the best talents and solutions to make mHealth work in their healthcare system and to realize the potential benefits of mHealth for improved patients' outcome and reduced healthcare spending in the country.

The analysis reveals that with a few exceptions like Denmark and Spain, government institutions have not taken on the challenge to make their countries attractive for mHealth. This means that by formulating the country's mHealth roadmap and guidelines, the country could gain a competitive advantage and might compensate for market conditions that are not favorable for starting an mHealth business. Country organizations responsible for mHealth should:

- Understand that **mHealth companies are valuable partners/customers** that help to digitize the healthcare system and thus reduce costs and improve quality.
- Listen to what **mHealth practitioners** say about **market conditions** in the country and what they **need to invest**.
- **Formulate your country mHealth roadmap and guidelines.** This would give your country a competitive advantage as the majority of the countries don't have an mHealth strategy.
- **Engage into active mHealth app developer marketing.**
- **Inform doctors and mobilize them to use mHealth** as this is seen as one of the main barriers or drivers for mHealth practitioners in the country.
- **Impose incentives for digitalization in healthcare systems** e.g. to speed up implementation of electronic health records or communication between doctors and patients.

research2guidance's EU Countries' mHealth App Market Ranking

There will be a detailed report on the EU countries' market readiness for mHealth business coming out soon. The report will include the rating of all 28 EU countries for the 5 dimensions and 26 market condition criteria.

For inquiries about the report but also for questions related to the EU mHealth App Business Accelerator program please get in contact.

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