

# Patient in the digital world

How new technologies are changing the medical services market in Central and Eastern Europe





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# ***Patient in the digital world***



# Introduction

A revolution is coming in the healthcare system in Central and Eastern Europe (CEE) that will be structured by digitalisation, new technologies and telemedical solutions. Telemedical service providers must be prepared for the changing requirements of patients, which will certainly influence the model of providing services: hospitals and clinics will be replaced (at least in part) by solutions based on the remote provision of medical services in the patient's home or at dedicated service points.

For the countries of our region, technological development is primarily a great opportunity to catch up with the more developed Western European countries, and is conditioned on the implementation of an effective business model, in terms of both cost and quality of services.

Simply applying the best practices of the Western European countries and trying to reach comparable levels of indices in all areas of healthcare is no longer a good indicator. What we may need now is for investment in extended and costly healthcare infrastructure to stop. It must be borne in mind that the investment process in Western Europe lasted for 20–30 years. In the era of advanced technology, this infrastructure is often unprofitable, badly used, and in many cases simply unnecessary. In such a context, alternative solutions should be taken into account.

According to our analysis, as many as almost 60% of the patients in Central and Eastern Europe are prepared to use telemedical solutions. The new generation healthcare will increasingly use more technological innovations, such as mobile devices, dedicated applications, teleconsultations, and even artificial intelligence or data mining tools. More and more services will be provided remotely at the patient's home or at service points, even in places like the pharmacy, drugstore, or modern trade locations.

Changes will initially be implemented in those segments of the healthcare system where new technologies are already available, and where the share of private financing is the greatest.

In particular, the affected areas will include: primary care, outpatient specialist care, and then diagnostics, rehabilitation, and elderly care services.

In our report, we mainly concentrate on pointing out the opportunities provided by telemedical solutions connected to the private medical services market, where telemedicine is developing most rapidly. The value of the private medical services market in the countries of our region is estimated at nearly EUR 14 billion per year. The development rate of the telemedical market is also impressive. For example, in Poland the number of teleconsultations has doubled within just 12 months.

The group most affected by the revolution that will take place in the coming years will be private patients, who pay for services from their own pockets or use medical care subscription packages/ medical insurance provided by their employers. Private healthcare providers have to prepare for increasing demands from these patients and changed preferences regarding, for example:

- greater care about health and more frequent use of available medical advice,
- an opportunity to see a doctor, with expectations to independently select a given specialist (the lack of this opportunity is the reason why patients choose physicians with individual practices independent of larger medical service chains),
- high quality services, explicitly better than those provided by public institutions,
- an immediate and convenient opportunity to see a specialist, have diagnostic tests done, and access test results,
- personalised, innovative forms of treatment and rehabilitation.

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1. Central and Eastern European countries, further called CEE countries, include: Poland, Romania, Czech Republic, Slovakia, Hungary, Bulgaria, Serbia, Croatia, Bosnia and Herzegovina, Moldova, Albania, Macedonia, Slovenia, Kosovo, Montenegro, Lithuania, Latvia, and Estonia.

A description of the developments on the telemedical services market would be incomplete without reference to the impact of the new competition, i.e. technological companies that have started to offer medical services and so-called health-related services. As smaller and more flexible companies, they understand the needs of patients very well and have relatively easy access to funding. This makes it possible for them to offer innovative and attractive market solutions. At the same time, private providers that have been active on the market for years and manage whole chains of clinics are trying to make up for lost time. In addition, pharmaceutical companies, chains of pharmacies, as well as providers of a wide range of consumer goods and services are also seeing opportunities for themselves.

We hope that in the near future, the scope of the changes we are describing will cover the entire healthcare system, both private and public, to the same extent. What makes it difficult is the undoubtedly large number of stakeholders in this system. The countries of our region will have to face this challenge, for which time will be needed. We are convinced that once all stakeholders have reached an agreement, we will finally have a system meeting the needs of a digitalised society. This will be the dream of an efficient healthcare system come true, although in an entirely different, advanced model.

In the summary of the report, you will find our recommendations for all entities that are now working, or will soon be working, on a service proposal for patients of a digitalised world.

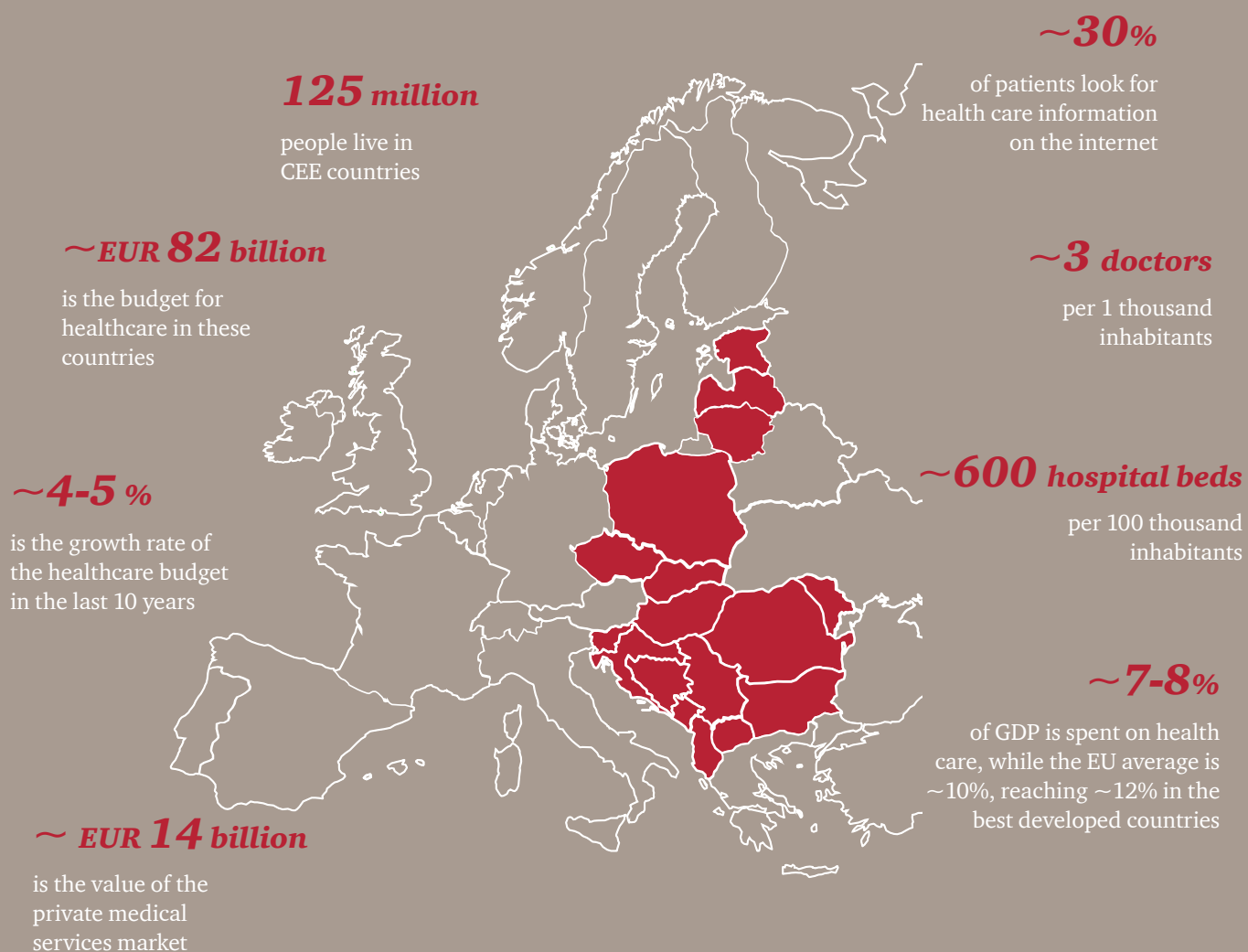
*Have a good read!*

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# Eastern and Central Europe in Numbers



Source: PwC Analysis







# The attractive and constantly growing market for private medical services

## The role of private spending in the healthcare system

Private spending on healthcare services has always played a more important role in the countries of Eastern and Central Europe than in the western part of the continent, where – due to much higher affluence – budgets have the ability to finance a much greater number of medical services from public funds.

The average share of private spending in the countries of our region amounted to about 25% in 2015, whereas in Western Europe the level is much lower. Moreover, the share of private spending on healthcare in CEE countries is still increasing, while in most West European countries it remains at the same level.

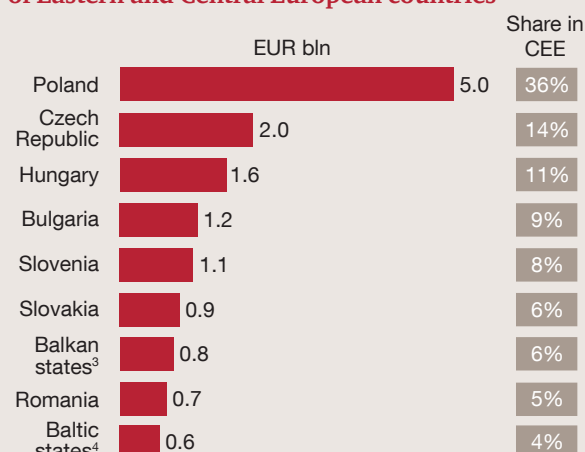
## Market value and dynamics

According to our analysis, the value of the private medical services market in CEE countries amounts to EUR 13.9 billion per year. The Polish market – the largest – is estimated at about EUR 5 billion, i.e. 36% of the value of the entire region. Next in line are the Czech Republic (EUR 2 billion), Hungary (EUR 1.6 billion), Bulgaria (EUR 1.2 billion), and Slovenia (EUR 1.1 billion). Some of the factors affecting the value of the market are: population size, the level of development of private service providers, and the level and availability of services financed by the public purse.

## Market structure

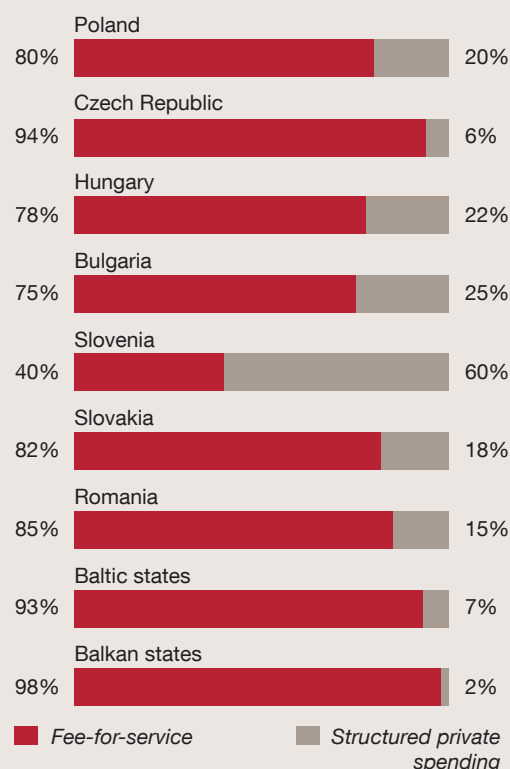
Direct private spending, known as fee-for-service, plays a dominant role, making up about 85% of the entire pool, the remaining part being ‘structured private spending’. Structured private spending has developed in two forms: as medical subscriptions, or as health insurance. The former prevail mainly in Poland and Romania, while insurance plays a significant role in Slovenia, Slovakia, and Hungary. The popularity of a given solution depends on local regulations and tax solutions.

## The size of the private medical services market of Eastern and Central European countries



Source: PwC Analysis

## Structure of private spending on health care in Central and Eastern Europe



Source: PwC Analysis

We estimate that private spending is increasing by about 6% per year in our region, which is nearly twice as fast as public spending.

6%

2. Fee-for-service means purchase of a selected health service (examination, advice, treatments, etc.) paid from the patient's own funds.

3. Serbia, Croatia, Bosnia and Herzegovina, Albania, Macedonia, Kosovo, Montenegro

4. Latvia, Lithuania, Estonia

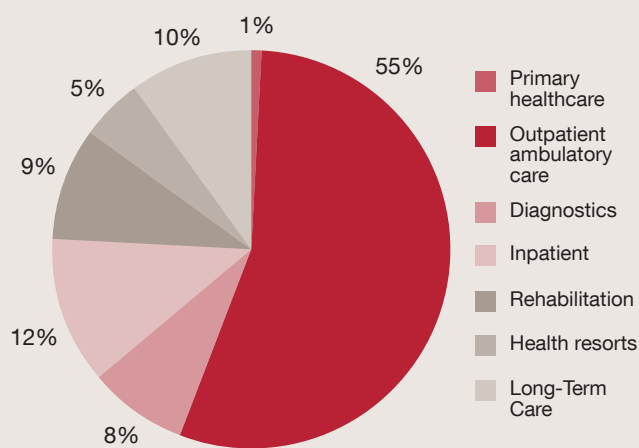


Private spending is not distributed evenly between the individual segments of the healthcare market. Traditionally, their greatest share is recorded in specialist outpatient care (more than 40% of total spending in this segment). Rehabilitation and long-term care have a large share of private payers, as they are areas where public funding is not enough to meet the demands.

At the other extreme there is basic healthcare and hospitalisation, where public spending is still dominant, constituting more than 90%, in all countries of our region.

Specialist outpatient care is an area that has recorded dynamic growth in the role of the private payer in recent years. The fast development of this segment was possible thanks to the rapid expansion of the chain of private service centres. Another factor that contributed to it was the introduction of outpatient care service packages under private medical subscriptions and private health insurance. Specialist outpatient care, rehabilitation, and long-term care are the areas where telemedicine and digital services for patients are most likely to develop. This results from the fact that these areas are characterised by both a large share of private funding and a large share of private providers that are oriented towards efficiency and quality when looking for their competitive advantage.

**Private spending on healthcare by segments in Central and Eastern Europe**



Source: PwC analysis

Private spending on outpatient treatment in CEE constitutes more than 40% of the total spending in this segment

**>40%**





# Telemedicine – the future of healthcare systems

There are an estimated **14.1 million** patients in CEE who will use telemedicine in the future

## Telemedicine market and its forecasts

The trends presented will have a positive influence on the development of telemedicine in the coming years, especially in teleconsultations (where the share of private spending is now significant and still growing), as well as in telediagnosics and telerehabilitation, which are – in our opinion – very promising segments of the healthcare market. It is worth noting that patients in Central and Eastern Europe are characterised by a relatively high level of digitalisation, and there are prospects for further rapid development in this area.

According to our analysis, in the region of Central and Eastern Europe, nearly 60% of patients (above 18 years of age and earning more than net EUR 300 per month) are ready to use telemedical solutions, especially:

- teleconsultation,
- telemonitoring,
- telediagnosics,
- telerehabilitation.

This trend is well illustrated by the teleconsultation market, growing at 110% a year in Poland, which means that the number of teleconsultations has doubled within just 12 months. The number of teleconsultations throughout Central and Eastern Europe in 2015 exceeded 110,000.

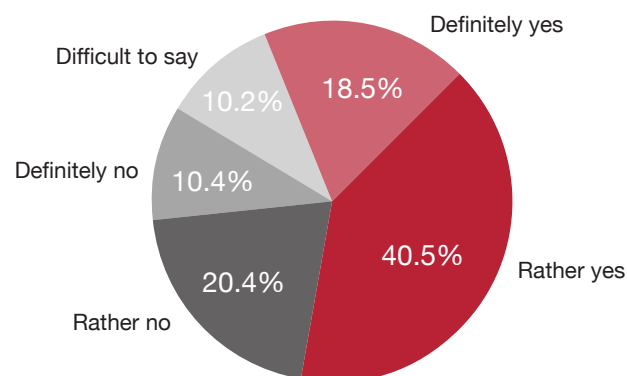
It could be argued that the demand is huge and the market is growing rapidly because suppliers of such telesolutions have emerged, for example: Medicover, Luxmed, telemedi.co, NeroSoft, MedGo.pl, Medivio, ProSmart or TeleGroup.

The development of the market is also affected by the increasingly more attractive form of teleconsultations, for example the role of video is growing. Within just one year, the share of this form of consultations increased from 10% to 25% of all teleconsultations. It has happened primarily at the cost of the decreasing number of regular phone consultations.

On the other hand, there are promising prospects for private spending on various types of telemedical services (including, in particular, teleconsultations). This results primarily from the following:

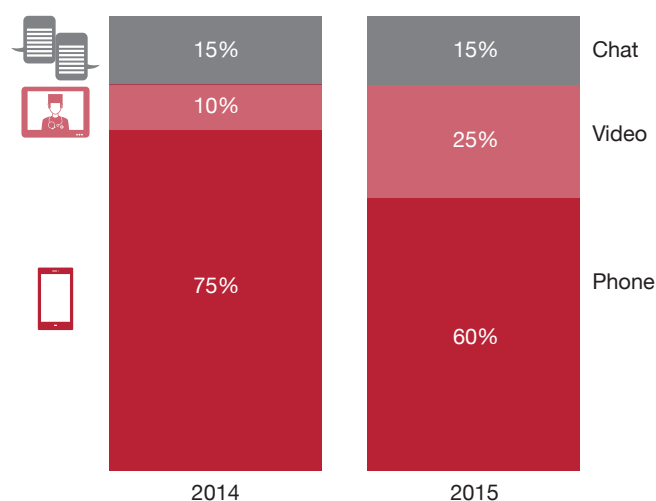
- still insufficient public spending (the limitation is funding, and thus the availability of services),
- increasing incomes of inhabitants,
- rapidly growing awareness of the need to take care of your health,
- very wide access to the internet and new technologies,
- awareness of the benefits of telemedical services, such as the opportunity to reach a chosen specialist, the opportunity to obtain a second opinion (confirmation of a diagnosis).

## The interest of patients in telemedicine



Source: PwC study on a sample of more than 3000 respondents

## Formy telekonsultacji



Source: PwC analysis





# Private stakeholders of telemedicine services, and what about public service providers?

The private healthcare market with telemedical services (to a greater or lesser degree, depending on the Central and Eastern European country) is dominated by five groups of service providers. All the groups have plans for the development of telemedical services for private patients.

## **Group 1: Chains of health centres offering medical subscriptions**

This group of medical service providers has developed most strongly in Poland (e.g. Luxmed, Medicover, Enel-Med, Polmed) and Romania (e.g. Regina Maria, MedLife), where – thanks to local regulations and the construction of the tax system – it is more attractive for companies to provide their employees with medical subscriptions than with health insurance.

Their rapid growth has been possible mainly thanks to the development of chains of health centres (opening their own facilities or consolidating the market) and establishing relations with local health centres under partner chains.

For example, in Poland around 2.9 million people use private medical subscriptions, while in Romania it is about 1 million.

It is worth stressing that companies from this sector face many problems that could be solved by telemedicine. What are these problems?

*First of all, the market for medical subscriptions services is already relatively saturated, especially in terms of big companies, which are the most attractive from a business perspective.*

This means that in order to win market share, companies have to lower prices or increase the range of services in comparison to current offers. Such activities lead to the erosion of the margin.

*Secondly, modern medical subscriptions users visit the doctor more often and are more demanding, which decreases their satisfaction and NPS (Net Promoter Score) indexes, thus increasing the percentage of patients who switch to the competition or cancel the services.*

In addition, the preferences of private individual patients change, too. They have different demands from those they had several years before.



This makes it increasingly more difficult for large medical service providers offering medical subscriptions to acquire new patients. We can observe how they migrate to specialised small medical centres that do not want to work with chains. Everything indicates that companies offering medical subscriptions must look for solutions to their problems and create new business models. Developing communication with digital patients of today (via telemedical solutions) seems to be just a matter of time.



Communications with the patients in the digital world via telemedical solutions is already happening





### **Group 2: Insurers**

In many Central and Eastern European countries, there were high hopes connected with the development of health insurance, but they have not yet turned into market success. An interesting exception is Slovenia, where additional insurance functions in two areas: insurance that extends the basket of services beyond those covered by public funds, and insurance that enables quick diagnosis and treatment (i.e. eliminating the problem of waiting in queues).

Currently, the market for private health insurance in Central and Eastern Europe is small. It is estimated at about PLN 1 billion. The biggest players are PZU, Axa, Signal Iduna, Interisk, Allianz, Generali Uniqa.

The headaches of the development of a health insurance system are, primarily, gaps in the necessary legal regulations. Moreover, there is no historical information about claims and the actual costs compared to the premiums, which generates a significant investment risk. In some countries, the insurers are trying to develop their own chains of centres rendering healthcare services (e.g. PZU in Poland).

Telemedical solutions could support the development of private health insurance to a significant extent, for example, by encouraging the use of telemedical diagnostic and monitoring equipment.

### **Group 3: Individual doctors**

Many doctors in Central and Eastern Europe run their own medical practices, independent of the larger more recognisable brands. Very often this is their additional work, performed alongside their regular employment in a hospital, where their patients – who used private services before – are often directed.

This group has great development opportunities thanks to the use of ICT technologies. Imagine a situation in which a very good doctor, specialising in a certain area, works to establish a reputation, but thanks to telemedicine can provide services to a greater number of patients also in other regions of the country.

### **Group 4: Pharmaceutical companies and the sector of consumer products and services**

After many years of dynamic development, pharmaceutical companies have started to look for new sources of revenue. Health services seem to be the natural direction. However, instead of developing traditional services, they are increasingly interested in telemedicine. Companies from the pharmacies segment and companies from the sector of consumer products and services can develop especially interesting business models. The American market is the most advanced. The CVS Health pharmacy chain started relations with telemedical companies and is going to provide teleconsultation services in its locations. The market for virtual medical visits in the United States is estimated at 300 million visits per year in the coming years.

### **Group 5: Technological companies**

In addition to service provision, more companies that work in the telemedicine sector are increasingly concentrating on technology, e.g. manufacturers of equipment, software developers, creators of databases or diagnostic algorithms. On the market, there are both large multinational companies (Philips, Samsung) and local, smaller ones (e.g. Telemedycyna Polska, Pro-Plus, Neurosoft, telemedi.co, Telmed, Medicalalgorithmics, ProSmart or TeleGroup).

### **And what about public service providers?**

In this report, we focus on private stakeholders who may use modern telemedical technologies to provide medical services. According to our assessment, this is the group that will first be forced to look for and implement more efficient telemedical solutions, while at the same time allowing for the creation of new business models.

We did not include in our report public service providers from individual countries in Central and Eastern Europe, because we were focusing primarily on private entities, which will probably be the first to implement new solutions, given their flexibility, efficiency, and openness.

It is worth noting, however, that the public sector, funded by the public payer, could enjoy significant benefits thanks to the presented telemedical solutions in terms of better access to healthcare, proper management of patient traffic, access to medical specialists, and effective rehabilitation. It is striking that, given the availability of advanced solutions and the large number of digitalised patients, initiatives connected to telemedicine are not included in the comprehensive reform of the healthcare system. It is worth noting, however, that the public payer in Poland started funding the first two procedures, telecardiology and telegeriatrics, in 2016.





# Changing demands of patients



The fast-growing market for private healthcare, the relatively easy access to new technologies, and the search for more effective and inexpensive solutions for service provision are very important factors that drive the development of telemedicine. The question arises, however, whether patients (service users) from Central and Eastern Europe are ready for these innovations, and whether they want to use the advanced digital solutions in the area of healthcare.

Our research among patients has delivered very promising conclusions. Most respondents are prepared to use telemedical services. There are, of course, certain groups of patients who have some concerns. This is absolutely normal situation, however, that – as with other market sectors – needs proper communication, information campaigns, and the raising of awareness about this topic.

In recent years, we have observed a very important evolution of the preferences of patients and their requirements related to the healthcare system. Trends of a more international nature are also visible.

~70%

patients have access to the internet, and the number will increase to ~85% in 2019

~30%

patients have smartphones, and the number will increase to ~60% in 2019



1

### Patients want access to information

Patients are increasingly more aware of the diseases and conditions that affect them. The internet and new technologies provide access to knowledge that was previously available only to doctors specialising in a given field.



2

### Patients use the services they are entitled to more often

Under medical subscriptions services, patients seek medical advice on average 3.6 times a year, which is about 20% more frequently than 2–3 years ago. This has a significant influence on the profitability of the whole segment of medical subscriptions and insurances.



3

### A visit to any old doctor does not satisfy the patients any more

They want to visit a specialist from a given field, one that they have chosen themselves, who is well-known and respected by other patients. The importance of doctor assessment systems is increasing. Small medical practices that are able to offer the patient an individualised approach and continuity of care provided by the same doctor throughout the whole treatment are an attractive alternative.



4

### Patients looking for a new doctor will analyse available offers on a regular basis

Of the patients with medical subscriptions or insurance, 30% buy additional medical services, of which only 35% decide to go to the service provider for which they have bought the medical subscription or insurance, while 65% of patients choose a totally different clinic or a different doctor.



5

### Patients are open to telemedical services

More than 60% of patients in Central and Eastern Europe admit that they are interested in telemedical services. The key factors here are: prompt advice from a specialist and the avoidance of queues in public healthcare.



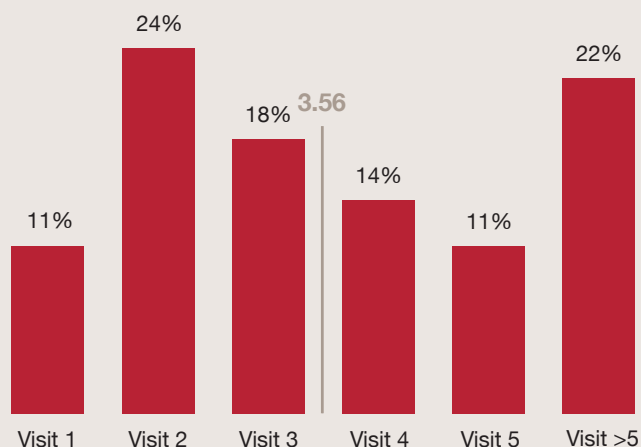
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### Patients are ready to use 'health-related care'

Patients are ready to use not only specialised healthcare, but also such medical services as a visit to a dietician or psychologist. This is the fastest growing segment in our region.



### Patients visit the doctor increasingly more often using medical subscriptions



Source: PwC analysis



7

### The cost of the service is no longer a decisive factor

An important element is no longer the cost only, but also the range of available services, the length of time spent waiting for a visit, and the convenience and proximity of health centres. Increasingly often, patients book an appointment with a doctor by phone or on the internet, instead of going to a centre personally, as was the custom a few years ago.



8

### Patients are increasingly willing to use teleconsultations

Patients are increasingly willing to use teleconsultations because they are fast, make booking a visit easy, and provide access to a wide range of specialists. In addition the form of teleconsultations is changing, the preferred one being video consultations (an increase from 10% to 25% of all teleconsultations within just one year).



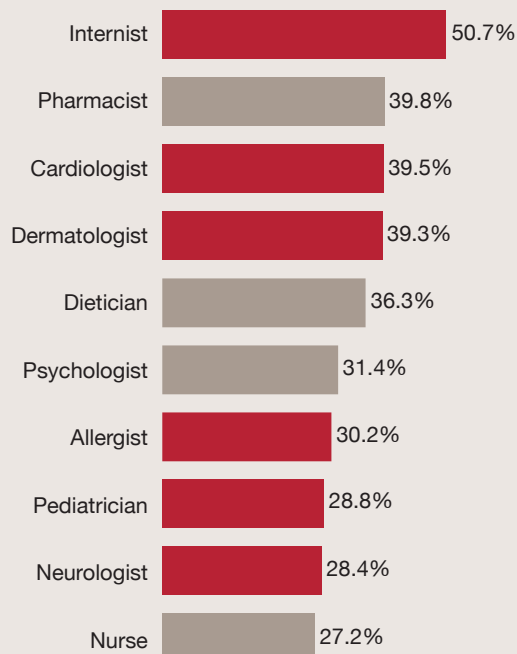
### The specialisations that the patients using telemedicine are interested in



Ambulatory specialized care



Health-related care



Source: PwC analysis







# Technologies supporting the development of telemedicine

New technologies, both in terms of hardware and software, as well as other solutions, are ready and sufficiently developed to support the provision of telemedical services. The subject here is not only solutions developed by large international companies, which are both good and very expensive, but also the much cheaper technologies available in our part of Europe.

The currently available high-level technology is constantly being improved. What is worth noting is primarily:



## Fast communication systems

These systems are via mobile, smartphone, computer, etc., which provide practically unlimited opportunities of consultations between patients and doctors or between doctors. For example, in Spain every doctor's appointment is preceded by a teleconsultation session with a medical employee (not a physician), during which health information is collected from the patient and entered into the system, which helps to direct the patient properly and save the time of the specialists.

The residents of Central and Eastern Europe are interested in new technologies and learn to use them very quickly. ~ 45% of people in Poland use or have considered using applications for mobile devices, whereas in Germany the number is only ~24% and in the UK ~32%

## Advance medical devices developed for telemedicine



Such devices are home stations with remotely connected devices like scales, manometer, ECG holter monitors, remote CTG, stethoscope, breath analyser, medical recorder with online transmission, mobile equipment for telerehabilitation or telediagnosics, or sensors for the non-invasive measurement of oxygen saturation of haemoglobin. These systems make it possible to provide medical services without having to hospitalise the patient, i.e. they do it in an effectively and economically attractive way.



## "Wearables" – intelligent electronics

It is worth distinguishing the rapidly growing market of intelligent electronics, known as wearables, used more frequently thanks to telemedicine. The new regulations regarding the certification of these devices impose the certification obligation of any devices collecting medical data – e.g. a watch with a heart rate meter should be classified as a medical device. It is as if a separate segment of technology has been designed for active people (aware or unaware of belonging to a risk group based on age or other risk factors). In Central and Eastern Europe, cardiovascular diseases account for about 50% of deaths, remaining the No 1 cause. Monitoring devices can raise the level of patient safety.

## Software and Applications

Both the software for the operation of telemedical devices and applications supporting daily activities of patients and doctors are available on the market, having been developed over many years and waiting for proper use. They include, for example, advanced software supporting the work of medical imaging, systems for remote descriptions of radiological tests, and free-of-charge radiological image viewers.





### Artificial intelligence tools

These tools can be a great support in the diagnostic or therapeutic process and help to significantly lower costs. Artificial intelligence, such as neural networks, provide many opportunities to use historical data to diagnose new cases and thus support the work of medical doctors. Although the doctor will remain the most important person making proper decisions, it seems that artificial intelligence solutions may support the doctor's work, help eliminate certain errors, suggest the optimal procedure, and help use the time of specialists more efficiently.



### Data Mining tools

Data mining will help transform the available data into information that can be effectively used in healthcare. The biggest problem today is the non-use of historical data collected in knowledge sources.



### Specialised workforce

There is also a workforce that is ready to introduce these solutions in practice. It is worth mentioning here the many companies, established 20–25 years ago, that are manufacturing devices, as well as the start-ups operating in the region that are developing in the area of telemedicine.

### Communication and data management

- Fast communication methods
- Remote access to information for patients and doctors
- Managing a large amount of data
- Data security

### Devices

- Diagnostic
- Monitoring devices
- Equipment for rehabilitation

### Software and applications

- Software for operating devices and patient-doctor, doctor-doctor communication
- Applications for patients and other stakeholders in health care

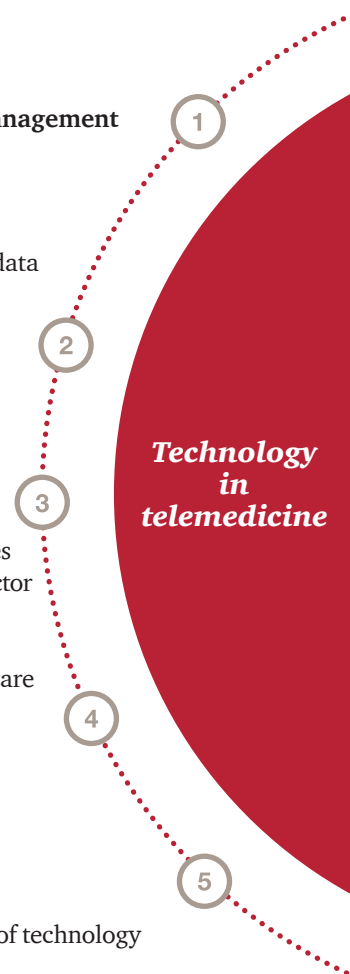
### Supporting tools

- Artificial intelligence tools to support the work of doctors
- Data mining tools

### Specialist technologists

- Guarantee of the integration of technology with the user

Source: PwC analysis







# Our recommendations

The evolving market and changing patients will, sooner or later, force medical service providers to introduce a number of changes in their organisations. Otherwise, they will risk losing market share and risk reduced profitability.

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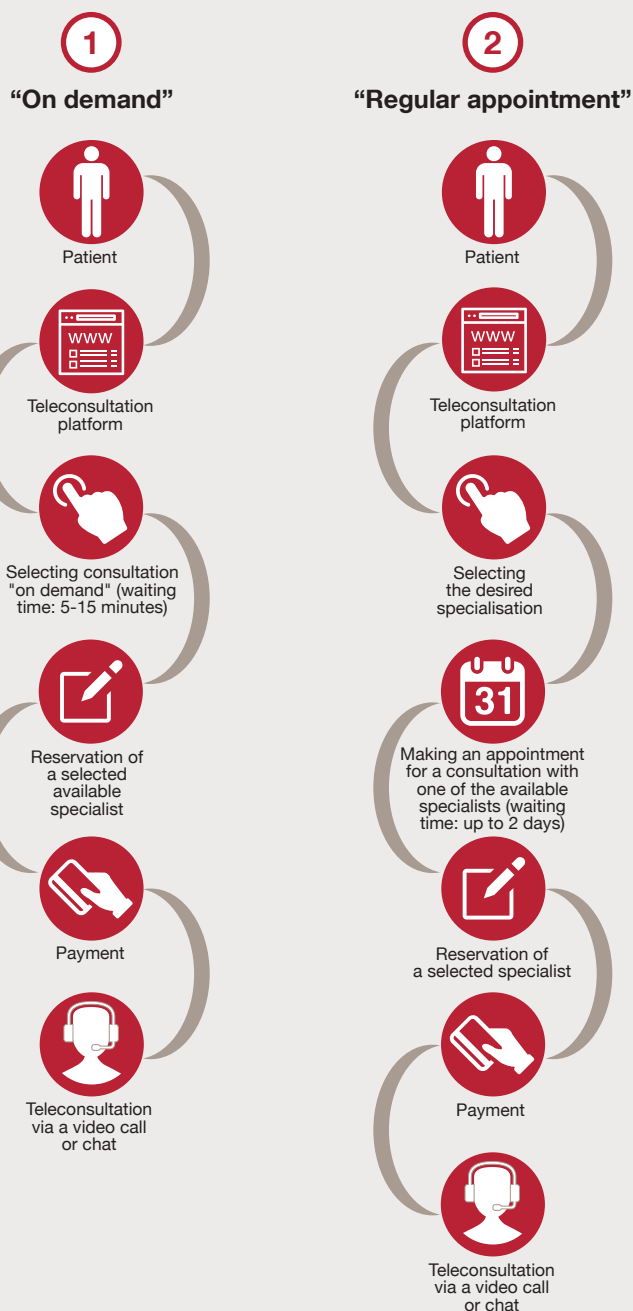
## Designing and implementing a new operational model

The implementation of telemedicine services requires designing an operational model in practically all key areas of activity, including:

- the range of services and a service delivery model,
- the segmentation of patients and adjustment of the relevant policies of valuation of services,
- the methods of acquiring patients,
- co-operation with medical staff, depending on the selected model of operations, i.e. an integrated or a distributed one,
- the development of a new organisational structure and new processes,
- and many other areas (e.g. new ways of contact with the patient).

The particular elements of the business model will depend on the actual role played in the ecosystem of telemedicine, i.e. the type of medical services (e.g. consultations with specialists or medical imaging), and the segment of the entire value chain of the service (e.g. the provision of technology for mobile devices, intelligent algorithms supporting the decision-making process of doctors, or the remote transmission of images). When developing the operational model, it is worth looking into foreign examples, such as: Teladoc, Carelix, and iCliniq.

## Methods of providing services in the new business model



Source: PwC analysis



**2****Creating a modern organisation for the acquisition of patients**

Creating a modern organisation focused on the sale of services can give a competitive advantage. Therefore, it is necessary to implement many tools that have not been widely used yet in healthcare, such as: a CRM system, the management of patients' churn index (currently in the CEE region, at a very high level on the medical subscription / insurance market), cross-selling and up-selling, maximisation of the conversion of sales initiatives and submitted bids, and loyalty programmes for patients.

**4****Building a proactive rather than reactive approach to healthcare**

The demands of patients are changing, and so the approach to healthcare is also evolving. The development of new products focused not on treatment, but on prevention based on medical expertise is inevitable. Despite the changes in the lifestyle of patients, the market still does not offer a wide range of innovative products in this area. The change from a reactive approach to healthcare to a proactive one is not only in the interests of entities funded from private means, but also – in the long run – of those funded by the public.

**3****Work on the brand and its recognition**

For the patient, the doctor's reputation is very important. Patients are primarily seeking a high-quality specialist who can be trusted and whose competence has been proven. In the meantime, on the market there are no marketing activities of medical service providers that would ensure a clear competitive advantage, based on – for example – well-known names, a very short waiting time, or other factors distinguishing a given entity from the competition. In the digital world, patients pay more attention to the brand, a high recognisability of which will facilitate the acquisition of patients.

**5****Development of methods for understanding the patient and optimisation of the patient service process (patient experience)**

A good understanding of both the potential and the current patient is becoming of huge importance. It is essential to understand when, where, and via which channels patients look for information about medical services providers. Also, how and how quickly they make decisions is crucial knowledge. Such information will enable the design of a new, effective process of acquiring and serving the patient. Significant competitive advantages include: length of waiting time for a visit, time needed to receive a diagnosis, comprehensiveness of the services provided (initial visit, diagnosis, treatment, rehabilitation). What is also crucial is for patients to feel secure and cared for, providing them with personalised and individual treatment and communication paths.



**6****Joint-venture cooperation with entities from the consumer products and services sector**

A great opportunity for even faster development of telemedicine is provided by the co-operation of medical entities with entities from the consumer products and services sector. The joint development of business models may prove to be a very good strategic direction and the opportunity to create new goodwill.

**7****Collecting data and their use in medical processes**

In its purest form, telemedicine is supported by complex algorithms of artificial intelligence. Based on historical data, these algorithms support the entire process of diagnosis and treatment. Furthermore, they allow the elimination of potential human errors and may serve as a check on a diagnosis made and the treatment plan suggested. For this purpose, huge databases are necessary, which need to be regularly obtain for many years.



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