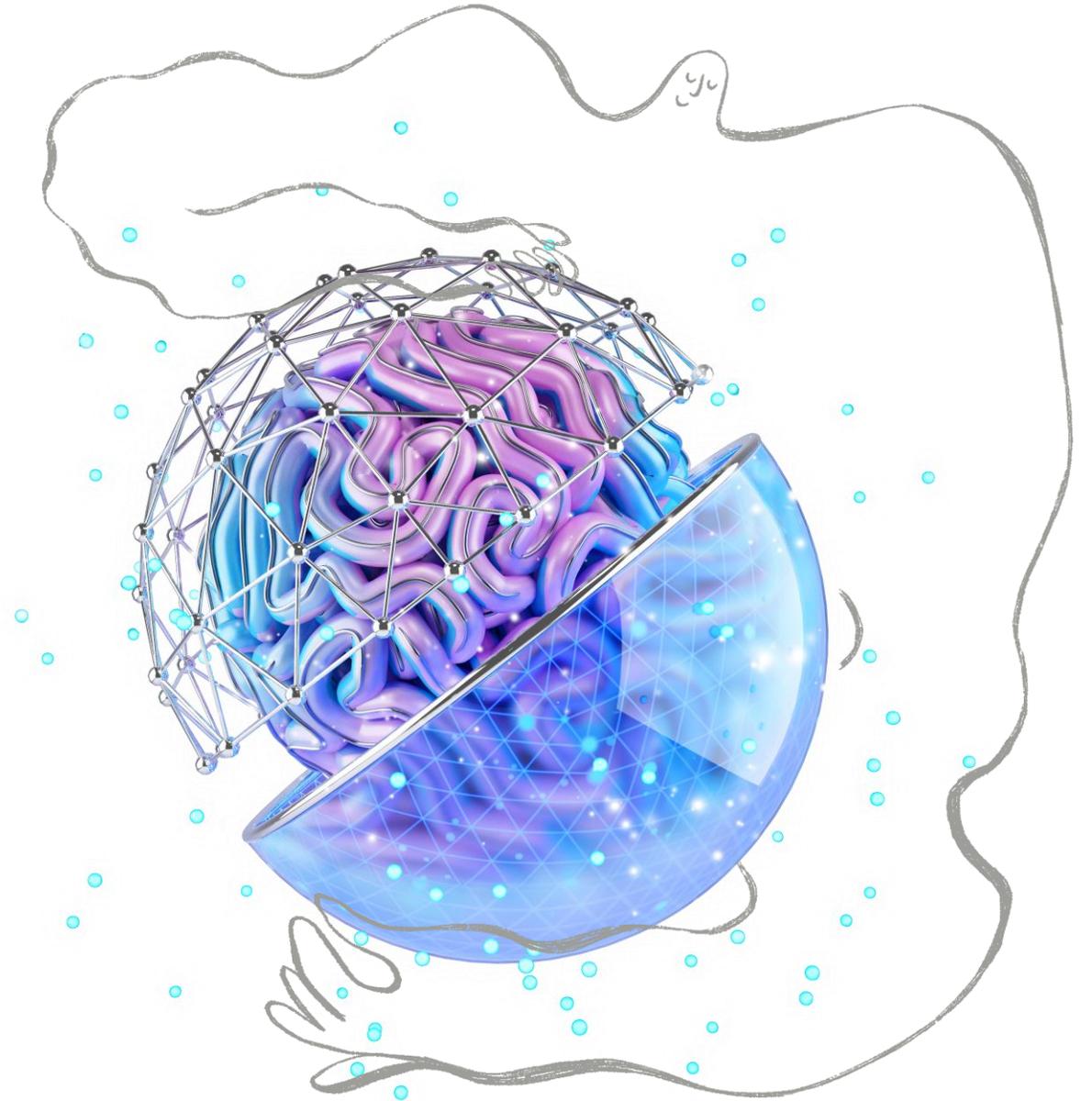


December 2022

Phygital Patient of the Future

How digital will shape
the next generation patient



The era of Digital Health

What comes next in the post-COVID times?

Almost no other area in healthcare offers so much potential for increasing process efficiency, for improving medical quality as well as patient safety, and finally, for achieving sustainable economic success, as digitalisation.

The COVID-19 pandemic has turned the health care system upside down and forced healthcare providers to rapid digitalisation. Digital health has become the buzzword of the pandemic and we witnessed many healthcare providers introducing the **newest technologies and digitalizing processes to optimize and improve healthcare delivery**. Self-service tools, Internet of Things or remote patient monitoring have reached an unprecedented level of adoption. Telemedicine was no longer an option, but an urgent need to overcome problems with face-to-face contact. Launching new forms of contact took days, instead of months. For many healthcare providers that time was a test of their ability to quickly respond to change.

However, **the phase of accelerated patients' digitalisation is long gone**. The hype around COVID-19 impact on the society's digitalisation made us think about **the long-term impact of the pandemic on the usage of digital tools by patients**. Healthcare providers moved rapidly to deploy digital technologies, but will the investment meet the expected demand?

To investigate the impact of COVID-19 on people's wellbeing and healthcare behaviours and preferences, we conducted **a study in Portugal with 1.000 patients 18 + years old, which is based on an overall analysis of 11 markets in Europe and a sample of 11.000**.

Our research allowed us to define two post-pandemic patient personas, representing their healthcare and digital behaviours: Traditional Patient, occasionally using digital channels – up to 4 applications (comprising 49% of the Portuguese society), and Phygital Patient – a digital heavy user, but also prone to use traditional channels (comprising 18% of the society).

Despite the significant share of Traditional Patients, we can expect that the **patients' behaviour will evolve towards Phygital Patient** in the future. Phygital is a mix of two words - physical and digital, representing the convergence of physical and digital perspective.

The report presents **key characteristics of the Phygital Patients**, reflecting their behavioural patterns, specific needs and barriers in taking care of their health, thus representing guidance for the healthcare providers on how to win their love and engagement. The insights shed a light on whether the COVID-19 changes will be temporary or enduring to support healthcare providers in the right investment decisions for unlocking digital health potential.



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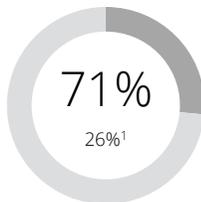
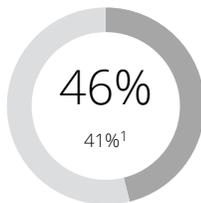
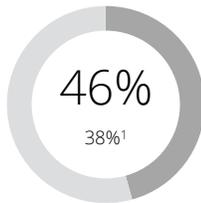
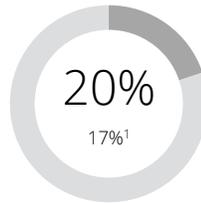
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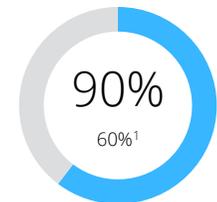
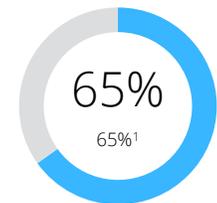
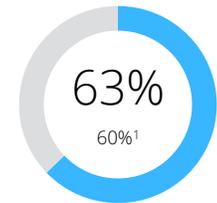
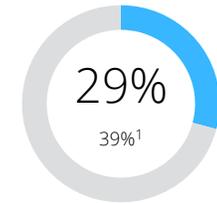
Key findings from the study

How Phygital Patient outpaces Traditional Patient?

TRADITIONAL PATIENT



PHYGITAL PATIENT



Preference towards **virtual doctors' appointments**

Trust in Big Tech companies to share medical records

Taking care of **mental health**

Usage of **applications and devices for chronic disease tracking**

1. Represent the results for the overall analysis of the 11 European countries

Phyigital Patient of the future

Five key characteristics that define
the future patient archetype



01. **Phyigital Patient uses digital solutions to take care of health but is conservative when it comes to the diagnosis stage**

Phyigital Patient is most eager to use digital channels before and after the appointment (20% and 25% respectively), thus these stages have the highest potential for digitalisation. Patients clearly favour being consulted and examined in person: 70% of all Portuguese respondents declared that they prefer physical doctors and medical professionals' appointments and 67% of them want to be diagnosed personally.

02. **For Phyigital Patient the main driver to share medical data is financial incentives, followed by concern for their health**

The most important factor for Phyigital Patients to share their medical records with mobile applications is the discount on private and public healthcare (stated by 52% and 49%). The access to personalized medicine is also an effective incentive (44%) to this group of Patients.

03. **Phyigital Patient manages their health more actively when encouraged by digital solutions**

The most important motivator for all respondents to be more caring about their health is convenient access to healthcare professionals (declared by 44%). However, for Phyigital Patients digital factors play a more significant role – among the most powerful motivators were one app aggregating multiple functionalities (50%), automatic reminders to book doctor's appointments (46%), and doctors examining medical data from the app (38%).

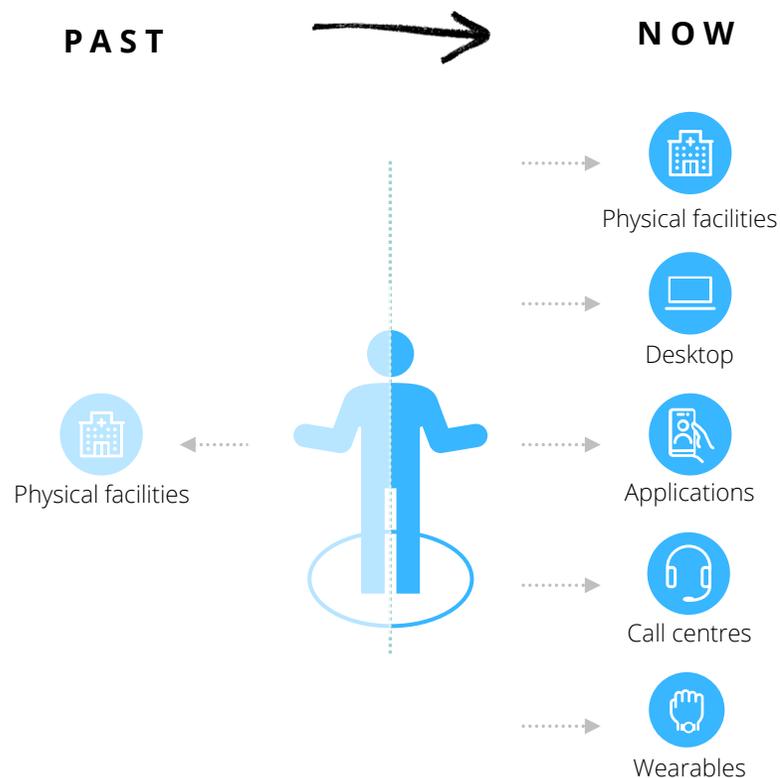
04. **Phyigital Patient equally takes care of their mental health as their physical health**

Phyigital Patient not only takes care of their physical health but is also concerned about mental-related problems – 65% of them indicate mental health as a meaningful aspect of their routine, which is 5x more than in the case of Traditional Patients. Phyigital Patients intuitively care for mental health by performing activities that prevent mental-related problems, such as maintaining relationships (84%), pursuing a stress-free lifestyle (78%) or finding time to relax (58%).

05. **Phyigital Patient with chronic diseases is open to digital solutions, but those are often not available for him**

More than 40% of the surveyed Portuguese suffer from chronic diseases, with a similar share of the chronically ill among Phyigital and Traditional Patients. Phyigital Patients are more likely to use any app/device for monitoring or managing chronic disease (35%), compared to the Traditional Patients (24%). However, as the main barriers to the usage of digital solutions, Phyigital Patients indicate their low availability (49%), lack of awareness of such solutions (28%) and even the preference for traditional channels (28%).

PATIENTS LIVE IN A CONNECTED WORLD



The **Phygital Patient of the future** expects a consistent experience across all available channels that synergise and complement each other

It is no longer enough to provide top-notch in-person care. Employing multiple touch points across traditional and digital channels has become a new standard in the healthcare industry.

In the future, we may expect that the share of Phygital Patients will level up with Traditional Patients¹. This puts **pressure on the healthcare providers to deliver an effortless omnichannel experience** that satisfies the needs of early adopters and digital laggards.

Selected healthcare providers have already made significant investments in the technology that allow patients to adapt to the virtual reality.

Yet many of them still **struggle with how to ensure multichannel consistency** while dealing with legacy and fragmented systems. Building upon the needs, solutions related to providing a single patient view have recently gained a fair amount of attention, hoping to deliver a holistic view of the patient's health history, behaviours, and preferences.

However, not only does technology, but also patients' willingness to share their personal data with the medical services provider play a vital role in the consistent experience. According to our study, **patients have the highest trust in the public and private healthcare entities and**

laboratories, with over 80% of respondents feeling confident to share their medical information compared to only 50% and 32% of patients respectively declaring trust for big tech and start-up companies². This shows that healthcare providers are in a perfect position to gather data, but still face the challenge of how to process the data to empower a delivery model that balances virtual and in-person care.

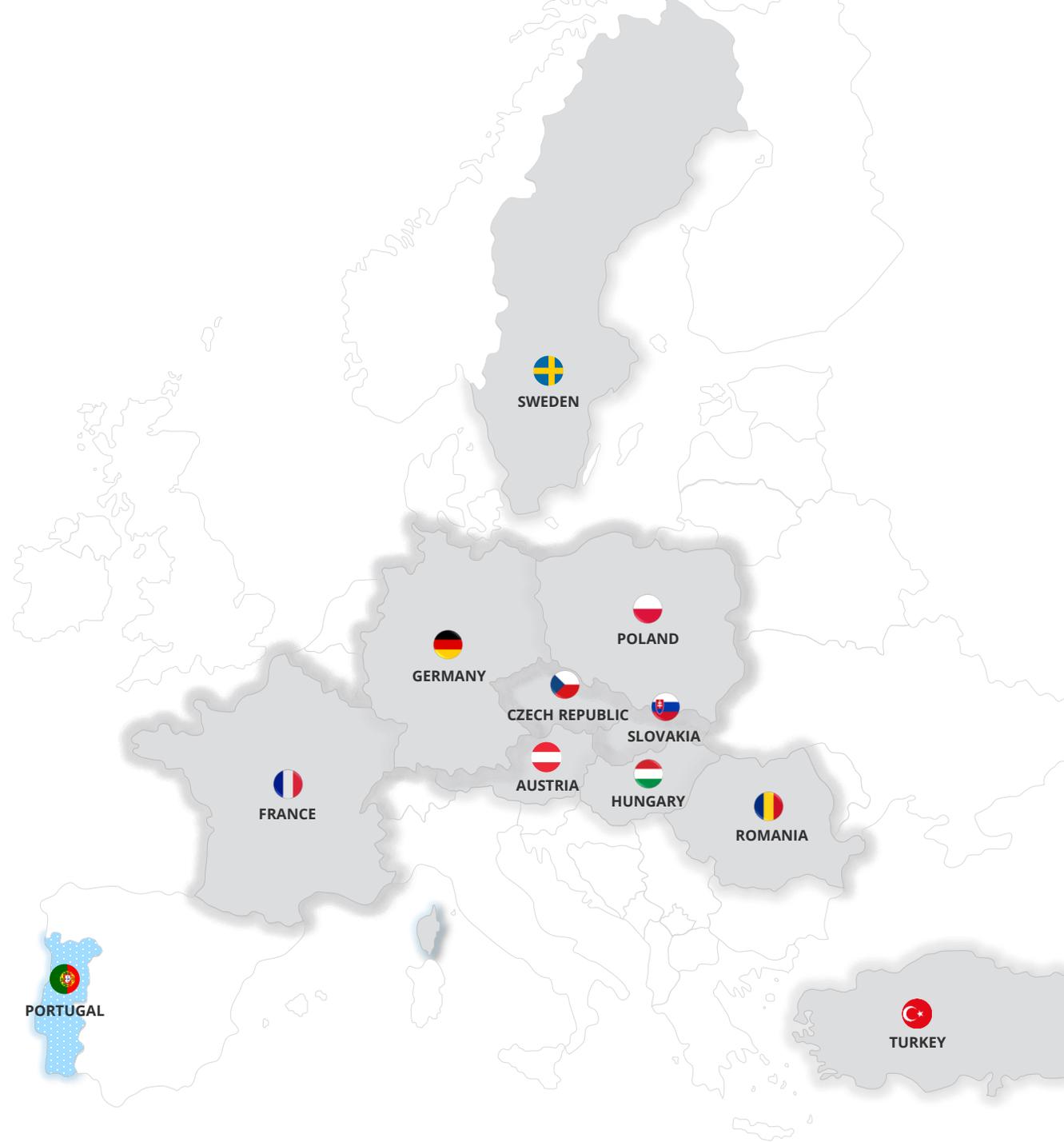
1. Traditional Patient – uses up to 4 mobile apps dedicated to wellbeing and/or healthcare and performs from 4 to 8 activities when taking care of health. Phygital Patient – uses 5 and/or more mobile apps dedicated to wellbeing/healthcare) and performs from 4 to 11 activities when taking care of health.
 2. Responses to: *How much do you trust each of the following people or organisations to share your healthcare information? Responses of patients who declared that they agree or totally agree with the statement.*

We surveyed customers in **Portugal** to discover their openness to the use of digital in taking care of their health



We examined adult (18 + years old) smartphone users in Portugal, based on an overall study of 11 countries in Europe. The goal of the study was to **identify customers' wellbeing and healthcare habits** as well as their current **usage and openness to digital tools** in the future to assess whether modern technology can help people in having a healthier life.

The study results **shed the light on the impact of COVID-19 on people's digital adoption in taking care of their health**, thus providing important information for the healthcare providers about the digital needs, motivations and barriers of patients in the post-pandemic reality.



We have defined **two patient archetypes** based on the level of their self-care and digitalisation

Based on two metrics, namely the level of digitalisation and self-care, **we defined two behavioural patient archetypes** – Traditional and Phygital Patient:

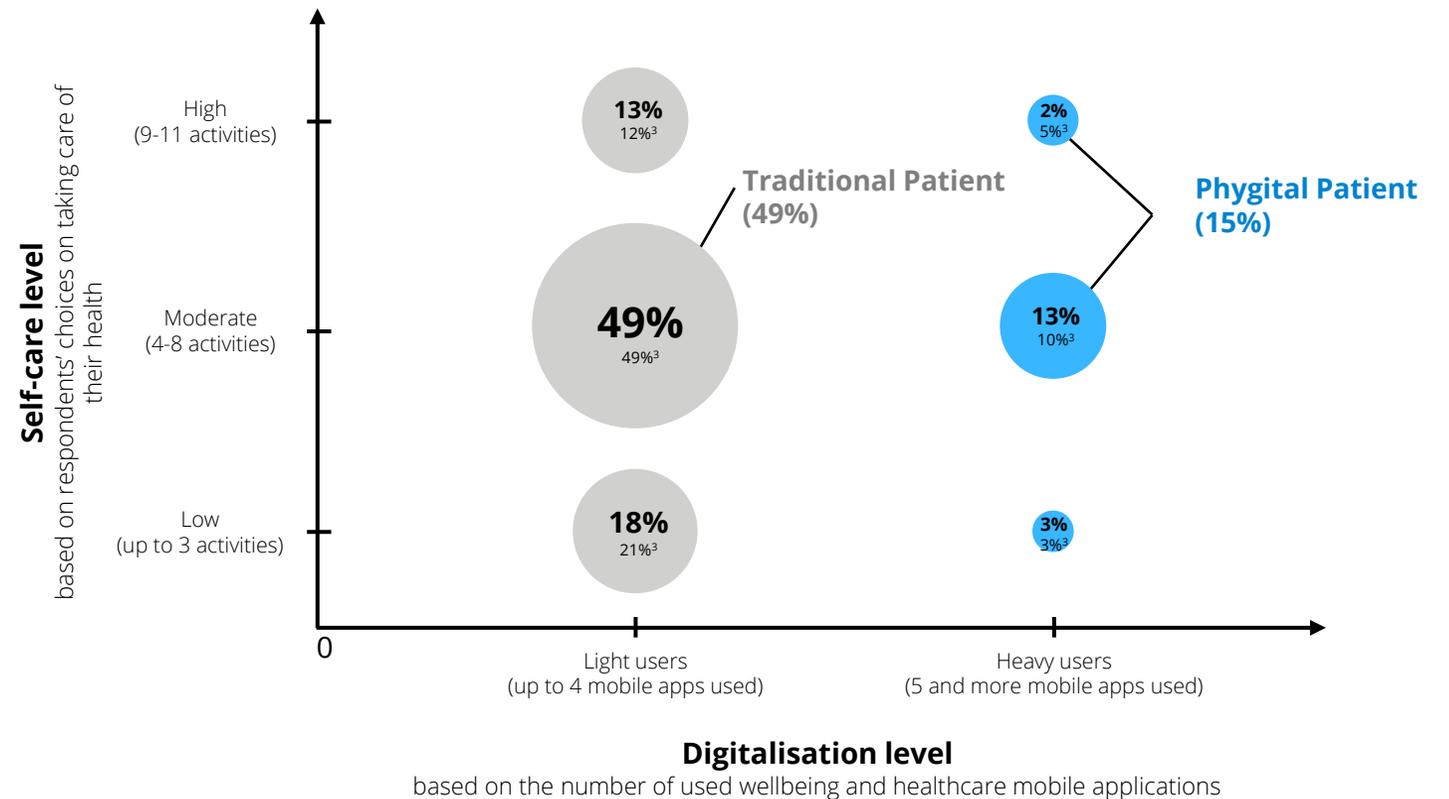
- **Traditional Patient** (comprising 49% of the Portuguese population) is a person that uses up to 4 mobile apps dedicated to wellbeing and/or healthcare and performs from 4 to 8 activities¹ when taking care of their health.
- **Phygital Patient** (comprising 15% of the Portuguese population) is a person that uses 5 and more mobile apps dedicated to wellbeing and/or and performs from 4 to 11 activities when taking care of their health.

Traditional Patients constitute the biggest market segment, being the most representative benchmark for the current patient archetype. Phygital Patients combine two segments that are most health-aware and digitalised, being in the avant-garde of the rest of the population.

We can expect that **patients will move towards a healthier and more digitalised lifestyle, boosting the share of the Phygital Patients in the future.**

CUSTOMERS' DISTRIBUTION BASED ON THEIR SELF-CARE AND DIGITALISATION LEVELS

Segments are based on responses to questions regarding lifestyle habits and usage of wellbeing and healthcare applications¹



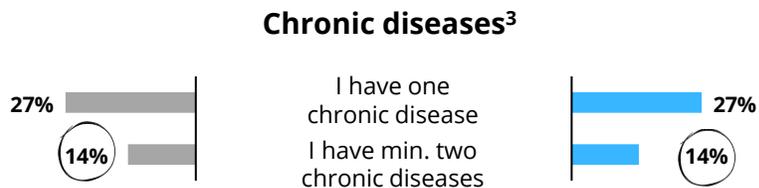
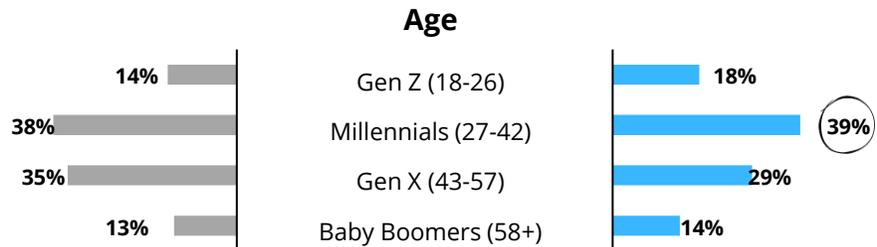
Note: Other segments (in total 34% of the Portuguese population) were excluded from further analysis due to low level of taking care of their health or anticorrelation between self-care level and digitalization level.

1. Activities concern taking care of health, e.g., following a balanced diet, exercising regularly, taking care of mental health, avoiding stressful situations.
 2. Scales were defined based on the behavioral similarities between the patient segments.
 3. Represent the results for the overall analysis of the 11 European countries.

DEMOGRAPHIC CHARACTERISTICS OF TRADITIONAL AND PHYGITAL PATIENT

TRADITIONAL PATIENT

PHYGITAL PATIENT



Phygital Patients are mainly women who belong largely to Millennials, work in small and big companies, and are equally diagnosed with chronic diseases

-  **Phygital Patients segment is dominated by women (62%),** which may reflect the model of a woman taking care of not only her own but the entire family's health. This translates into a more active use of medical services, thus being more conscious of digital tools supporting looking after health.
-  **Phygital Patients consist largely of Millennials (39%),** who are characterised by a relatively high openness to digital solutions, while also being mature enough to have greater consciousness and concern for their own and relatives' health.
-  **Phygital Patients are mostly employees of small and big companies (58%),** where it has become a standard practice to offer private medical packages on preferential terms, which may translate into a higher frequency of using different medical services.
-  **Phygital and Traditional patients are equally aware of suffering from multiple chronic diseases** indicating that this groups of patients are equally health awareness and regarding chronic diseases

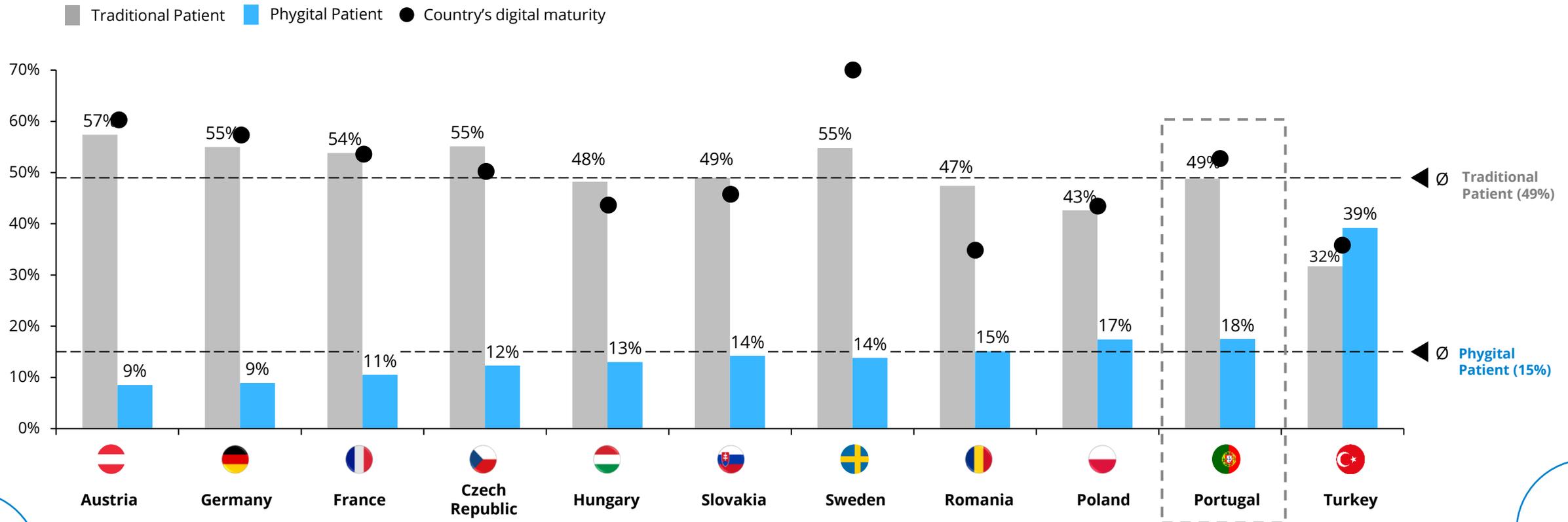


1. Small Company includes self-employed, micro and small companies.
 2. Other includes answers: "I take care of a household", "I'm a student", "I'm unemployed".
 3. Types of chronic diseases examined in the study are listed in the methodology section.

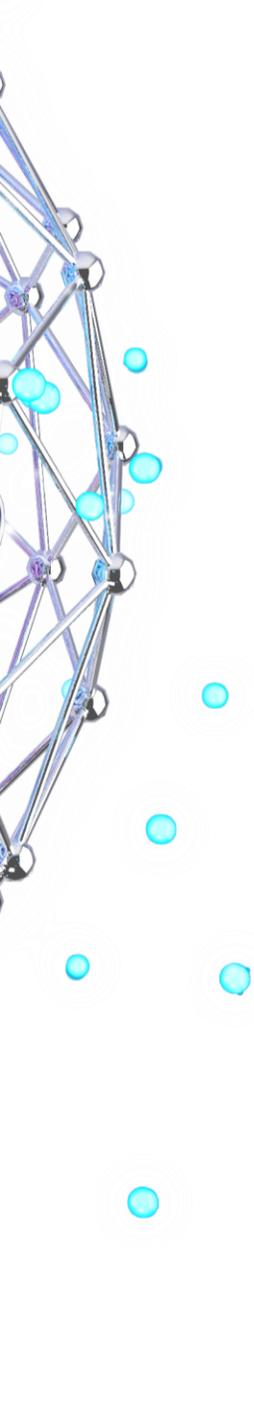
Patients' adoption of digital wellbeing and healthcare solution is not burdened by digital performance of the country

There is no significant relation between the level of digitisation of a given country and the share of Phygital Patients in the population. This shows that there are different factors that contribute to the patients' willingness to use digital solutions than the general digitalisation level of the society. That said, it can be presumed that **even patients who are not digitally native can be encouraged and motivated to use digital solutions** in the area of wellbeing and healthcare. The biggest share of Phygital Patients is noticed in Turkey, which can be explained by the fact that local healthcare providers (both public and private) encourage the use of digital channels in terms of health services.

TRADITIONAL AND PHYGITAL PATIENT DISTRIBUTION BY COUNTRY

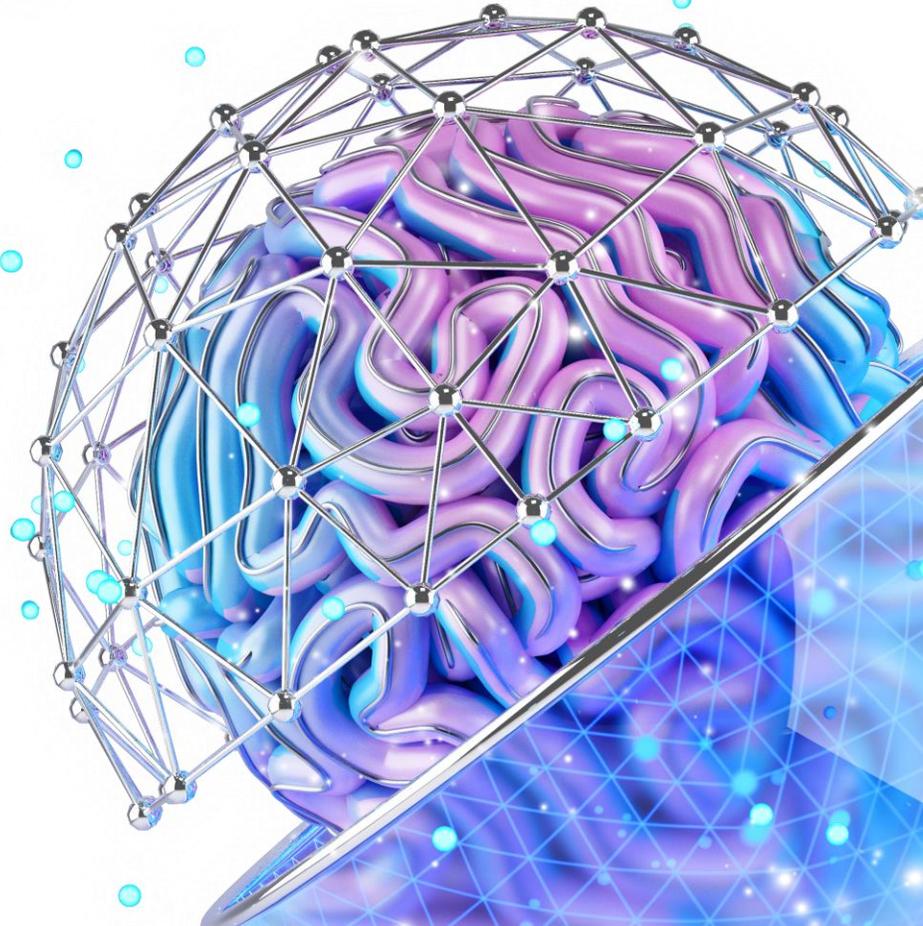


- Based on Digital Society & Economy Index as of 2021, analysing 4 dimensions: Human capital, Connectivity, Integration of digital technology, Digital public services. Source: European Commission. Data for Turkey in 2021 estimated based on Deloitte analysis.
- The graph presents only the share of Phygital and Traditional Patient segments, the rest of the patient segments were excluded from the graph.



01.

Phygital Patient uses digital solutions to take care of health but is conservative when it comes to the diagnosis stage



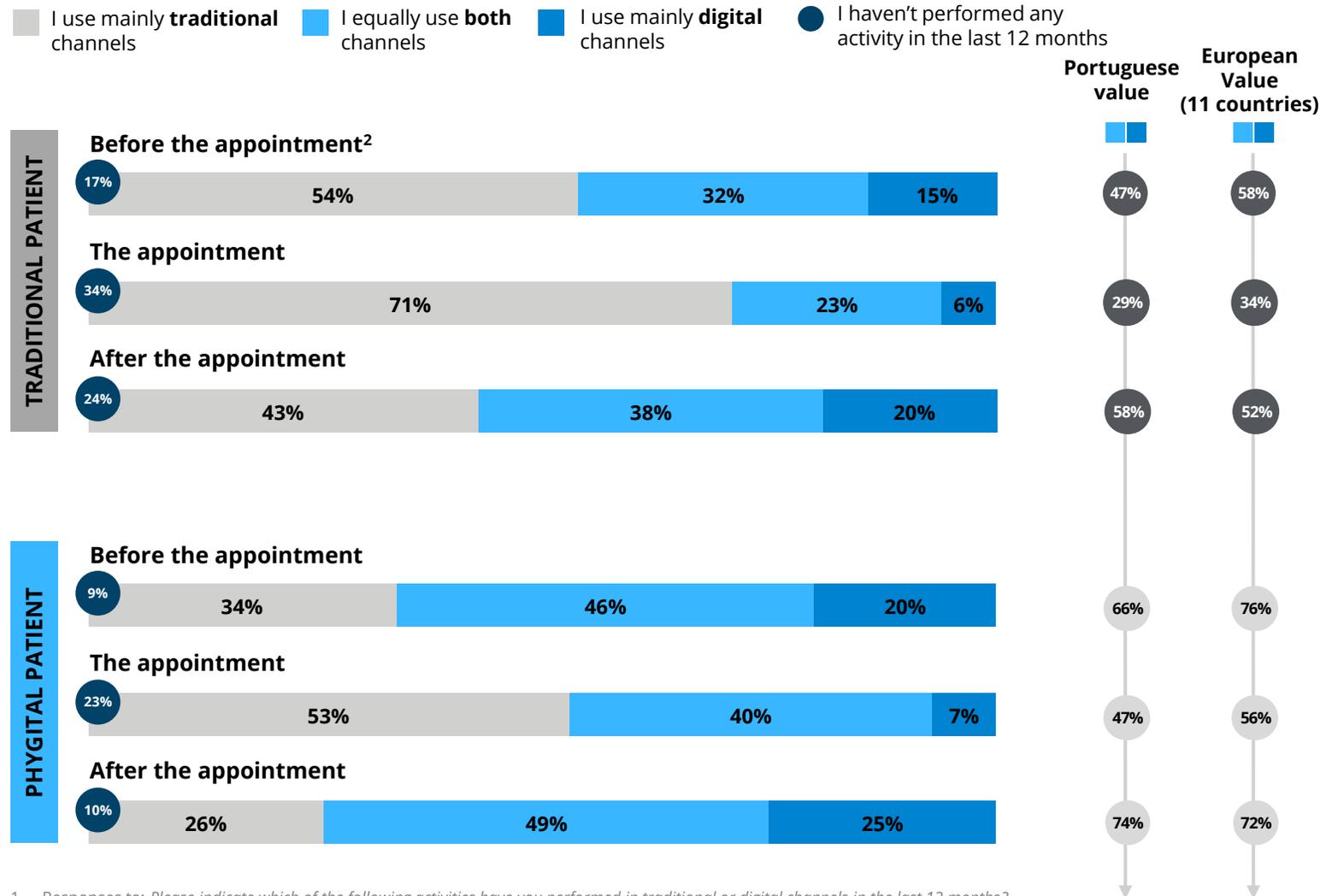
Stages before and after the appointment have the highest potential for digitalisation

Currently, only around a 30% of Phygital Patients mainly use traditional channels before (34%) and after the appointment stage (26%), while **more than half (53%) still prefer traditional channels when it comes to the appointment stage itself.**

In the case of Traditional Patients, there is a similar relation with 71% of them preferring traditional channels for having doctor's appointments. When it comes to before and after the appointment stages still nearly a half of Traditional Patients prefer mainly traditional channels (54% and 43% respectively). This proves that activities related to, for example, finding a suitable doctor or facility, making an appointment, or later checking test results and scheduling control visits may have the greatest potential for digitisation.

PATIENTS' PREFERENCES TOWARD TRADITIONAL AND DIGITAL CHANNELS

% of patients declaring the channel they used for the following activities in the last 12 months¹



1. Responses to: Please indicate which of the following activities have you performed in traditional or digital channels in the last 12 months?
 2. Before the appointment stage – e.g. looking for a suitable medical facility, booking/managing doctor/medical professional appointment; the appointment stage – e.g. showing up for doctor/medical professional appointments, diagnoses for illnesses, diseases and disorders; after the appointment stage – e.g. checking the test/examination results, getting prescriptions.

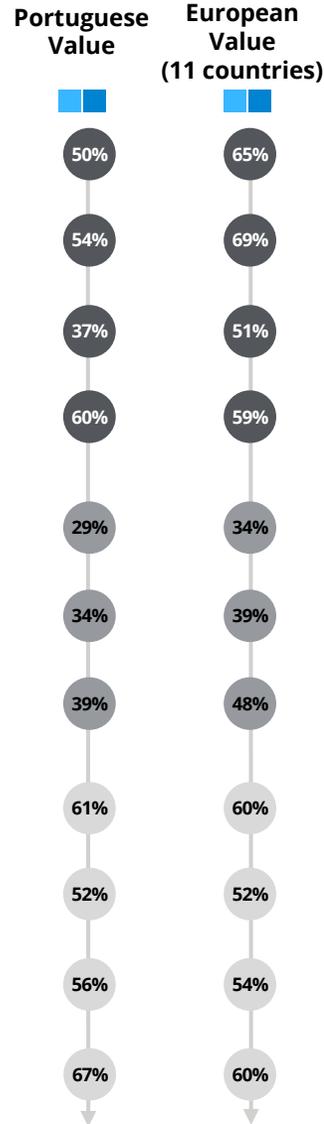
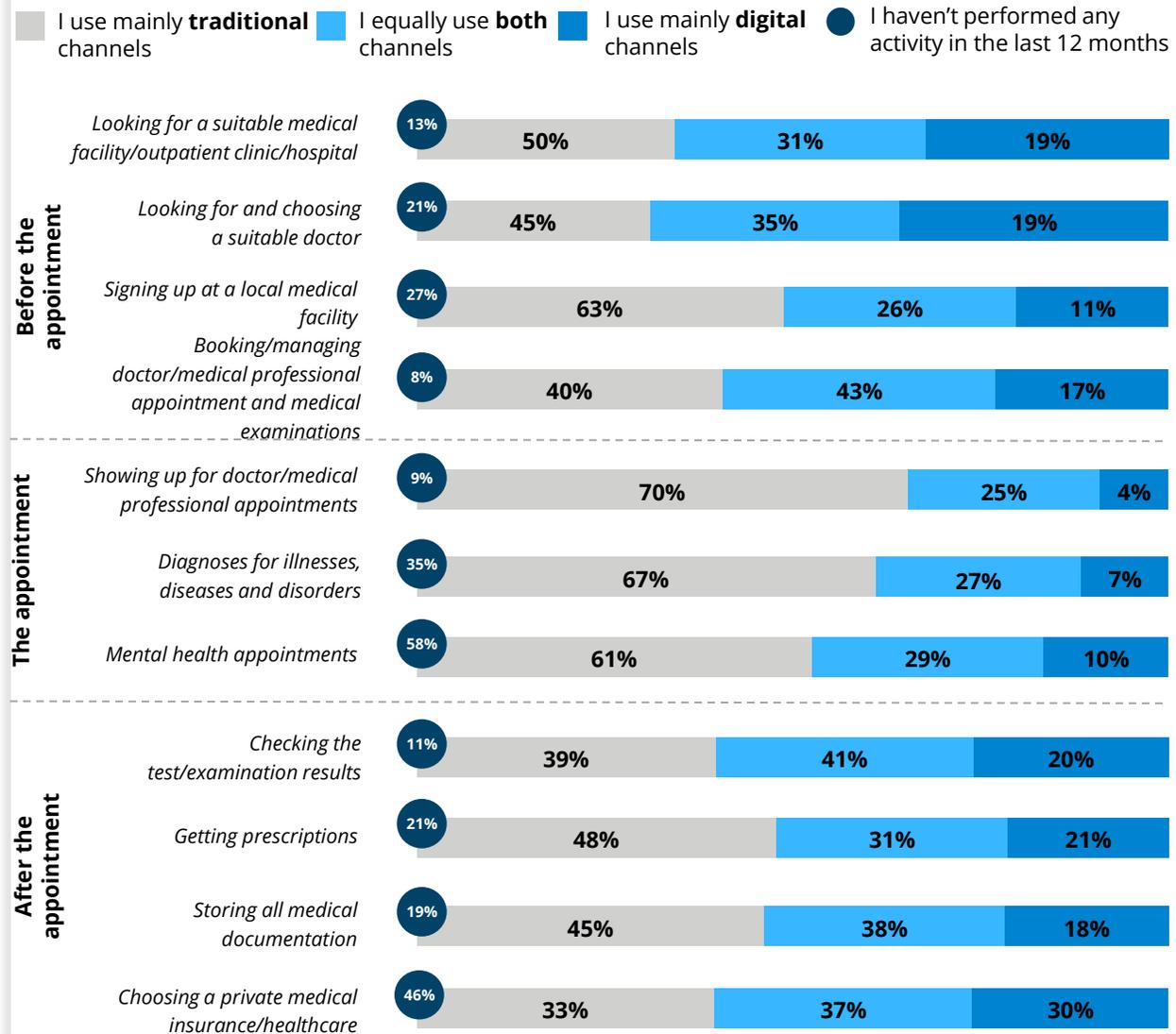
Patients are most attached to personal contact when it comes to doctor's appointments and diagnoses

Patients favour **being consulted and examined in person** – regardless of the patient archetype (traditional or phygital), 70% of them declared that they prefer to have in-person medical visits and 67% of them want to be diagnosed personally.

We may assume that patients prefer direct contact with specialists **due to a higher trust and a belief that only via personal visit the doctor can make the right diagnosis**. Moreover, people count on handling all doctor's visit-related activities at once when being at a medical facility, e.g. having an appointment, doing necessary examinations, booking follow-up visits and obtaining information from the personnel in case of doubts.

PATIENTS' PREFERENCES TOWARD TRADITIONAL AND DIGITAL CHANNELS

% of patients declaring the channel they used for the following activities in the last 12 months¹



1. Responses to: Please indicate which of the following activities have you performed in traditional or digital channels in the last 12 months.

Despite differences in trust towards apps/wearables, both Traditional and Phygital Patients believe it is the doctor who has the final say in diagnosis

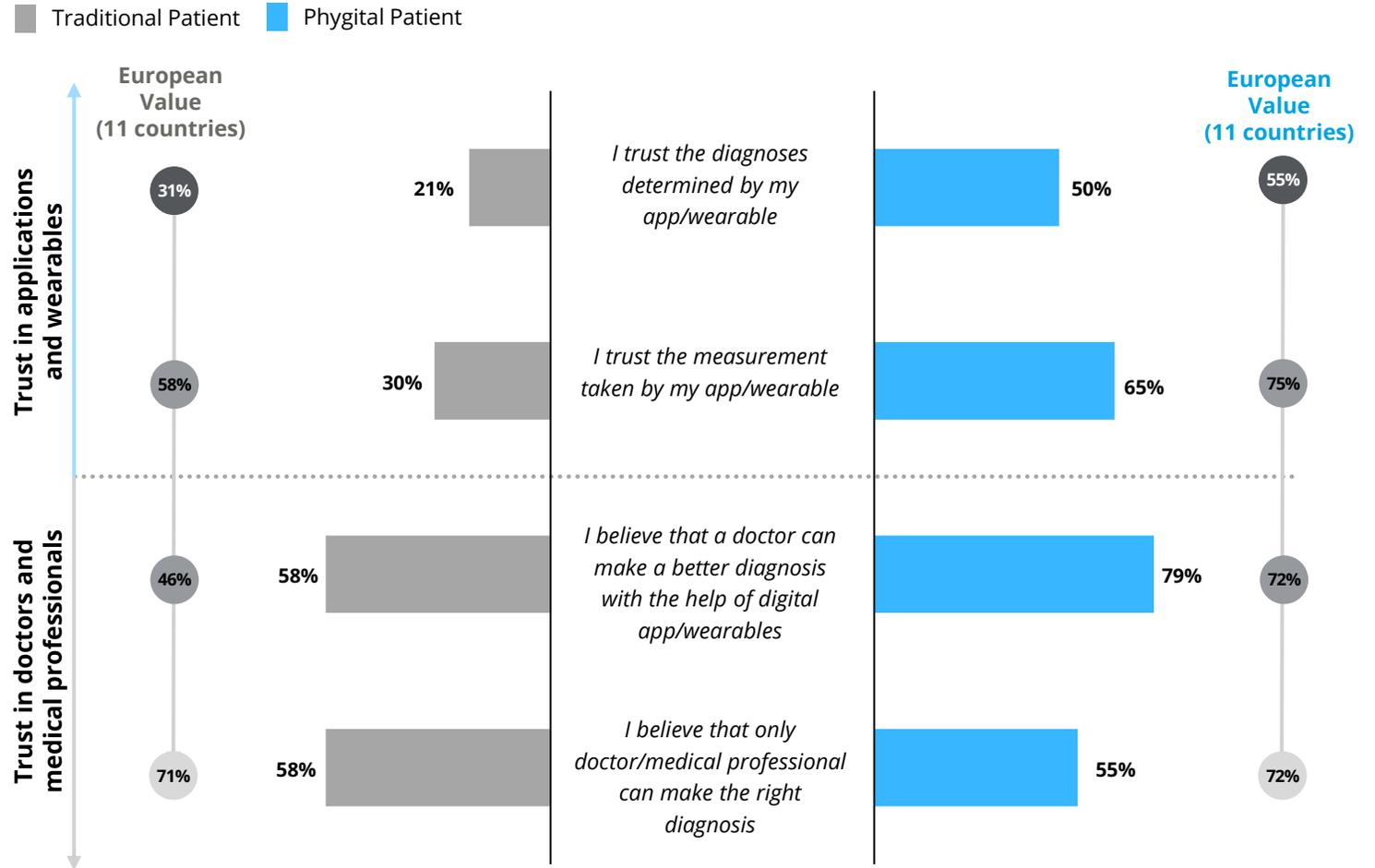
Phygital Patients are characterised by having significantly greater trust in the health-related applications and wearables – as many as 50% of Phygital Patients declared that they trust the diagnosis determined by their app/ wearable, which is by 29 p.p. higher than among Traditional Patients.

However, when it comes to the final diagnosis, the Traditional Patient (58%) believe that **only a doctor/medical professional can make the right diagnosis** what is in line with the assessment of the **Phygital Patients of 55%.**

This indicates that technology can support health prevention and diagnosis but will never fully replace the trust placed in humans.

PATIENTS' TRUST TOWARDS APPS/WEARABLES¹ AND DOCTORS/MEDICAL PROFESSIONALS

% of patients declaring that they agree or totally agree with the statement²



1. Wearables – consumer devices that collect information about lifestyle and health, e.g. smartband, smartwatch.
 2. Responses to: Please rate on a scale from 1 to 5 how you agree with the following statements.

The future of healthcare is omnichannel, not digital-first

Healthcare belongs to one of the few industry sectors where personal contact is not only necessary but even desired. Even digitally advanced Phygital Patients prefer physical contact when it comes to doctor's appointments and diagnosis. The next chapter of **healthcare delivery will not treat virtual health as a separate system, but as a part of a broader omnichannel healthcare delivery model that balances virtual and in-person care**, thus providing the best patient experience. Many healthcare providers who went through a digitalisation "big bang", underestimating the value of patient experience management, **now struggle to provide a connected experience across each online and offline channel**. However, with advancements in technology, data analytics, and machine learning, companies are now better equipped to compete in creating experiences that patients will find effortless and engaging.

HOW TO WIN PHYGITAL PATIENT?

Phygital Patients will be looking for a consistent experience across all channels. It is no longer enough to enable patient contact via call centre, email, text, chat, web, or mobile app. They expect that when scheduling an appointment via contact centre their data will be reflected just in time in the mobile app. They expect to see online doctors' schedules in real-time to make a last-minute appointment. That is why **system integrations and common databases are necessary to deliver a 360° customer view** and provide a more personalised approach to patient and value-based care. The key to achieve that is to **build technology assets that will make the omnichannel communication more effective**, such as customer data platforms (CDP), artificial intelligence (AI) and machine learning (ML), which may automate processes that are repeated, complicated, and high-volume in nature, and at the same time may deliver more personalized experience for patients.



CASE STUDY

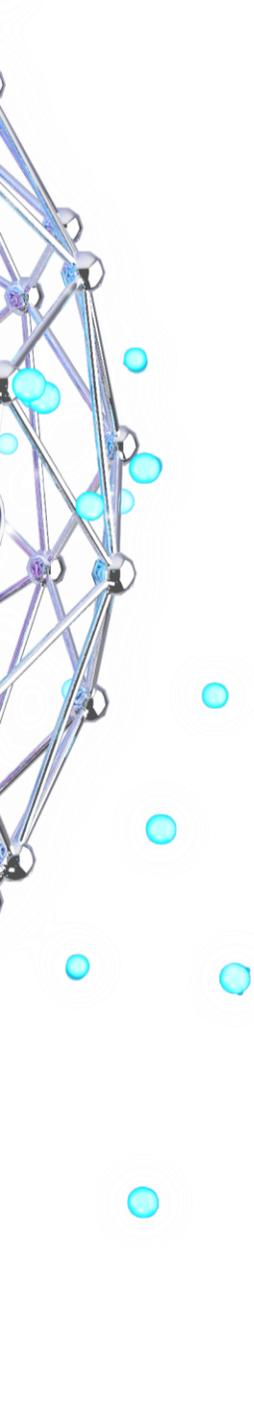


01. **Amazon Care** **Amazon believes that combining telemedicine and in-person health care is the best approach**

Amazon has launched its Amazon Care telehealth service dedicated to employees nationwide and will open physical clinics in more than 20 cities in 2022. The service was first introduced in 2019 for Amazon employees in Seattle and has since been scaled to all Amazon employees and other companies like Hilton and Whole Foods Market. The company emphasizes that combining telemedicine and in-person services is the best approach because it focuses on providing quality care in a cost-effective manner. Amazon Care offers a consistent customer experience across all available, well-integrated channels. As a result, employers using the system gave it a rating of 4.7/5 stars.

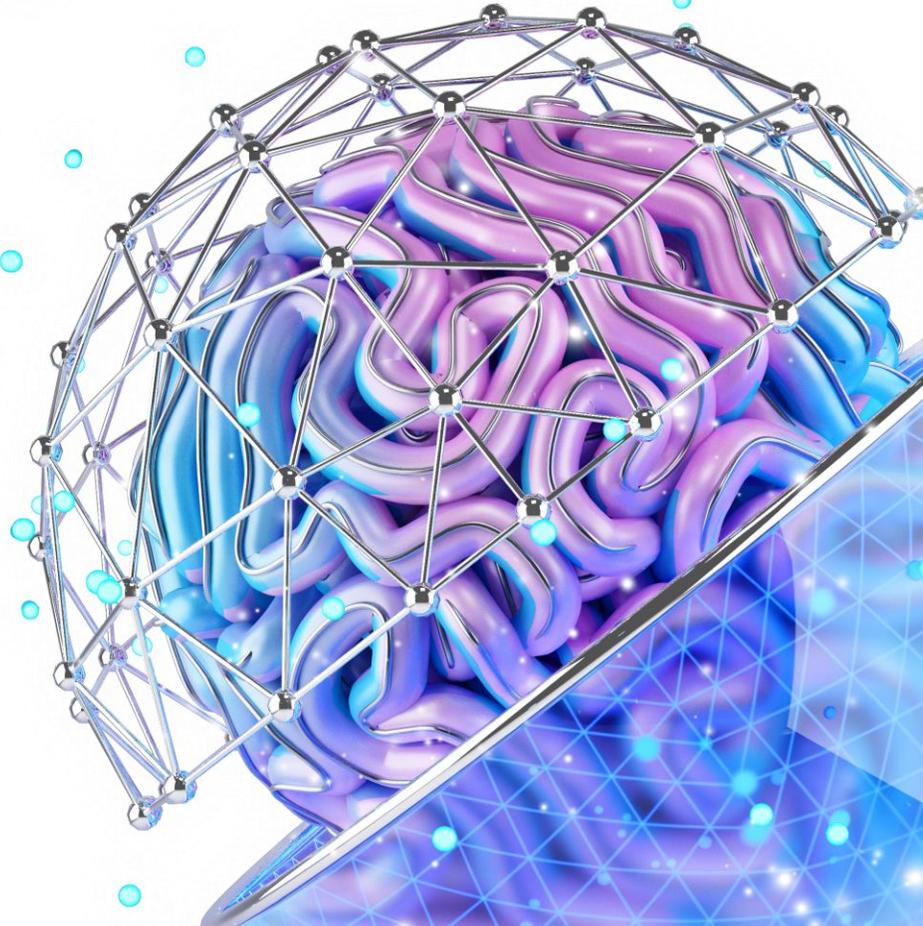
02. **LUX MED** **LUX MED offers the latest digital solutions to ensure flexibility and convenience**

All of LUX MED's patients can remotely make appointments for available dates at any facility in Poland and receive automatic reminders. Moreover, LUX MED offers audio, video and chat-based e-consultations via its app, desktop portal and phone. In addition, patients can monitor their medical history on a timeline, check test results with the doctor's recommendation, receive regular prescriptions and track the course of treatment online. Solutions provided by LUX MED are fully integrated, allowing patients to enjoy flexible, consistent and comprehensive customer experience across all channels.



02.

For Phygital Patient the main driver to share medical data is financial incentives, followed by concern for their health



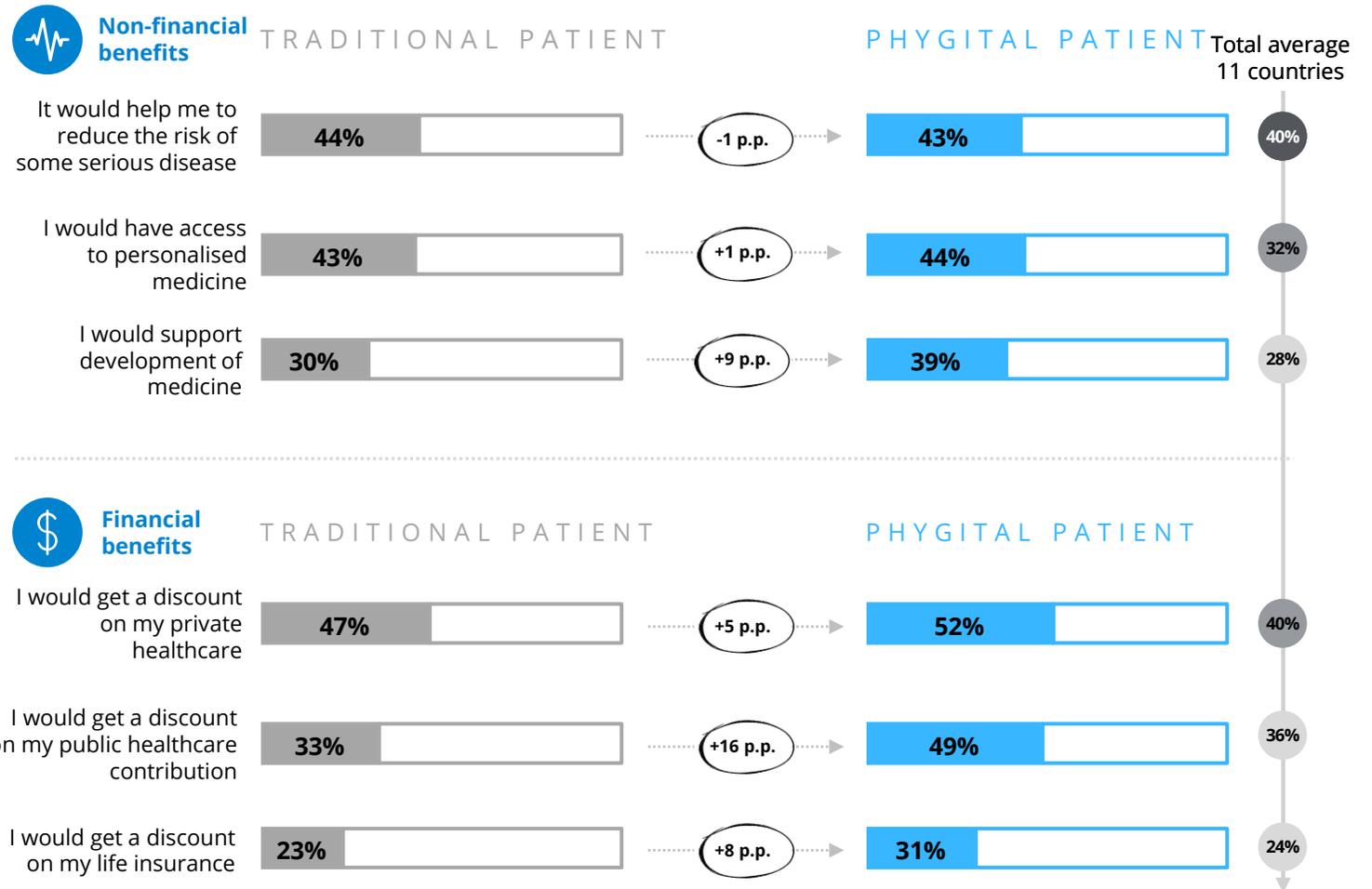
The most important motivator for patients to share their medical data with mobile applications is financial benefits, followed by the concern for their health

In general, **Phygital Patients are much more likely to share medical data with a mobile application.** As the most important benefit of doing so, **Phygital Patients indicated the possibility of getting a discount on the private healthcare (52%),** which was less important to the average of Traditional Patient (47%). Phygital Patients also see as a great incentive getting a **discount on public healthcare contributions** (declared by +16 p.p. more Phygital than Traditional Patients).

The concern for health also make an effective incentive, where among the most promising factors patients stated the **possibility of reducing risk of serious illnesses and the access to personalized medicine** (indicated by on average 44% of Phygital and Traditional Patients).

PATIENTS' MOTIVATORS FOR SHARING THEIR MEDICAL DATA WITH MOBILE APPS

Top3 non-financial and financial benefits among respondents¹



1. Responses to: *Would you be willing to share your medical data with a mobile app (e.g. examinations results, genetic code) in exchange for benefits?*

High level of trust towards healthcare providers puts them on a privileged position against technology companies

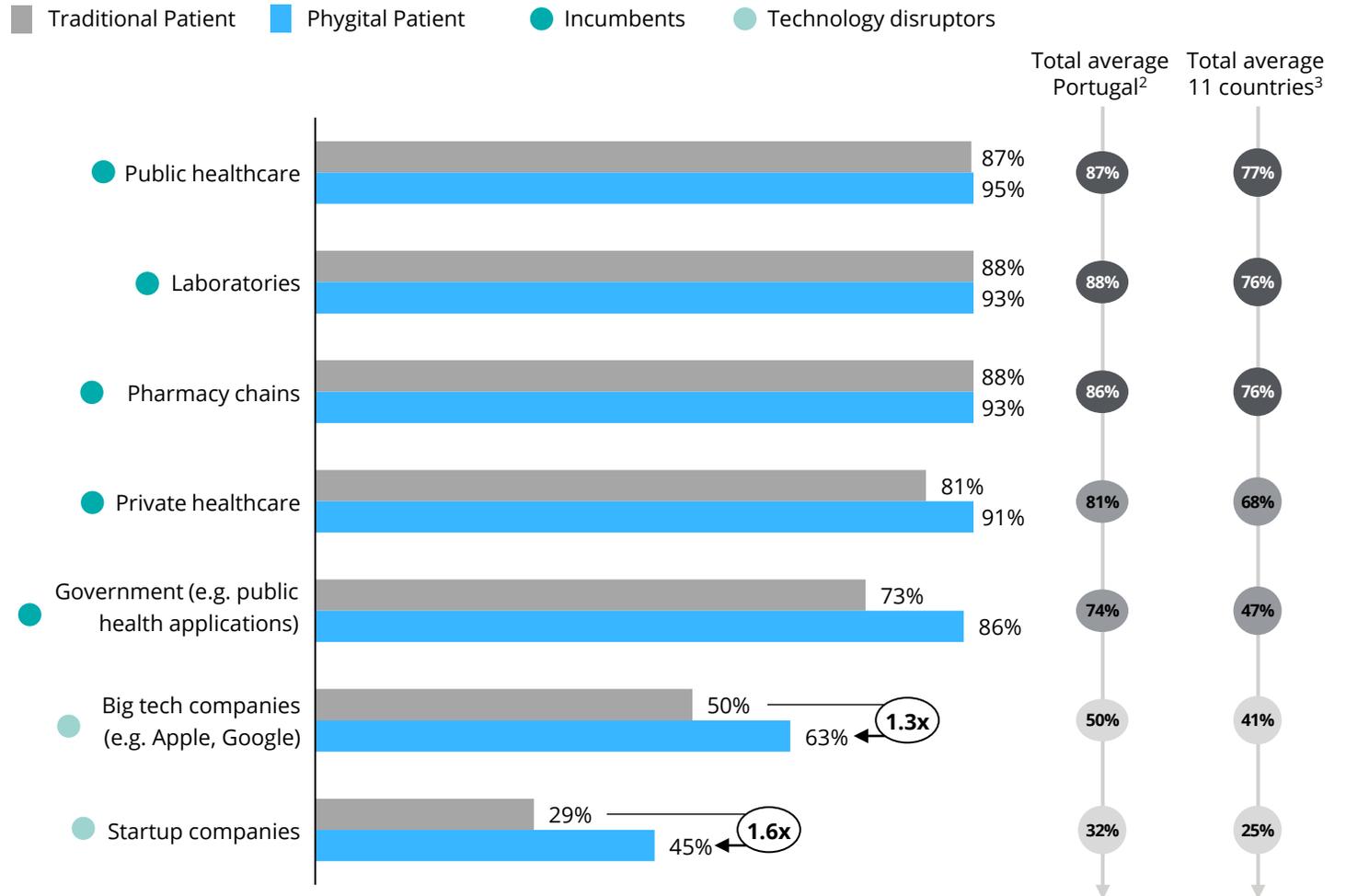
One rule always holds true across all the responses analysed – **Phygital Patients are more willing to share their medical data** with both health incumbents and technology companies. Their openness and willingness to use new digital solutions make **Phygital Patients the most prospective segment for testing innovative ideas.**

The most trusted entities among all Portuguese respondents are **laboratories (88%), followed by public healthcare (87%) and pharmacy chains (86%),** being all of those more trusted by Portuguese than European.

The least trusted entities that simultaneously displayed the largest gap between Phygital Patients and Traditional Patients are **big tech companies (63% vs. 50%) and start-up companies (45% vs. 29%).** The battle for customer trust in their case will be crucial but not easy, and the question is if they compete against one another or begin to cooperate.

PATIENTS' CONFIDENCE IN SHARING MEDICAL INFORMATION

% of patients who declared that they trust to some extent or fully trust in a given organisation¹



1. Responses to: *How much do you trust each of the following organisations to share your healthcare information (e.g., medical records, medical exam results)? where 1 – I don't trust at all, 5 – I fully trust.*

2. Total average for all respondents from Portugal

3. Total average for all respondents in the 11 countries

Healthcare providers are in a favourable position to leverage data-driven solutions

With the spread of digitalisation, people became more concerned about their data privacy, especially as the pandemic restrictions forced them into expanding their digital footprints. The good news for healthcare incumbents is that both **Traditional and Phygital Patients have a high level of trust in them**. Being in this very privileged position, **healthcare providers can leverage data to deliver value for patients**, ranging from the personalisation of communication, better adjustment of offered services to the patient's need to the use of data-driven algorithms assisting doctors in making an accurate diagnosis and treatment. Getting patients' trust is still a challenge for the technology companies, however, they are ahead of incumbents when it comes to advanced data-processing know-how (e.g. software, skilled staff) and use cases on how to take advantage of them.

HOW TO WIN PHYGITAL PATIENT?

Healthcare providers already have high levels of patient trust and databases that could change the way we look at medicine. Advanced data analytics could allow to **avoid preventable diseases, reduce treatment costs and improve the general quality of life**. The use of big data may be revolutionary in improving health and satisfaction of Phygital Patients, which can be a major motivating factor for them to share their medical data. Among the spectrum of use cases, we may consider i.a. personalised reminders of periodical health check-ups and examinations, real-time alerting of doctors about patients' condition, improved drug prescription processes or better availability of the medical personnel thanks to predictions of increased care periods. Last but not least, **big data techniques may support the development of new medicines, therapies and other health innovations** for the benefit of the entire society.



CASE STUDY



01. **NIMIS** NIMIS revolutionises the delivery of diagnostic imaging services in Ireland

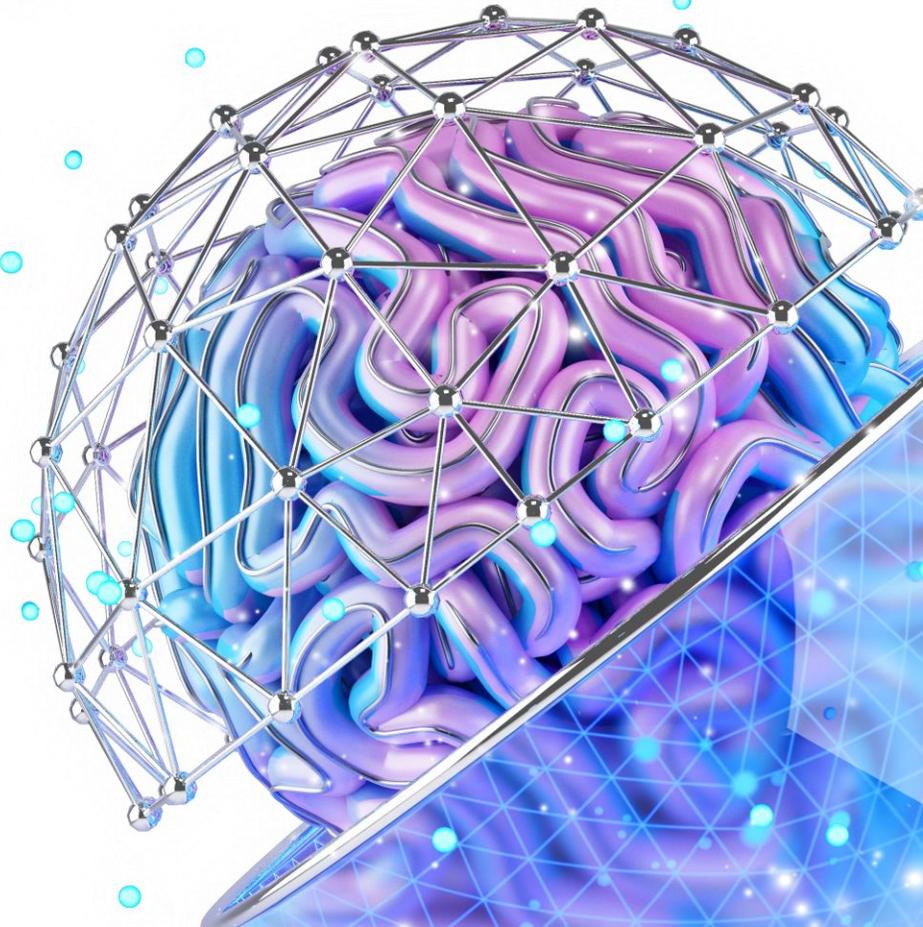
NIMIS project might be Ireland's most successful deployment of a National Healthcare IT System. As of 2021, there are 46k+ active users, 30 m studies held on archive, with over 7k additional studies added each day. All public hospitals using NIMIS are connected on a single imaging platform where doctors can access historical data, consult cases and recommend treatments. The system architecture enables hospitals to reduce costs and provide the highest standard of patient safety, as well as improve the quality of service for patients, healthcare professionals and radiology staff.

02. **Walmart & Health at Scale** Walmart introduced personalisation of health care services for their employees

In January 2022, Walmart announced a partnership with Health at Scale, aimed at providing personalised recommendations to its employees and their families in choosing a perfect doctor. Leveraging a platform based on machine learning and artificial intelligence, recommendations are modelled to take account of differences in provider outcomes and thousands of health and non-health-related factors. This initiative is a major part of Walmart's commitment to customising services and treatments to individual needs in healthcare, thus helping associates and their family members find great doctors who consistently deliver the best value and quality care in their community.

03.

**Phygital Patient manages
their health more actively
when encouraged by digital
solutions**



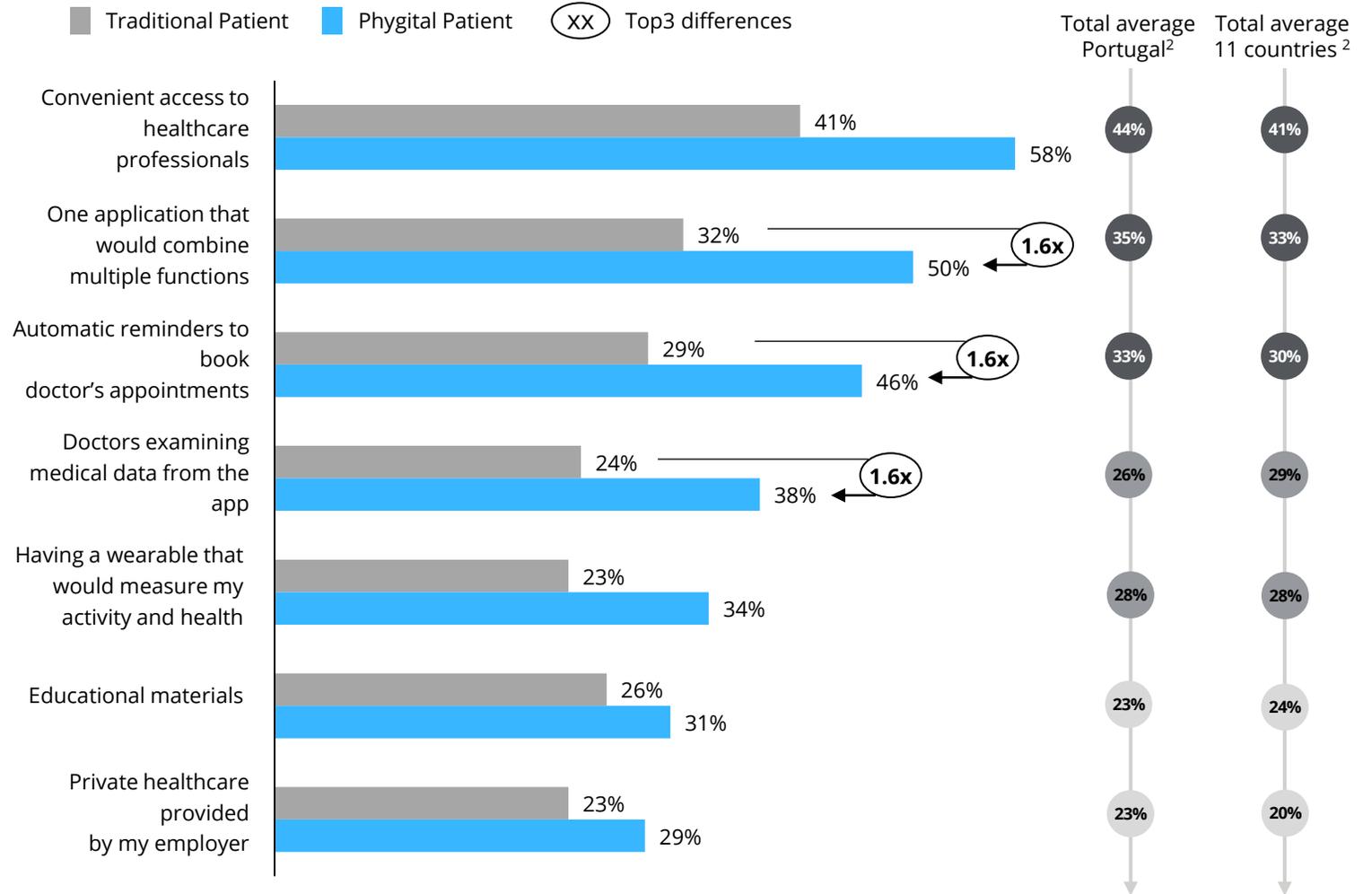
For a half of Phygital Patients one app aggregating multiple wellbeing & health-related functionalities would motivate them to manage their health more actively

The most important motivator for all patients is **convenient access to healthcare professionals** - as declared by 44% of respondents. This became the most significant factor for the Traditional Patients as well (41% of respondents), followed by **one application that would combine multiple functions with 35%** of respondents.

Top3 differences between the two groups can be observed in the answers related to the use of digital solutions, namely the **aggregation of multiple functionalities within a single app** (50% vs. 32%), **automatic reminders to book doctor's appointments** (46% vs 29%) and **doctors examining medical data from the app** (38% vs. 24%). It means that **digital have significantly higher impact on the future patient** when it comes to taking care of their health.

TOP7 MOTIVATORS FOR PATIENTS TO MANAGE THEIR WELLBEING & HEALTH MORE ACTIVELY

% of patients declaring the most significant factors for them¹



1. Responses to: Which of the following factors would motivate you the most to take a more active role in managing your wellbeing and health?
 2. Total average for all respondents from Portugal
 3. Total average for all respondents in the 11 countries

Digital solutions may boost Phygital Patient self-care level and reduce the cost of risk

Phygital Patients are already caring about their health; however, their motivation level still could benefit from a little boost. As our study shows, following the convenient access to healthcare professionals, **digital solutions**, such as multi-function apps or wearables tracking their physical parameters on a daily basis, rank among **powerful self-care incentives for Phygital Patients**. Building upon those insights, digital solutions may support healthcare providers to foster a role-model behaviour among patients. However, **not only patients will benefit from them, but also healthcare providers thanks to lower insurance risk costs**, as higher patient eagerness in prevention reduces the probability of developing serious diseases. By making users committed, companies make them feel safe to share more health data and can act upon them by fostering proper habits and preventing health problems.

HOW TO WIN PHYGITAL PATIENT?

With the shift from mass to value-based care comes a new generation of healthcare consumers – Phygital Patients – who proactively engage in their own health. The challenge for healthcare companies is to support these goals and further encourage a healthier way of living. This may include simple solutions allowing for more convenient and easy access to healthcare professionals, or more advanced ones that go beyond the standard patient journey focused on their daily care. There are already examples of **digital wellbeing platforms aimed at boosting user engagement**, being launched by insurers for policy owners or corporates for their employees. Especially for insurers, these tools are designed to help them struggle with customer engagement, but at the same time **gain insights into risk and lifestyle factors, health metrics, or disease progression**.



CASE STUDY



01. **Aetna** **Attain is a wellbeing app created by Aetna, aiming to help users build healthy habits**



Attain allows users to earn points by taking healthy actions or syncing their fitness data with Apple Watch and achieving their activity goals. The weekly goals differ between the users, as they are automatically adjusted based on their performance. Earned points can be later exchanged for gift cards and eligible plan members can earn an Apple Watch by using points to pay it off over 24 months. When the monthly goal is not met, the user has to cover a missed payment from his pocket. According to Aetna and Apple, 90% of program participants reported a health benefit from using the app & watch.

02. **Tictrac** **Tictrac is a connected platform that engages people in their health through aggregated data**



Tictrac's health and wellbeing platform has been designed to seamlessly fit into a user's daily lifestyle. It uses behavioural science to identify trigger points where additional motivation may be required and provides engaging content to keep users inspired. So far, it has established partnerships with the world's leading healthcare and insurance providers, including Aviva, Allianz and Prudential. Lately, Puma PE has sold its stake in Tictrac to a Canadian healthcare platform Dialogue Health Technologies Inc. in a GDP 35 m deal, achieving a 38% rate of return in two years after making its investment in 2020.

04.

Phygital Patient equally takes care of their mental health as their physical health



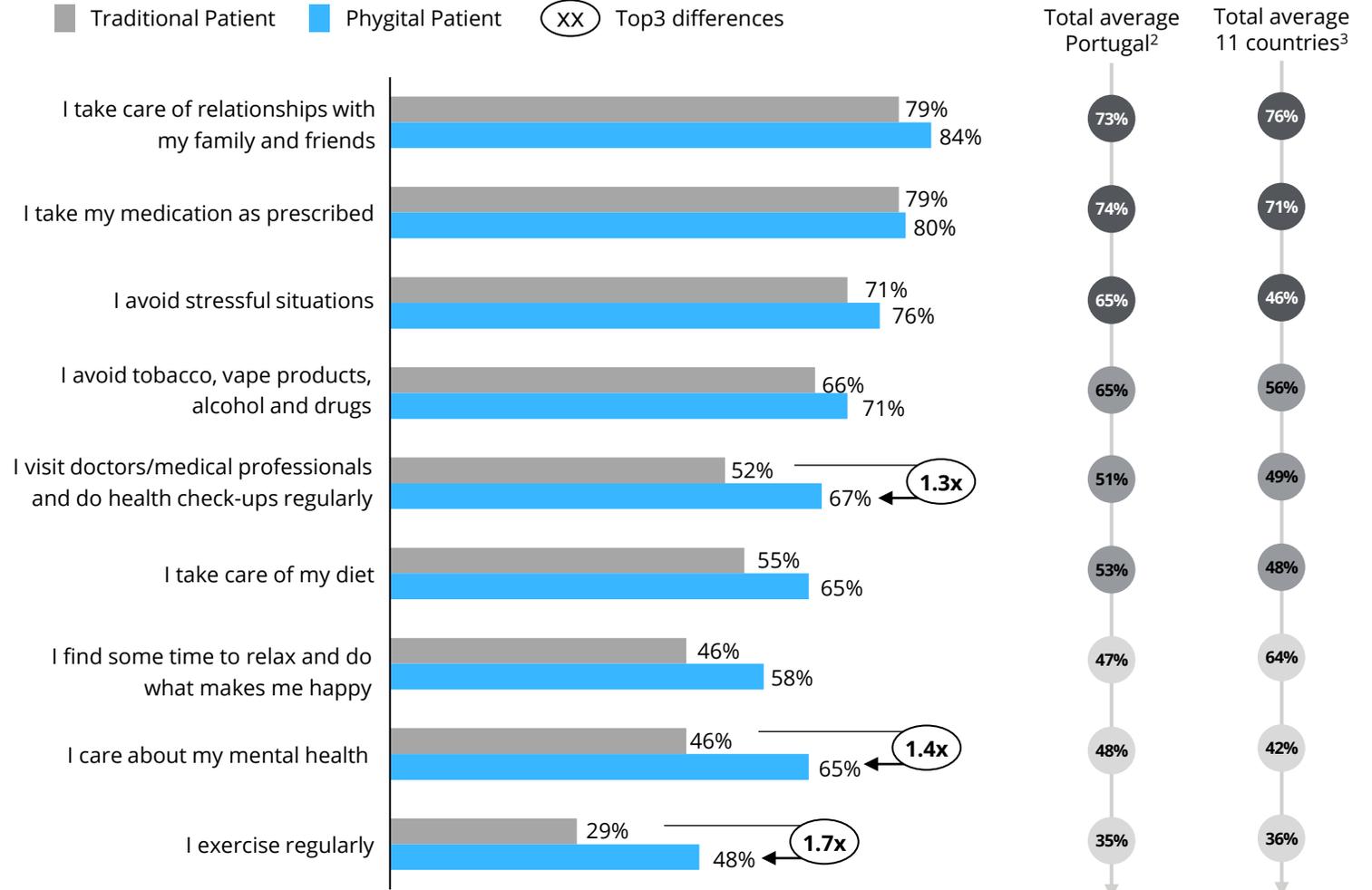
Phygital Patients pay more attention to health prevention, taking better care about their diet, physical and mental health

When asked about self-care, Phygital Patients outpace Traditional Patients in every category, which shows their higher degree of consciousness in terms of prevention.

Pandemic-induced social isolation has **increased the significance of mental health**, which is noticed among Phygital Patients – **as much as 65% of them indicate care for their mental health** and perform activities that prevent mental-related problems, such as maintaining meaningful relationships (84%), finding time to relax (58%) or pursuing a stress-free lifestyle (76%).

PATIENTS' WAYS TO TAKE CARE OF THEIR HEALTH

% of patients who declared that they agree or totally agree with the statement¹



1. Responses to: *How do you take care of your health? On the scale from 1 to 5, how do you agree with the following statements, where 1 – I completely disagree, 5 – I completely agree.*
 2. Total average for all respondents from Portugal
 3. Total average for all respondents in the 11 countries

Mental wellbeing may build Phygital Patient's engagement, but mental health will win their love

COVID-19 pandemic triggered the rise of anxiety and depression by 25% worldwide, driven by social isolation, fear of infection, concerns and deaths of loved ones or financial worries¹. At the same time, we noticed **growing care for mental health reflected by the rising popularisation of digital mindfulness solutions** supporting people to reduce stress and anxiety. Only during the pandemic, leaders in this field, such as Calm or Headspace, generated on avg. a 30% increase in customer spending in 2021 compared to 2020². Already 65% of Phygital Patients indicate mental health as an important aspect of their wellbeing and we may expect that demand for such solutions will rise over time – **driving interest not only in alleviating exhaustion of everyday life but also curing more serious diseases.**

HOW TO WIN PHYGITAL PATIENT?

Digital solutions dedicated to mental wellbeing and health are generally not widely adopted among traditional healthcare providers yet. However, **these solutions might be a great tool to win patients' engagement and love.** The borders between players in the healthcare sector are blurring as we see more and more healthcare providers expand beyond the core services. Mental wellbeing features, such as relaxing music, meditation or bedtime stories, may build patient engagement on a daily basis, but mental health features, such as teleconsultations or real-life chats with psychologists and psychiatrists, may gain appreciation of those who are really in need. **These solutions might be applicable both for individuals and for companies fighting employee burnout.** By offering such applications companies may encourage employees to achieve and maintain healthy lifestyle habits, at the same time keeping them connected in a world of remote work.

1. Source: World Health Organization. Data after the first year of pandemic.
2. Source: The company's financial statements. The average results for both companies: Calm (+28%), Headspace (+32%).



CASE STUDY



01. **KRY** **Kry to roll-out digital mental health service across Europe**

Kry created an internet cognitive behavioural therapy (ICBT) programme for mental health issues. The ICBT service is already available in Sweden and the company has plans for international expansion. The mobile app can be used to treat conditions such as depression, anxiety, stress, insomnia, parental connections and for chronic disease management for hypertension, diabetes and blood pressure. The platform connects clinicals that can speak over 30 languages and has been already involved in over 200 m patient interactions.

02. **Mindpax** **Mindpax is a digital therapeutics tool company helping to manage patient's mental disorders**

Mindpax applies a bracelet on the patient's wrist to collect long-term data including activity, sleep, mood, medication and psychosocial factors to gain a comprehensive view of the user's health metrics. The wearable is integrated with a mobile application where data are transmitted and sent to a secure database to help psychiatrist decide on a treatment method based on continuous monitoring of a patient. The company received EUR 1.3 m in financing for future development.

05.

Phygital Patient with chronic diseases is open to digital solutions, but those are often not available for him



Phygital Patients are 1.5x more inclined to use apps and devices to track their health condition than Traditional Patients

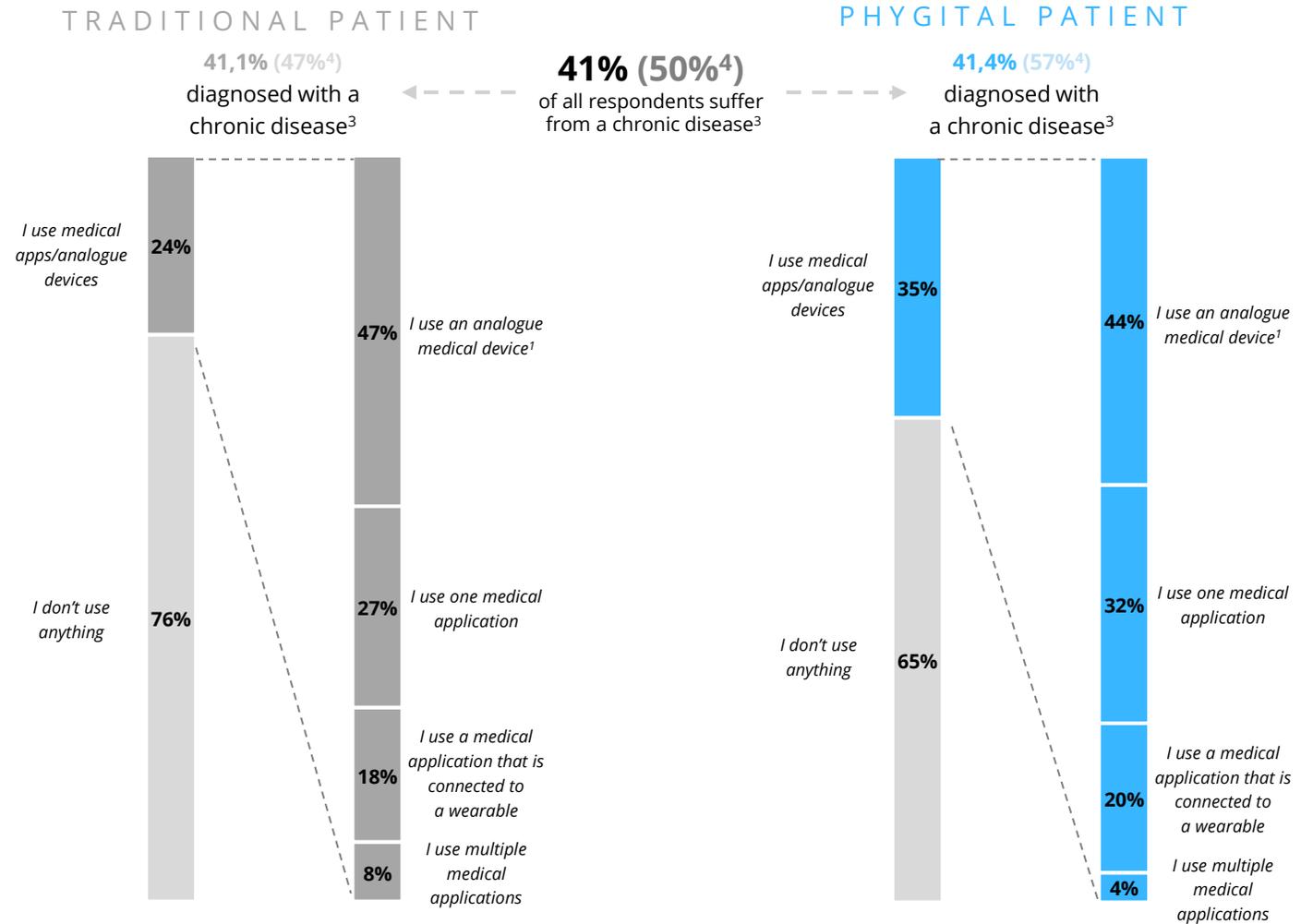
More than 40% of the Portuguese population suffer from chronic diseases being far from the European where almost 60% of the phygital patients suffer from at least one of those diseases.

Although **Phygital and Traditional Patients have similar rate of chronic disease in Portugal**, once diagnosed, the first group is **more likely to use any app/device specialised for monitoring or managing chronic diseases (35%)**.

Besides Phygital patients use more medical apps and analogue devices than Traditional in almost all the categories, these last group use twice **multiple medical applications** than Phygital Patients.

PATIENTS' USAGE OF MOBILE APPS/DEVICES¹ TRACKING THEIR CHRONIC DISEASES

% of patients declaring usage of health-related apps/devices²



1. Analogue medical device – medical equipment that is not connected to any application and can be used at home.
2. Responses to: *Do you use any health apps / medical devices to track your health condition related to your chronic disease?*
3. One or more chronic diseases. Types of chronic diseases examined in the study are listed in the methodology section.
4. Represent the results for the overall analysis of the 11 European countries

The biggest barriers to using chronic disease tracking solutions relate to their low availability and lack of patients' awareness

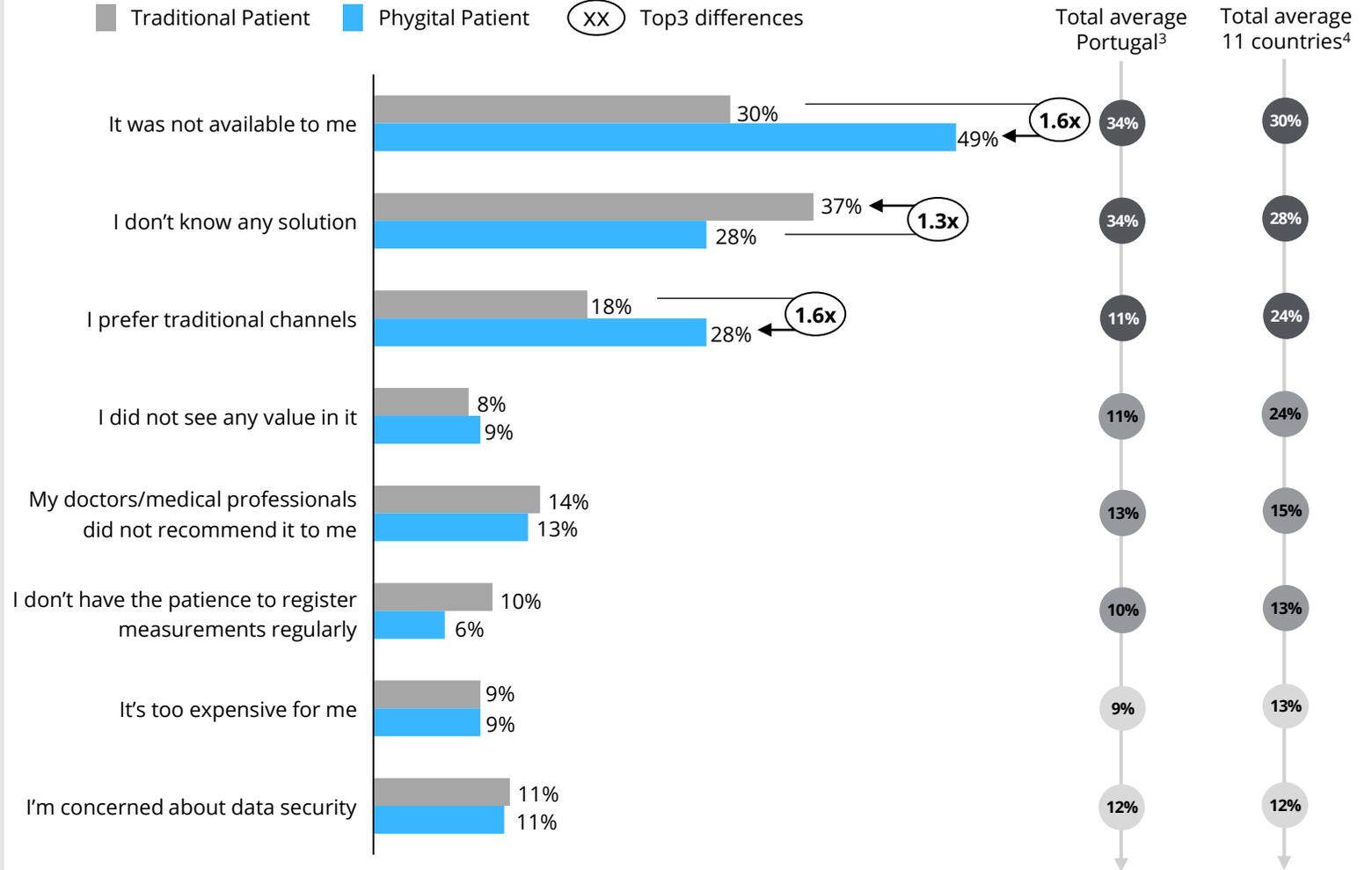
The most significant barriers to using chronic disease tracking solutions for all respondents are related to their **low availability (34%) and lack of awareness of any type of such solution (34%)**.

For the first parameter we have a dominance of the Phygital patients (49%), while in the second parameter the Traditional Patients stand out (37%), as we can see in the analysis of the graph.

More than 1/4 of Phygital Patients indicated that they preferred traditional channels and 9% did not see value in applications and devices they knew (1 p.p. above Traditional Patients). This means that Phygital Patients are more willing to use such solutions, but the **supply does not meet the demand of the target group yet**.

PATIENTS' BARRIERS TO USING MOBILE APPS/DEVICES DEDICATED TO MONITORING CHRONIC DISEASES¹

Top 8 factors influencing patients' decision to not use any apps/devices for tracking chronic diseases²



1. Responses to: *Why do you not use any apps / device?*
 2. Types of chronic diseases examined in the study are listed in the methodology section.
 3. Total average for all respondents in Portugal.
 4. Total average for all respondents in the 11 countries.

Phyigital Gen Z and Baby Boomers represent nearly 2x the Traditional equivalent when it comes to using digital solutions for chronic diseases

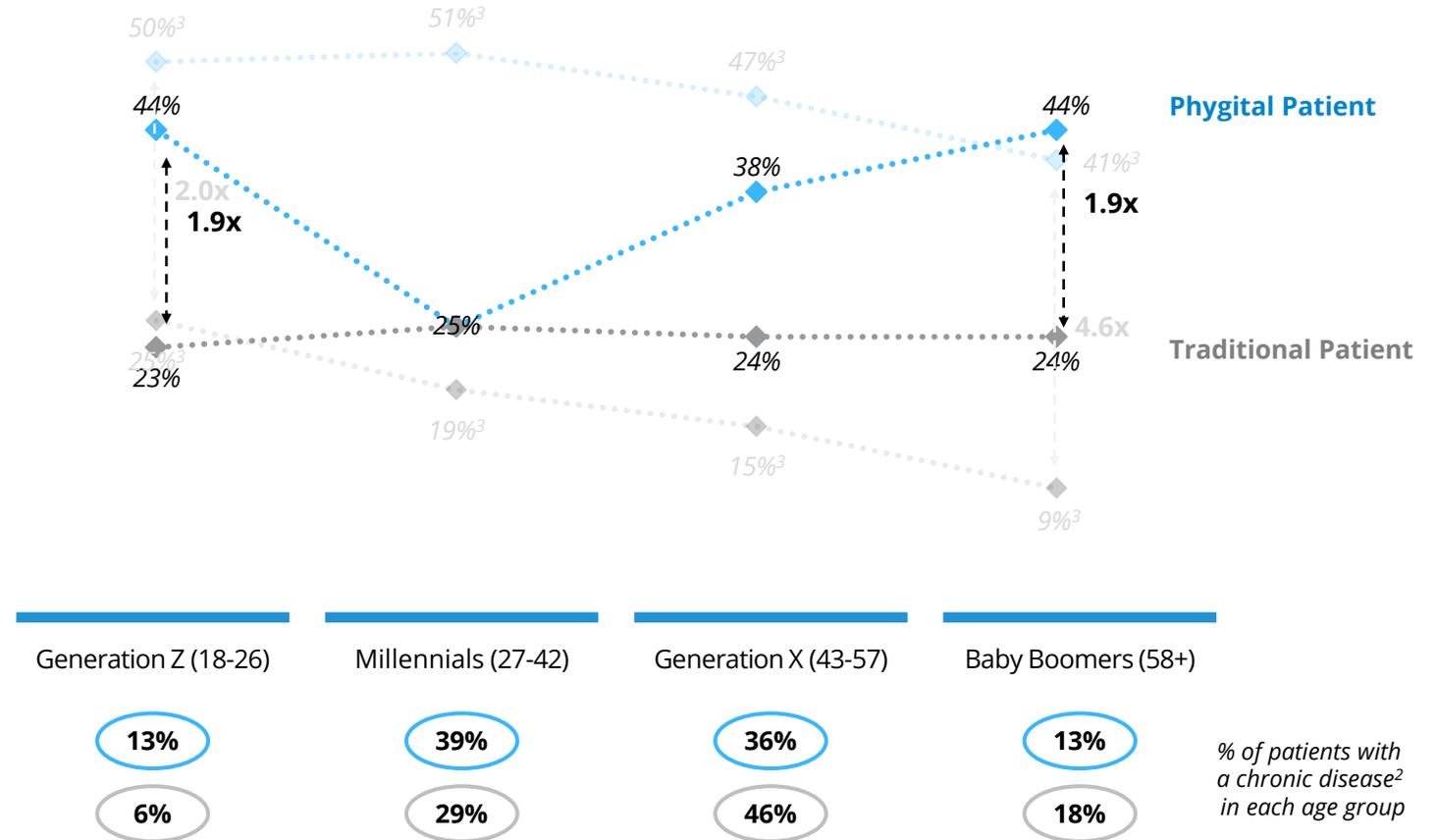
In Portugal, all respondents from Baby Boomers, characterized by older population, are already using significant technologies to monitor their chronic diseases with similar results to the youngest patients from Gen Z.

Although the results from Phyigital patients are on average better than the Traditional, this last group also constitutes quite a significant group - **a quarter of both Phyigital and Traditional Millennials patients are keen on using technology to monitor their chronic diseases.**

In Portugal, Traditional patients are already using significant technologies to monitor their chronic diseases when compared to the remaining countries of the overall study. However, and specially in regard to the Phyigital patients, there is space for **chronic diseases-related digital solutions**, being in need of an innovative approach and incentives towards monitoring and treatment.

PATIENTS' USAGE OF HEALTH-RELATED APPS/DEVICES TRACKING THEIR CHRONIC DISEASE

% of patients declaring their usage of at least one health-related application (separately or connected to a wearable)¹



1. Do you use any health apps / digital medical devices to track your health condition related to your chronic disease?
 2. One or more chronic diseases. Types of chronic diseases examined in the study are listed in the methodology section.
 3. Represent the results for the overall analysis of the 11 countries.

There is still an untapped niche in chronic diseases management

Chronic diseases are a major burden to patients and the healthcare system alike – according to WHO, 71% of all deaths worldwide are related to them¹. Innovative digital solutions support patients in tackling their chronic diseases by providing holistic support for the overall management of their illness. However, there is **a discrepancy between patients' interest and healthcare providers' offer**, as around 30% of patients declare the lack of digital solutions dedicated to their diseases or low awareness of their availability. This creates a potential for companies to **introduce solutions that support patients in continuous chronic disease management**, such as medication reminders, tracking and monitoring of disease-specific vital parameters or education. More advanced data-driven solutions may determine if a patient should visit a doctor sooner than planned, potentially preventing an emergency room visit or an unfortunate event.

HOW TO WIN PHYGITAL PATIENT?

Innovative companies already realise the value of digital to address unmet Phygital Patient needs in terms of remote chronic disease management. One of the trending topics in this area is **digital therapeutics, which has the potential to enhance traditional treatments, help prevent medical disorders and offer entirely new alternatives to medication treatment**. They collect health data in a real-time time, providing doctors with in-depth insights into patient's condition. A growing number of start-ups and established technology companies are engaging in innovative applications, leveraging life sciences with the latest technology developments. For pharmaceutical and med-tech companies, **digital therapeutics is a chance to diversify their portfolios with a relatively low capital investment**, compared to the R&D expenditures connected with the development of medications or medical devices. The range of indications addressed by digital therapeutics is constantly evolving and they are being developed to support those suffering from chronic diseases.

1. Source: World Health Organization. Data as of 2019.



CASE STUDY

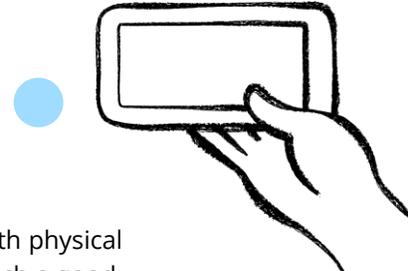


01. **Fresenius Medical Care** **Fresenius Medical Care uses virtual reality to train patients for home dialysis**

The company recently developed a new method to train individuals in need of peritoneal dialysis by means of virtual reality (VR). It helps with the decision on whether doing peritoneal dialysis at home is the right move for a patient. It is an example of a global trend, where the customer's treatment is moved from a medical care facility to one's home, contributing to the effectiveness of the treatment. Currently, the company operates over 4k dialysis centres in 50 countries, having access to the data of almost 2 m dialysis patients worldwide.

02. **GlucoActive** **GlucoActive developed a first non-invasive glucometer to help people with diabetes**

GlucoActive created GlucoStation, which is the first non-invasive glucometer in the world to undergo clinical trials. This small device enables painless measurement of blood glucose by means of a laser light. The device can be used in medical facilities, pharmacies, public places and at home. The company also offers wearable devices in the form of a band and watch – GlucoFit and GlucoWear. The devices allow measuring glucose levels in real time 24 hours/day. There is no need to replace sensors and measuring strips which allow patient to save up to EUR 2,6k per year.



OBJECTIVE OF THE STUDY

Deloitte’s research was aimed at **identifying customers’ wellbeing and healthcare habits** and assessing **digital tools adoption potential** in this area to assess whether modern technology can help people have a healthier life.

Customers were questioned about their **current usage and preferences towards health-related technologies**, as well as their needs, motivations and barriers in taking care of their health.



RESEARCH DESIGN

- As input for this study, we conducted a customer survey fielded by an independent research firm. The data quoted in the report are based on a representative sample of **11 000 adult (18 + years old) smartphone users from 11 countries in Europe**.
- The survey was conducted using **Computer-Assisted Web Interview (CAWI)** method and **took place in Q1 2022**.
- Panellists were selected by means of a **stratified sampling** method and the layers determine the quotas (socio-demographic features).
- The sample structure was selected separately for each country and is **demographically representative** based on the Eurostat data.

DEFINITIONS

Wellbeing – all activities performed to take care of both physical and mental health on a daily basis, allowing e.g. to reach a good physical condition, manage stress and achieve high life satisfaction.

Healthcare – all activities related to diagnosing, treatment and monitoring of a health condition, e.g., doctors/medical professionals’ appointments, examinations, treatment of diseases and taking care of chronic diseases (if applicable).

Chronic diseases – types of chronic diseases examined in the study: cardiovascular diseases, chronic respiratory diseases, diabetes, obesity, chronic kidney disease, chronic pain, sexually transmitted diseases, mental illnesses, autoimmune diseases and cancer.

Wearables/devices – devices supporting both wellbeing and healthcare management, such as smartphones, smartwatches as well as smart medical devices which help, among others, track the activity, sugar level or blood pressure.

Traditional Patient – is a person that uses up to 4 mobile applications dedicated to wellbeing and/or healthcare (level of digitalisation: light user) and performs from 4 to 8 activities when taking care of health (level of self-care: moderate). Traditional Patients comprise 49% of the population.

Phyigital Patient – is a person that uses 5 and more mobile applications dedicated to wellbeing and/or healthcare (level of digitalisation: heavy user) and performs from 4 to 11 activities when taking care of health (level of self-care: moderate and high). Phyigital Patients comprise 18% of the population.

PLACE



SAMPLE

Ω N = 1000
N = 11000 on the 11 countries

DATE

Q1 2022

METHOD

CAWI
Computer-Assisted Web Interview

Thank you.

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