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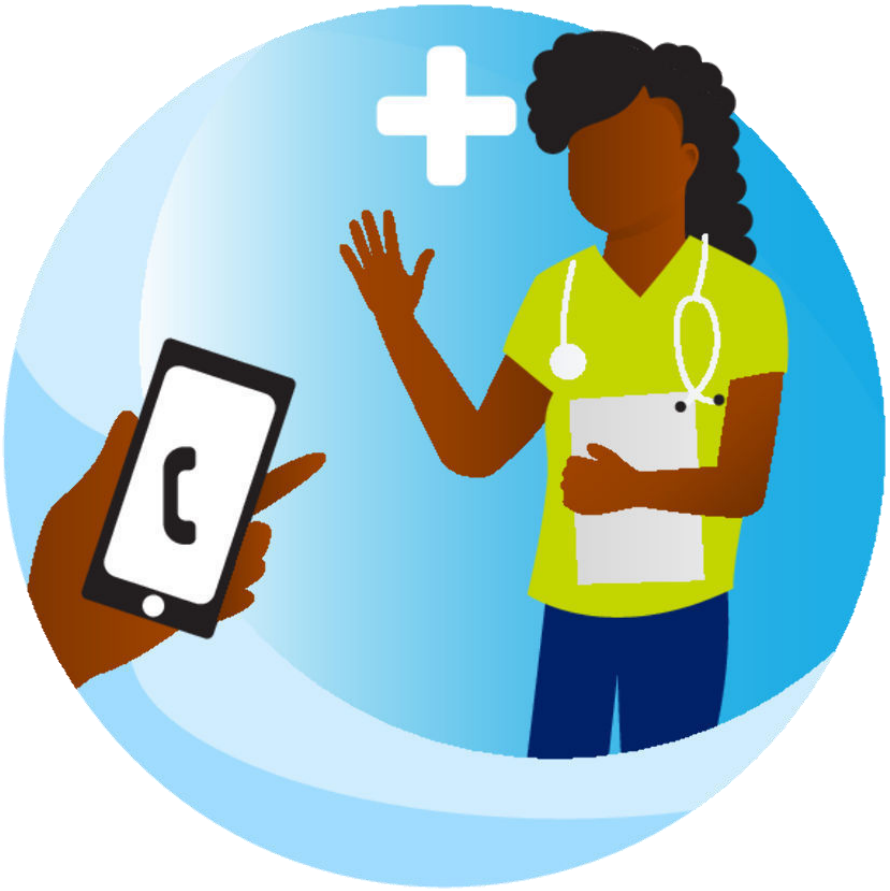

Prevention & HealthTech Study

May 2022

Sub-study 1

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Executive summary (1/2)

Context & objectives

Deloitte has supported Lifetech.brussels in conducting a market study on preventive health care. The goal of the study is to better understand the **market conditions and opportunities that offer the greatest potential for preventive health care solutions to succeed in the long term.** As part of this study, we did look at Sweden and Germany as benchmark countries. Sweden as it is a similar market to Belgium and we can derive interesting insights for policy makers; where Germany, thanks to its size and proximity, provides an interesting export opportunity for Belgian companies active in preventive health care.

Setting the scene

Based on our **market benchmarks, we noted that while there is broad consensus that preventive health care is the right way forward from a patient value and cost perspective** (to prevent chronic diseases and keep the population healthy), both of our countries (and the broader EU) show that public expenditure on **preventive health care is limited, especially compared to the public spending on health care** (under 3 – 3,5% of total spending of health care). This is however still better than the European average, which sits around 2,8%. There are a few reasons:

- The challenge for governments **to invest in preventive health care** (which is an investment in the future health of your population), while balancing the actual needs of curing people on a day-to-day basis. Preventive health care requires **significant spending upfront before you reap some of its benefits** (mostly a healthier population).
- The outcomes of preventive care always **come with a delay** and **are at times difficult to measure and prove**. Governments and especially research institutions, but also private sector players can help to accelerate this trend thanks to targeted research.

Even in **more established markets, public spending in preventive health care covers only a fraction of total spending**. Specifically for Belgium, we have the opportunity **to double our public efforts** (Belgium currently sits at 1,6% health care spending to preventive health care) and become a front runner in Europe regarding preventive health care.

Preventive health care is a **very broad domain with different types of prevention each impacting the patient differently, and showing high potential in many different therapeutic areas** (Oncology, Cardiology, Neurology, Rehabilitation,…). For governments to be impactful, **clearly defining the type of prevention and/or the therapeutic areas to focus on** can help to generate more impact in the short term.

Overall, our research seems to suggest that **governments can play a more impactful role** within primary & secondary prevention, where tertiary & quaternary prevention will be more privately driven.

Executive summary (2/2)

Benchmark assessment

In our benchmarked countries and more widely in Europe, **public incentives to promote preventive solutions remain limited**. While Sweden has put prevention as a national strategic priority and started to take a more active role in primary and secondary prevention (e.g. through sensibilization, national screenings), other countries (such as Germany, Belgium) have implemented a reimbursement scheme allowing the development of digital health solutions as a first step.

The lack of government incentives is driving companies to **focus on consumer health** and to offer their solutions directly to consumers, driven by their **growing empowerment** with regard to health.

We have identified the **following levers for a thriving preventive care market: the prevention strategy, regulatory framework, reimbursement scheme, digital adoption and inclusion, access to data and interoperability, and consumer market for preventive health care**. Based on the assessment of the maturity of the selected countries in the preventive care market, **Sweden shows high maturity**, driven by strong digitalization and digital adoption in health care, while Belgium and Germany have room for improvement, especially on data usage and access to data. **Belgium could be considered as a good test market before exporting to Germany**, due to their similarities in terms of health care system, regulatory framework, reimbursement scheme and access to data.

Our recommendations

A preliminary conclusion is that **it will not only be the public sector who will be able to get preventive health care off the ground** – it will require private innovation and investments in consumer HealthTech business models which have primarily revenue streams coming from the private sector.

The public sector can **facilitate this by considering** 1) promoting preventive health care through a **coherent strategy across different levels of government**, 2) provide **market access** (e.g. open digital health and data market in Sweden, with government platforms that compete with private solutions), the **right frameworks for reimbursement,** and **quality assurance** (e.g. DiGA in Germany), 3) **promote and incentivize the use of preventive health care** solutions in the target communities (e.g. through sensibilization and creating awareness around prevention solutions) **or engage in public private partnerships** (e.g. with health insurers in Germany).

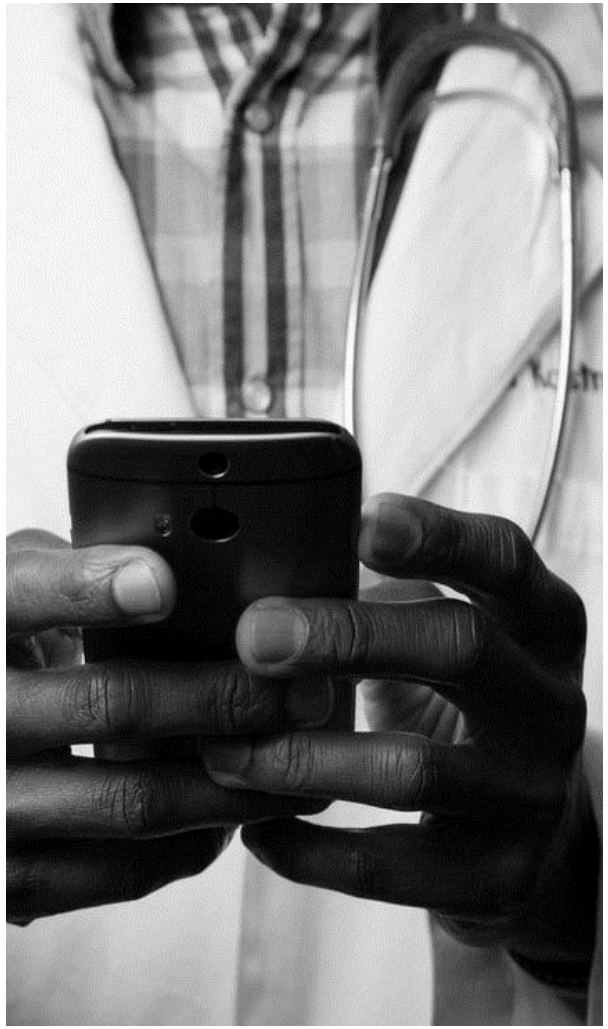
The private players active in the Consumer HealthTech space have a clear strategy that is **focused on segments with a higher willingness to pay** for preventive health solutions, i.e., amateur sport enthusiasts, chronic diseases and middle-aged men and women. They gain **entry to the market through partnerships** (e.g. academics) and **specific channels** (e.g. food supplement stores and bicycle shops) to reach these target segments. **Local frameworks and initiatives** that promote preventive health care and/or digital health are a **clear differentiator when choosing a market** to focus on.

INTRODUCTION

Context and objectives of the study

CONTEXT

- The goal of preventive health care is **to avoid or delay the onset of disease** and the need for disease treatment. Preventive health care is especially important in the context of the high prevalence of chronic diseases in Belgium and abroad
- The Brussels Agency for Business support (hub.brussels) aims to transform Brussels into the most attractive place in Europe to **launch and grow a business**
- Hub.brussels' **Lifetech.brussels cluster** aims to **facilitate the development of projects** related to the health and health care sectors in the Brussels Capital region through
    - Individual coaching/personalized guidance to turn innovative ideas into a commercial solution (**Lifetech Studio**)
    - Collective coaching and individual coaching program to boost the development of (connected) medical devices with the help of seasoned experts and dedicated coaches (**MedTech Accelerator**)
    - Building a medtech prototype and giving specific support to facilitate the test and validation of solutions (**MedTech Atelier**)
    - Increasing the network, visibility and internalization through the **Lifetech Cluster**
- The '**Prevention and HealthTech**' study has the overall objective to **enhance the appeal of the Brussels Capital Region** to HealthTech companies specializing in preventive health care



OBJECTIVE

- Lifetech.brussels is seeking support in conducting a study that will identify the **market conditions and opportunities** that offer the greatest potential for HealthTech companies' preventive health care solutions to succeed in the long term
    - Improve the understanding of **market opportunities and trends** in preventive healthcare in Belgium and abroad
    - Identify and analyze **successful business models in the preventive health care sector** in Belgium and abroad
- This will allow lifetech.brussels to provide Brussels-based companies with **advice on strategy and business models**, considering the market conditions in Belgium and abroad
- Lifetech.brussels will **disseminate the results of the study** to entrepreneurs, the Regional authorities, industry, investors, and international stakeholders to support, promote and create awareness about the preventive health care business sector

Scope of the study

This document presents market trends and opportunities on the preventive health care playing field in Belgium, Sweden & Germany

Scope of the document

1

SUB-STUDY 1: INSPIRE

- Give overview of **market trends and opportunities** of the preventive health care market in Belgium, Sweden & Germany
- Identify the **levers for a mature preventive care market**
- Provide a **comparison between the selected countries** to assess the maturity of their preventive care market

Note on methodology: desk research and interviews with Belgian, Swedish and German companies/entrepreneurs, political stakeholders, Deloitte experts

2

SUB-STUDY 2: IMAGINE

- Identify and detail **5 best-in-class companies** active in preventive heath care of the respective chosen markets
- Assess their **business model proposition**
- Describe the **key success factors of their business models**
- Identify the **funding architecture** and **investment role of public agencies**

3

FINAL REPORT

- Consolidate the insights into a **final report and executive presentation** including:
  - **Market trends and opportunities** on the preventive care market – in general and in selected countries
  - Overview of **prioritized actionable business models**
  - Summary of **funding options**

Scope of the study

Sweden and Germany have been selected for a deep dive into market trends and opportunities, and we will complement our study with examples of best-in-class companies from Israel

MARKET	OBJECTIVES	DELIVERABLE
 **SWEDEN**	• Understand the **market** and the **initiatives from policymakers** providing the **similarity with Belgium** • Get inspired with **best-in-class companies and business models**	Will be included in **sub-study 1 & 2**
 **GERMANY**	• Understand the **market and its functioning** providing the opportunity it represents for Belgian companies to **export their solutions** • Get inspired with **best-in-class companies and business models**	Will be included in **sub-study 1 & 2**
 **ISRAEL**	• Get inspired with **best-in-class companies and business models** given the **dynamic and highly innovative market**	Will be included **only in sub-study 2**

SETTING THE SCENE

Setting the scene

While there is consensus that a shift from cure to prevention will create significant patient value, the focus on prevention is limited, even in advanced markets

A.

Fundamental mindset shift from “health care” to “health”, from diagnosis and treatment to well-being and prevention

- There is a **general awareness** of the **need and potential of prevention** for the population
- There will still be disease, but science, data, and technology will help **early identification, proactive intervention**, and a better understanding of its progression, in order to help consumers more effectively and actively sustain their well-being
- While we are now able to provide **better care to people with chronic diseases** and extent their life expectancy, it is better to **focus on prevention** to reduce the number of chronic diseases in the first place

B.

Expected shift in health care spending in the long term

- While there is uncertainty on whether we will be able to **reduce the total cost of health expenditure**, there is a general consensus that health spending will **shift from care and treatment toward improving health and well-being**

C.

Focus on preventive health care still limited

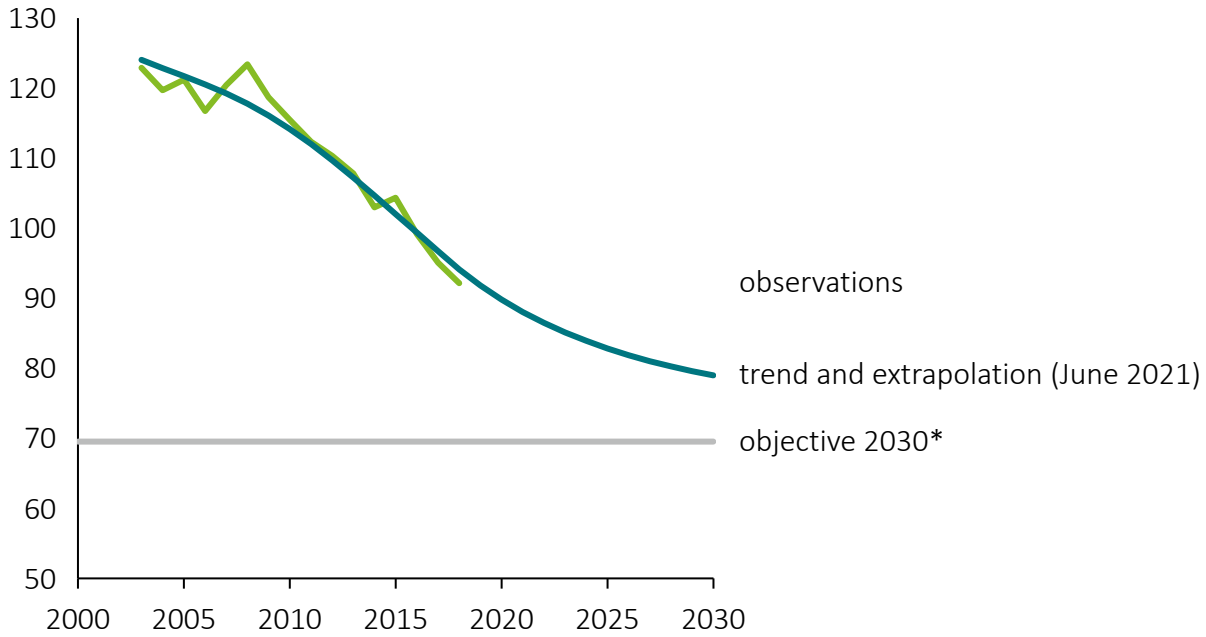
- We observe that **focus on prevention remains highly limited** nowadays, even in more advanced markets
- **Success factors** for widespread adoption include the **measurement of tangible results** and the resulting **monetization models**, which will encourage **public and private actors** to promote and focus on prevention
- The **types of solutions** in the preventive market are **numerous** and can be **very broad**, across the different types of prevention

Setting the scene

While we are now able to provide better care to people with chronic diseases and extent their life expectancy, it is better to focus on prevention to reduce the number of chronic diseases in the first place

Premature deaths due to chronic diseases - Trend assessment

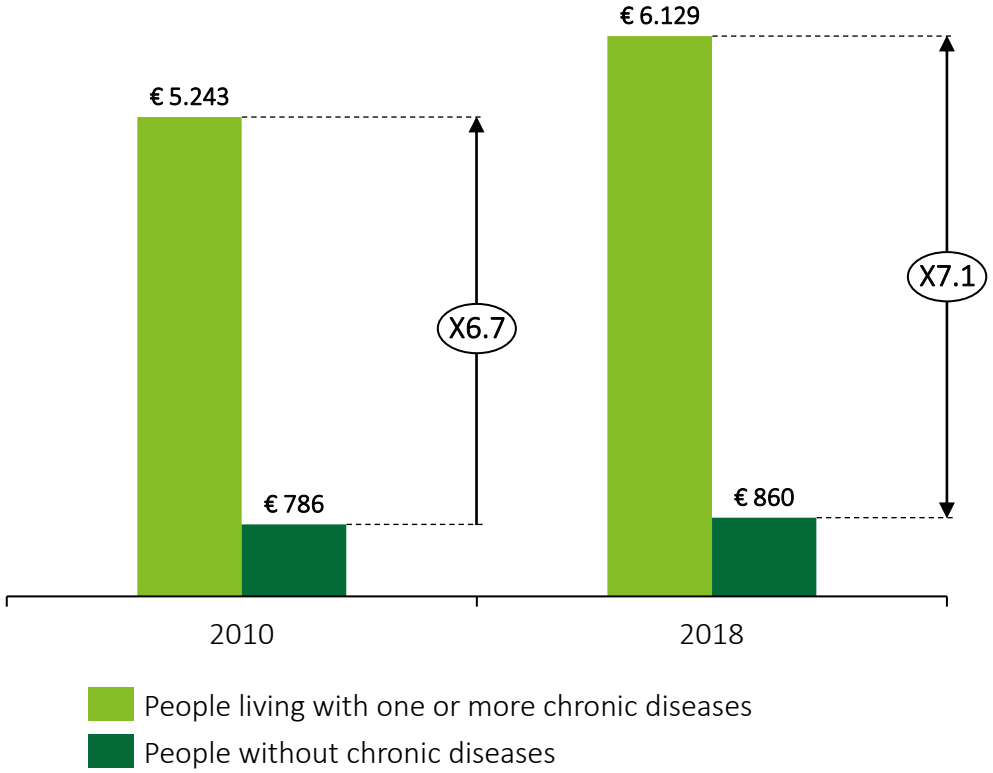
Crude death rate per 100,000 inhabitants of less than 65 years, Belgium, 2003-2030



*Sustainable development goal 3, target 3.4 (reduce by 1/3 from 2015)

Average expenditure on medical care (reimbursement by the health and disability insurance)

Belgium, 2010-2018



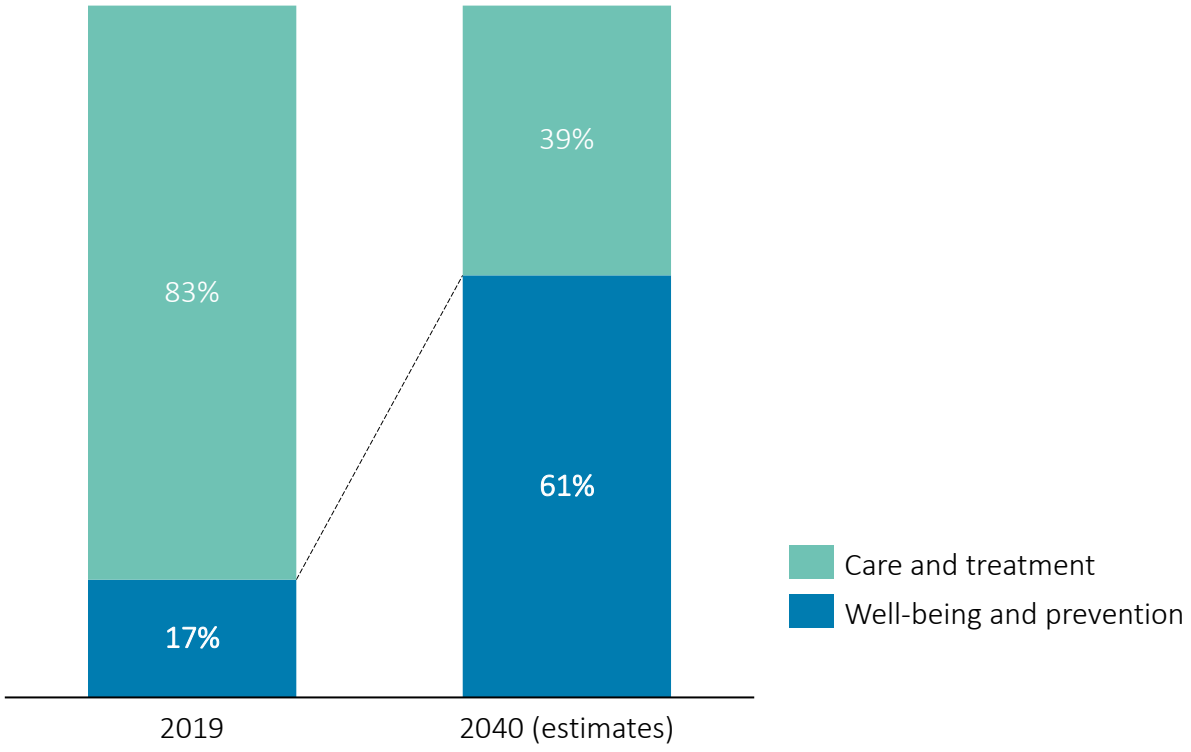
Source: Statistics Belgium & Eurostat (2021), Onafhankelijke Ziekenfondsen (MLOZ) (2020)

Setting the scene

While there is uncertainty on whether we will be able to reduce the total cost of health expenditure, there is a general consensus that health spending will shift from care and treatment toward improving health and well-being

Expected shift in global health care spending - in %

Globally, 2019-2040



Source: Deloitte Insights (2021)

Key messages

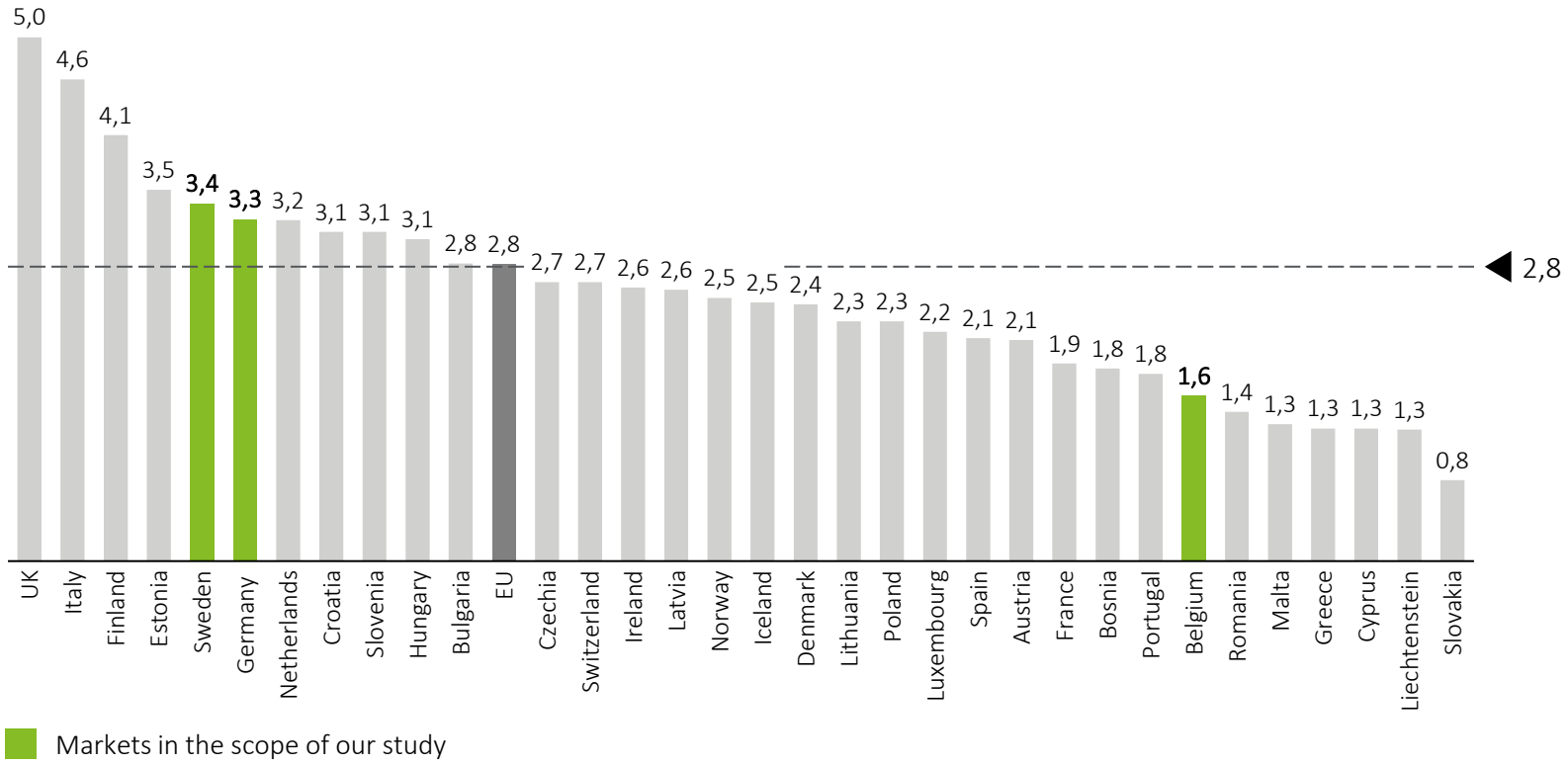
- By 2040, we expect **60% of spending** will go toward **improving health and well-being**, improving the overall population health and creating new opportunities
- The shift will happen **gradually** and will require important **upfront investments** in order to reap the benefits in the medium and long term

Setting the scene

Focus on prevention is still very limited nowadays, even in more advanced markets

Percentage of health care expenditure spent on preventive care

European countries (2018)[1]



Source: Eurostat (2018), OECD (2019), World Health Organization (2020) | Note: (1) The OECD numbers of 2019 are in line with the Eurostat data from 2018.

Key messages

- Despite the prevalence of lifestyle-associated and other chronic diseases (also in healthier countries such as Sweden), **focus on prevention remains limited**
- On average, **European countries** spent **2,8%** of their total health expenditure on preventive care
- **Belgium**, with 1,6% of total health expenditure spent on preventive care, **ranks low** in the European ranking
- The **direct impact of prevention** is still **difficult to measure** and analyze, which contributes to the limited attention given to the topic
- However, according to a WHO study, a wide range of prevention is **cost-effective** and can give **returns on investment within 1–2 years**. The evidence shows that prevention contributes between approximately 50% and 75% in high-income countries and 78% globally to the **reduction of CVD mortality**

Setting the scene

Success factors for widespread adoption include the measurement of tangible results and the resulting monetization models, which will encourage public and private actors to promote and focus on prevention

Potential revenue models – EU

Patients/Consumers

Direct access to **a large B2C market**

Employers

Part of larger employment program, especially interesting for digital health solutions covering **a wide range of diseases / conditions**

Health care providers

B2B business model which allows **to start small and scale quickly**, however still limited number of health care providers **willing to spend money** on digital health solutions

Industry partners

Model where **pharma companies are paying** for the use of a digital health solution in **a clinical environment**, often in return for **insights in gathered data**

Government/Insurers

Getting reimbursed through the government scheme or insurers' scheme depending on the country's health care system. Best chance for **wide adoption across specialists and KOLs**, especially in **niche disease areas**. Targeting payers requires a good **value story** on both the **economic rationale** as well as clear evidence of **the clinical value**

High fragmentation of reimbursement for digital health solutions in Europe will require a country-by-country approach

Setting the scene

Preventive health care is a very broad domain with different types of prevention each impacting the patient differently

DOCTOR'S SIDE – INVOLVEMENT

- Absent

Present +

PATIENT'S SIDE – ILLNESS, DISABILITY

Absent –

+ Present

Primary Prevention

Intervening **before health effects occur**, through measures such as vaccinations, altering risky behaviors (poor eating habits, tobacco use), and banning substances known to be associated with a disease or health condition

Secondary Prevention

Screening to **identify diseases and disabilities in the earliest stages**, before the onset of signs and symptoms, through measures such as mammography, regular blood pressure testing and AI

Quaternary prevention

Taking action to **protect individuals** (persons/patients) **from medical interventions** that are likely to cause more harm than good (to **reduce overmedicalization**: overdiagnosis and overtreatment)

Tertiary Prevention

Managing diseases and disabilities **post diagnosis** to **slow or stop contamination or disease/disability progression** through measures such as chemotherapy, rehabilitation, and screening for complications

Source: European Journal Of General Practice (2018), World Health Organization (2022)

'Preventive (health) care' and 'prevention' are used as synonyms across the document

Scoping of preventive health care

There are numerous types of solutions in the preventive market which can be divided in 10 categories

VACCINES

Appliance
- Vaccines (e.g. attenuated viruses, viral vectors, mAbs, mRNA)
- Programs

Purpose
- Develop simple, safe, and effective way of protecting the population against harmful diseases, before they come into contact with them

SENSIBILIZATION

Appliance
- Programs

Purpose
- Provide the population with correct information about health and wellbeing through campaigns, symposia etc.

SCREENING PROGRAMS

Appliance
- Programs

Purpose
- Follow-up on their own health (e.g. through regular/annual follow-ups at the doctor's) to detect potential disease indicators (genetic screening)

DIAGNOSTICS

Appliance
- Diagnostics

Purpose
- Follow-up on their own health to establish presence/absence of disease

LIFE & HEALTH DIGITAL APPLICATIONS

Appliance
- Digital applications

Purpose
- Provide information on performance and health monitoring, advice (e.g. on lifestyle and nutrition), store data and evolution, etc.

LIFE & HEALTH DEVICES

Appliance
- Devices (other than applications)

Purpose
- Provide information on performance and health monitoring, advice (e.g. on lifestyle and nutrition), store data and evolution, etc.

ADVANCED MEDICAL DIGITAL APPLICATIONS

Appliance
- Digital applications

Purpose
- Provide information on disease-specific health monitoring
- Measure, track and evaluate the health condition and indicate risks linked to specific diseases

ADVANCED MEDICAL DEVICES

Appliance
- Medical devices [1]

Purpose
- Provide information on disease-specific health monitoring
- Measure, track and evaluate the health condition and indicate risks linked to specific diseases

DIGITAL CARE

Appliance
- Visual technology, AI, digital applications

Purpose
- Provide remote care (e.g. through teleconsultation[2], chatbot)
- Support care (e.g. automated prescription, formulation and dispensing, clinical decision-making software)

FOOD, DIETARY SUPPLEMENTS AND OTHER OTC PRODUCTS

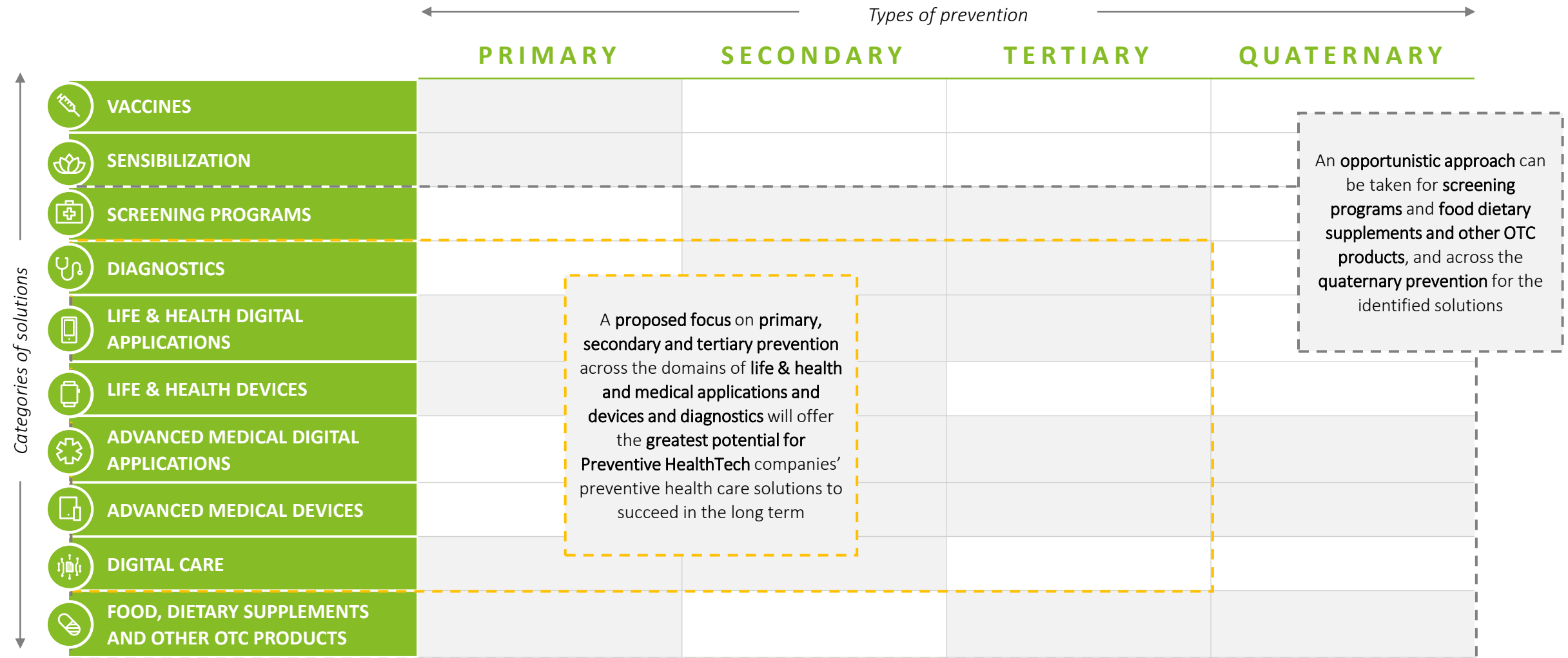
Appliance
- Food, vitamins or other ingestible preparation

Purpose
- Consume/add elements to the diet to benefit health

Source: : Deloitte analysis | Note: (1) Include all medical devices following the definition from the European Union Medical Device Regulation (2) Teleconsultation, chatbot have been included in prevention as these solutions lower the barriers to access to care and can, among others, enable early intervention/diagnosis.

Setting the scene

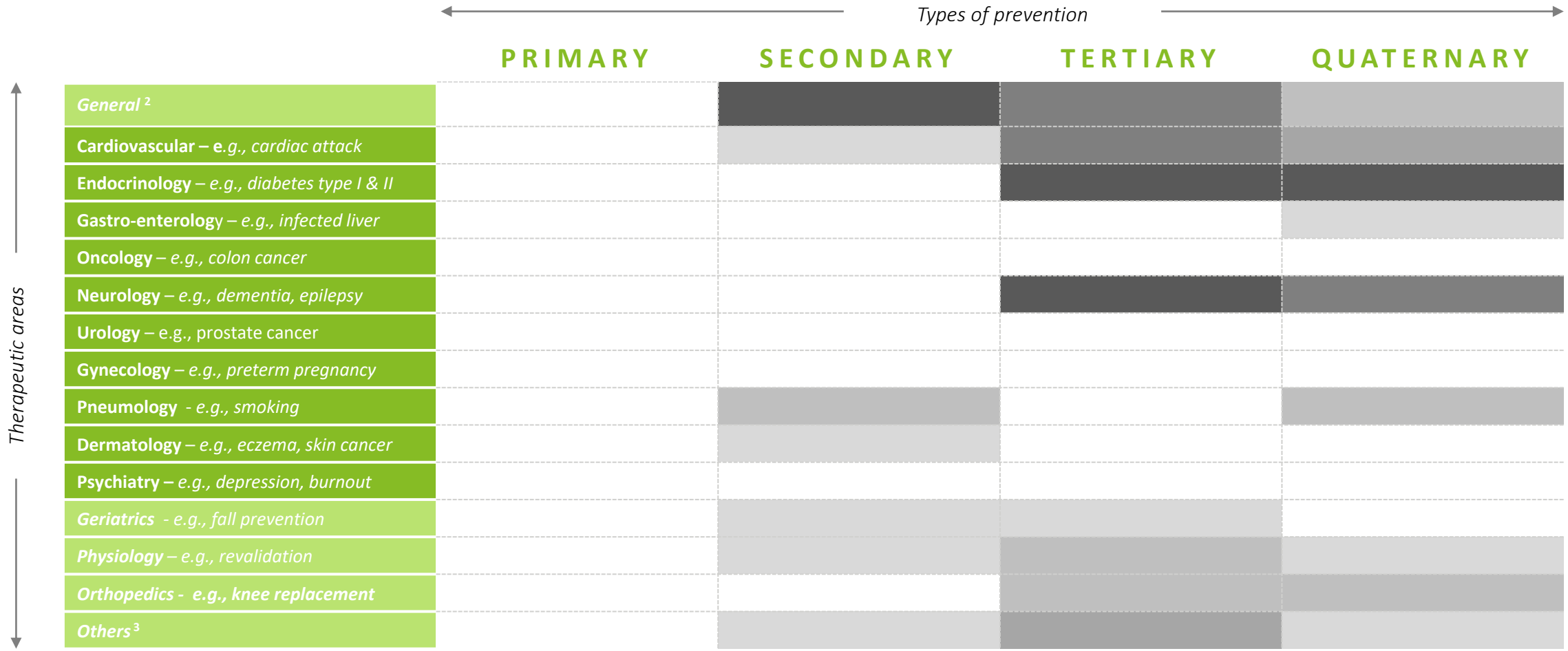
These categories of solutions are present on the market in different ways depending on the type of prevention



Source: : Deloitte analysis

Setting the scene

Out of the 35 companies currently going through the mHealthBELGIUM validation pyramid, most of the HealthTech solutions are focused on specific therapeutic areas like endocrinology and neurology [1]



Source: : Deloitte analysis, FDA (2022) | Note: (1) This analysis is based on 35 HealthTech companies going through the mHealthBelgium validation pyramid, considered as part of prevention ; (2) Solutions can be applied to several therapeutic areas ; (3) Preventive solutions focused on Audiology, Speech language pathology and Bariatrics

Part of FDA list
Not part of FDA list but added for their relevance in terms of prevention
1 mHealth app
2 mHealth apps
3 mHealth apps
4 mHealth apps
5+ mHealth apps

Setting the scene

Scoping preventive healthcare for Brussels by focusing on consumer and clinician HealthTech

Preventive HealthTech

Consumer HealthTech

LIFE & HEALTH DIGITAL APPLICATIONS

Appliance
- Digital applications

Purpose
- Provide information on performance and health monitoring, advice (e.g. on lifestyle and nutrition), store data and evolution, etc

LIFE & HEALTH DEVICES

Appliance
- Devices (other than applications)

Purpose
- Provide information on performance and health monitoring, advice (e.g. on lifestyle and nutrition), store data and evolution, etc.

ADVANCED MEDICAL DIGITAL APPLICATIONS

Appliance
- Digital applications

Purpose
- Provide information on disease-specific health monitoring
- Measure, track and evaluate the health condition and indicate risks linked to specific diseases

ADVANCED MEDICAL DEVICES

Vehicle
- Medical devices [1]

Purpose
- Provide information on disease-specific health monitoring
- Measure, track and evaluate the health condition and indicate risks linked to specific diseases

DIGITAL CARE

Appliance
- Visual technology, AI, digital applications

Purpose
- Provide remote care (e.g. through teleconsultation[2], chatbot)
- Support care (e.g. automated prescription, formulation and dispensing, clinical decision-making software)

Clinician HealthTech

Source: : Deloitte analysis

MARKET DEEP-DIVE

Market deep-dive

We have looked at the following key macro-factors to understand the preventive care market playing field in Sweden and Germany

ECONOMIC

- Analyze the **market size** of health care and preventive care and the **market growth**
- Identify the existing **monetization models**

POLITICAL

- Analyze the **funding model** of the health care system
- Identify the **public vs. private initiatives** to boost preventive health care

SOCIOLOGICAL

- Understand the **demographics** and health state of the country's population
- Identify the resulting **key challenges** and **unmet needs**

TECHNOLOGICAL

- Identify the **types of innovative solutions** and **types of prevention** existing on the market

LEGAL/ETHICAL

- Analyze the **legal frameworks** in place (e.g. GDPR)
- Identify the **potential ethical issues** and derive lessons learned

Sweden

Sweden shows good progress and focus on preventive health care through a primarily government funded health care system, although spending on prevention remains low as a percentage of total health care spending

ECONOMIC

- **Total health care expenditure** reached **51.8 B EUR** in 2019, representing around 11% of GDP (against 9,9% in Europe)
- **Even though preventive care expenditure** compared to total health care expenditure is **above the European average** (3,3% vs 2,8%), this remains **quite limited**, representing 165 EUR per inhabitant
- **Public preventive expenditure** represent the most part of total preventive expenditure **(~84%)**

POLITICAL

- The health care system is **largely tax-funded**, which enables the country to **keep health patient fees low** (fees are capped)
- The health system is **decentralized** – responsibility lies with the regional/local councils, which can cause **variations in the care services** and delivery
- **Numerous government initiatives** have been developed to promote preventive care, mainly in **primary and secondary prevention, sometimes in collaboration with private actors** (e.g. with Sweden's research institute and innovation partner)

SOCIOLOGICAL

- **Quality of health care** is considered as high and **access to high-quality care as good,** despite **waiting times** for most types of care being identified as an issue
- Sweden has one of Europe's largest **elderly populations** with 1 in 5 people having 65+ years
- Despite a **healthy lifestyle, key challenges** include a strong **increase in chronic lifestyle-related diseases** along with an **aging population**, leading to increasing health care costs
- Sweden's population is considered as **tech savvy with a strong digital adoption,** including in digital health

TECHNOLOGICAL

- Strong **track record of investment** in latest innovations, especially in life sciences
- **Strong ecosystem and partnerships** between authorities, care providers, academia and industry to promote and develop new solutions
- **Growing number of solutions** being developed in preventive care, **across the different types of prevention**
- **Very limited public or private incentives to invest in preventive solutions**, mainly **relying on consumers' willingness to pay** for the solution

LEGAL/ETHICAL

- The **Health and Medical Services Act and 2015 Patient Act** aimed to incorporate equal access to services
- The health care system is based on **3 basic principles**: **human dignity**, **need and solidarity**, **cost effectiveness**
- Regarding data protection, the **Swedish Data Protection Authority** is the supervisory authority under the GDPR
- Besides the European **MDR** regulation, the Swedish **Medical Products Agency** (MPA) is the government agency responsible for regulation and surveillance of the development, manufacturing and sale of medical devices

Source: Deloitte analysis, interviews, other sources detailed in the next slides

Sweden

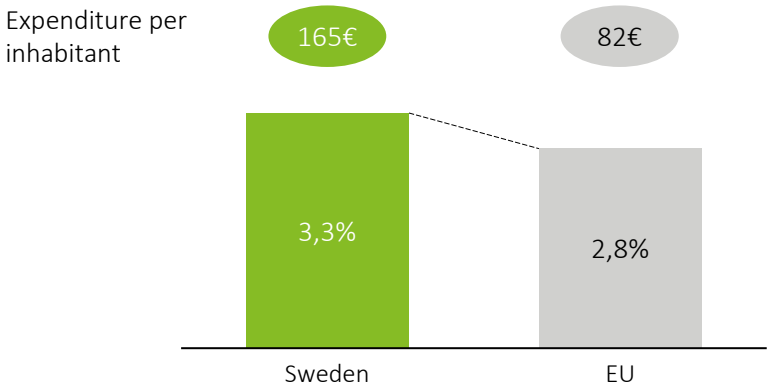
While Sweden has one of the highest percentage of health care expenditure spent on preventive care across Europe, the focus on prevention is still fairly limited

Health care and preventive care expenditure

Eurostat (2018, 2019)

Percentage of health care expenditure spent on preventive care

Number of inhabitants: 10,3 M



Total health care expenditure *was* ***51.8 B EUR*** *in 2019, representing around* ***10,9% of GDP*** *(against 9,9% for EU)*

Zoom on COALA success story

COALA®

Swedish medical technology company focused on cardiac diagnostics and mobile health, with a portfolio of patented products and services for digital remote monitoring and screening of the heart

What lessons can we derive from it?

- **Scalability** of the solution (present in Sweden, US, Germany, Netherlands)
- The Coala Heart Monitor is now **offered as a direct-to-patient prescription** across the US and **covered by most payors** (patients pay minor co-pay)
- **Partnerships** with life science companies, hospitals, (private) health care providers, pharmacy retailers etc.

KEY TAKEAWAYS

- Most of the **preventive care expenditure** is **publicly financed** (84%) vs private (16%)
- There are **public and private care providers**, but the same regulations apply to both, and both are **publicly financed**

Source: Eurostat (2018, 2019), Swedish Institute (2021), Coala website (2021), Deloitte analysis

Sweden

Sweden's health care system is mostly tax-funded and decentralized, which can cause variations in the care services and delivery between regions

Overview of health care system and responsibilities

*System regulated by the **Health and Medical Services Act** (for all residents in Sweden, regardless of nationality)*

National level
Ministry of Health & Social Affairs

- Responsible for **overall health care policy and regulation**
- Set **budget for government agencies** and grants to regions
- Working with **eight national government agencies**

Regional level
21 regional councils

- Responsible for **financing and delivering health services** to residents, including **health promotion & disease prevention**
- Responsible for both **primary care** and **specialized care**

Local level
290 municipalities

- Responsible for **care of the elderly and the disabled**, including long-term care

*Nationally represented by the **Swedish Association of Local Authorities and Regions***

KEY TAKEAWAYS

- The Swedish system is largely **tax-funded**, with funding coming primarily from regional/municipal taxes, and to a lesser extent from contributions from the national government
- The Swedish health care system is nationally regulated and locally administered, i.e. **decentralized** with responsibilities lying with the regional councils – which can lead to **variations between regions in terms of care delivery and service. Promotion and disease prevention** at the population level is the **responsibility of county councils**

Source: Swedish Institute (2021), The Commonwealth Fund (2020)

Sweden

The government-led health care system keep the patient fees affordable, and the patient experience smooth through a light and digitized administrative process

Overview of health care model

Front end process

- Patients benefit from an annual **high-cost protection** and pay a **max. of ~230€** for services included in the government benefits scheme
- **Digitized process** through authentication app and all information automatically updated in the medical record
- **No reimbursement process** required for the consumer
- Sweden is leveraging **digital health to reduce burden on doctors and specialized care**

Back-end process

- **Value-based pricing and reimbursement system**
- Almost only **prescription-only pharmaceuticals/medical devices** are eligible for reimbursement under the **reimbursement scheme;** the rest is not subject to regulated pricing - the patient pays total cost
- The costs of the regulated pharmaceuticals/medical devices is to a large extent **indirectly financed by the state** (through annual funding of the regional councils' budgets)

The **0-30-90-90 rule** was implemented to ensure that there will be **zero delays to access to the healthcare system**; that a patient will **not** wait **more than 90 days to see a specialist**; and will receive a **surgical treatment a maximum of 90 days after diagnosis**

KEY TAKEAWAYS

- **Patient fees are kept low** in comparison with the **important purchasing power in the country**. In addition, the process is digitized, and no reimbursement is needed for the patient
- Sweden is using a **value-based reimbursement system** making use of cost-effectiveness analysis to define reimbursement status. **Developing new product/service is a complex process** due to the approval required from 1) the national reimbursement scheme and 2) the different regional committees

Source: Swedish Institute (2021), interviews (2022)

Sweden

The government takes an important role in promoting preventive care through numerous initiatives and public policies, mainly in primary and secondary prevention

Examples of government policies and initiatives

NON-EXHAUSTIVE

- Collaboration between RISE (Sweden's research institute and innovation partner) and regional health authorities to **prevent type 2 diabetes** through the **Social Impact Bond model**
- **Information campaigns** (e.g. campaign to educate the public to recognize the symptoms of a stroke and to react in time)
- Cohesive **government strategy** for **alcohol, narcotic drugs, doping and tobacco policy** for the years 2016–2020
- Politics to keep **older people active/at work**
- **National screening programs** for common types of cancer
- Program for **smoking prevention**
- **Prescriptions for physical exercise** becoming more and more common
- **Parenting support** to all mothers and fathers during the child's first years
- Government National Strategy for **HIV prevention** 2006–2016
- **Application from the Swedish Heart-Lung Foundation** which provides information and assistance in case of cardiac and pulmonary arrest
- **Strategic cooperation** with the European Centre for Disease Prevention and Control
- "1177" - a single **online health app** owned by all Sweden's counties and health care regions to **navigate the health care system** and book a physical or virtual appointment with a GP
- **Vaccinations** (e.g. **against HPV infection** for all girls aged 11 and 12)
- Government National Strategy to **prevent and treat chronic diseases** 2014–2017

- Primary prevention
- Secondary prevention
- Tertiary prevention
- Quaternary prevention

KEY TAKEAWAYS

- Sweden has developed **numerous public health policies** and government initiatives to reduce risk factors and promote preventive care, mainly in **primary and secondary prevention**
- **Vaccines** (e.g. HPV, Lyme) are an important part of prevention
- As part of its **national Life Sciences strategy**, the Swedish Government wants to **increase its focus on health and prevention**, including both preventive interventions to prevent the development of bad health and developed diseases, and initiatives to prevent recurrences (**primary & secondary prevention**) through i.a. improved capacity for early diagnosis

Source: Swedish government (2021), Rise Research Institutes Of Sweden (2019), Symbiocare (2020), World Health Organization (2018)

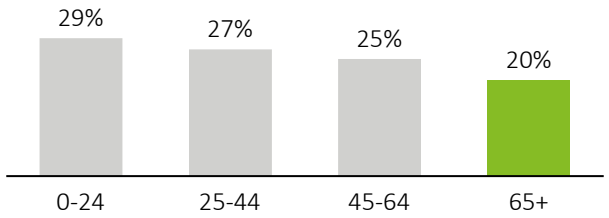
Sweden

Despite its strong and high-quality health care system, Sweden faces still important challenges such as an aging population and an increase in chronic diseases

Population & life expectancy

OECD (2020), Statista (2020)

Population distribution per age



*Sweden has one of Europe's largest **elderly populations** with 1 in 5 people having 65 years or more*

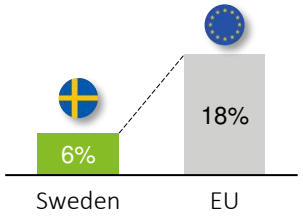
Number of inhabitants: 10,3 M

Life expectancy is high, especially for women

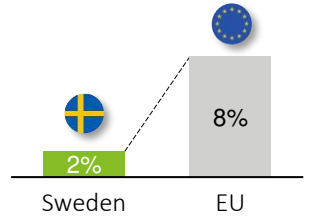
Lifestyle indicators

OECD (2019, 2020), Eurostat (2021)

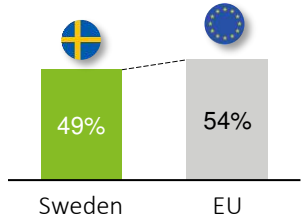
Daily smokers



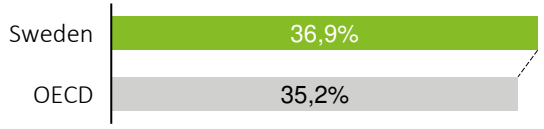
Daily alcohol consumption



Obesity rate



Proportion of population (16+) with longstanding illness or health problem (2019)



Despite low rates of smoking, alcohol consumption and obesity, chronic diseases are still important and increasing

KEY TAKEAWAYS

- **Quality of health care** is considered as high and **access to this high-quality care is good;** however, waiting times for most types of care has been identified as an issue
- Despite the healthy lifestyle, **chronic diseases** (such as type 2 diabetes and cardiovascular diseases) **are still on the rise** and represent a **key challenge for Sweden**, along with the **aging population - focusing more on prevention** could enable the country to reverse this trend
- A **gender gap** exists in some trends/behaviors (e.g., strong habit of consuming 'snus' for men compared to women)

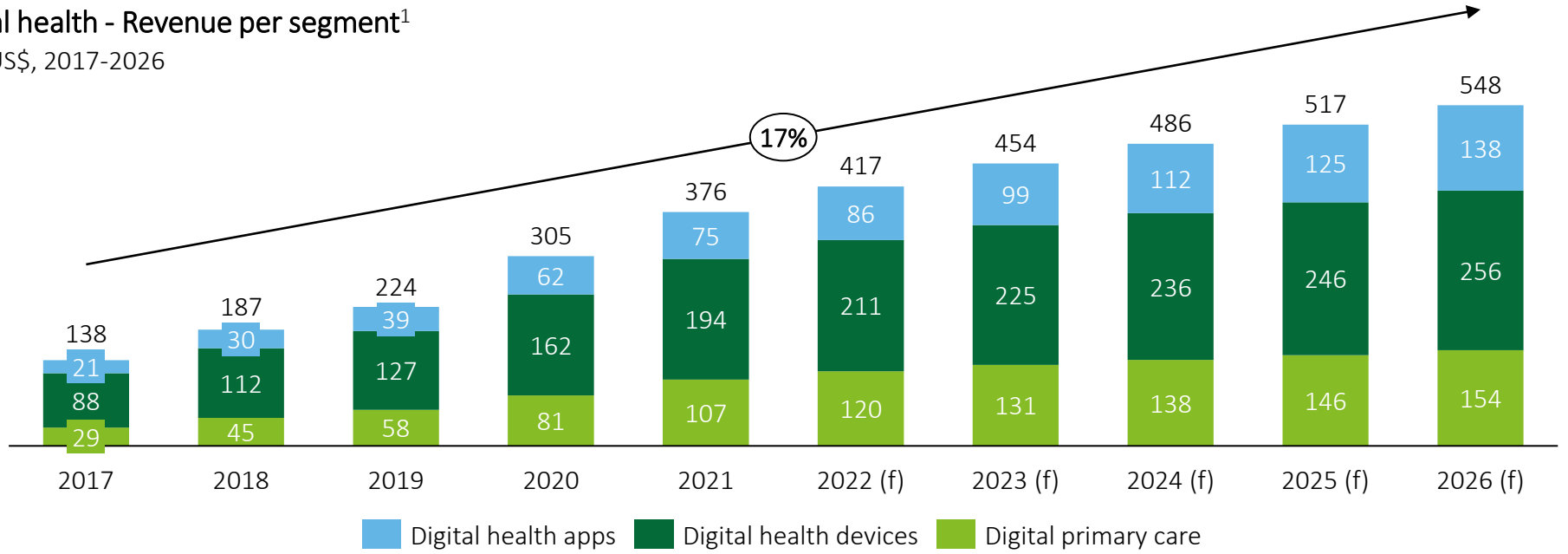
Source: OECD (2019, 2020), Statista (2020), Eurostat (2021), Deloitte analysis

Sweden

Sweden's population is considered as tech savvy and willing to adopt new technologies and digital solutions, as illustrated by the growing adoption of digital health applications and devices

Digital health - Revenue per segment[1]

In M US$, 2017-2026



Compound annual growth rate (CAGR) over the period 2017-2026 for selected countries:

- 17% Sweden
- 17% Germany
- 21% Belgium

KEY TAKEAWAYS

- **Digital health revenues** have **grown steadily in recent years** and are expected to continue to do so in the future, driven by the **consumers' growing empowerment** regarding health
- The **Swedish government** has been accelerating this shift with numerous **recent and ongoing initiatives** in the area of e-health and health care information standardization (e.g. Vision for eHealth 2025, digital access to health records using Bank-ID, Sweden's electronic identification system, e-prescriptions available nationally etc.)
- With 10,35M inhabitants in Sweden (2020), it is estimated that the **revenue of digital health per inhabitant in 2026 will be $53**

Source: Statista (2022), interviews (2022), Deloitte analysis | Note: (1) Digital health apps include apps that help users monitor/detect/analyze physical health conditions as well as fitness, nutrition and meditation apps; digital health devices include biosensors that collect information on a variety of health parameters and vital signs of a person and devices that are explicitly intended for fitness and motion tracking; digital primary care include online doctor consultations

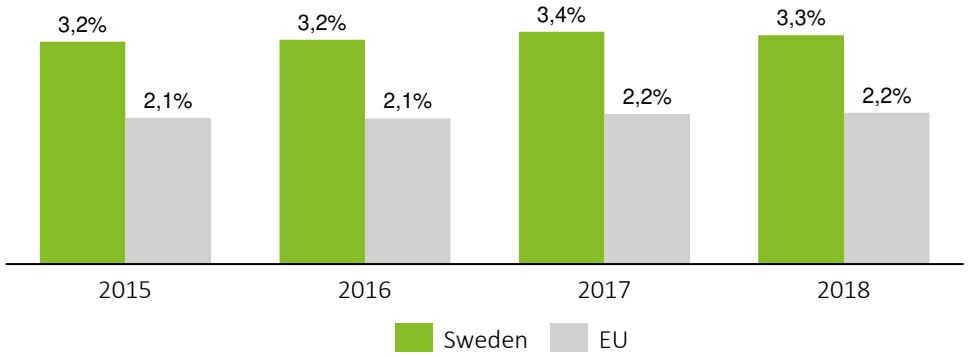
Sweden

Sweden has a track record of investment in latest innovations, with the life science industry being one of its most important sectors

Total research & development expenditure

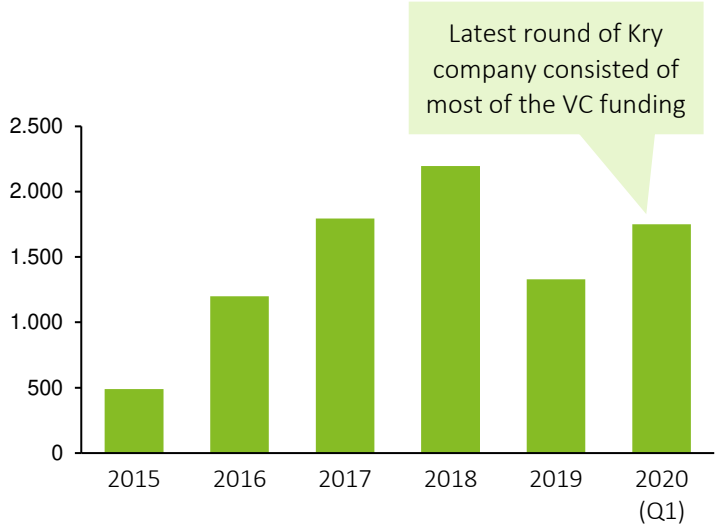
% of GDP, 2018

*In 2018, Sweden had the **highest percentage of R&D expenditure** compared to its GDP in the European Union*



VC funding in life sciences

In M SEK, 2015-2019



Areas of investment across the period 15-19

- 41% *HealthTech*
- 39% *Therapeutics*
- 20% *Medtech, Diagnostics & R&D tools*

KEY TAKEAWAYS

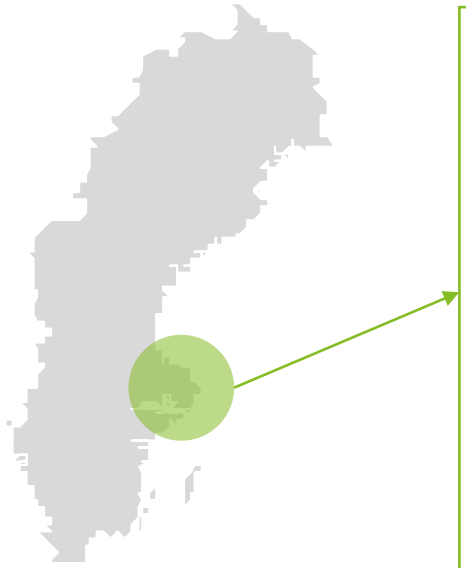
- Sweden makes part of the **most innovative countries in the world**, as it can be illustrated in various innovation rankings (EIS, Global Innovation Ranking Index). The life science industry is one of Sweden's most important sectors and a fast-growing market both in Sweden and globally
- Two **strategic innovation programs** for the future of health and life science in Sweden, financed by the Swedish Innovation Agency, the industry and the public sector

Source: The World Bank (2018), Symbiocare (2021), Industriefonden (2020), Deloitte analysis

Sweden

Innovation in life sciences and health care differs per region, with Stockholm-Uppsala being the most advanced in the country

Overview of health care initiatives in the Stockholm-Uppsala region



STOCKHOLM-UPPSALA

- According to the European Innovation Scoreboard, the **most innovative region in Europe is Stockholm** in Sweden - once called the **"Unicorn factory"** by the Financial Times, region with the most unicorns per capita in the world after Silicon Valley in 2015
- Stockholm-Uppsala is known as a **world leading ICT cluster** and with a **very strong Life Science cluster** including well-known academic institutions (e.g. Karolinska Institute), innovation hubs (e.g. Testa Center in Uppsala, in collaboration with the government and private stakeholders), advanced research infrastructure etc.
- Different **initiatives related to preventive care, e.g.:**
  - **New digital health program in collaboration with Sting company Health Integrator**: people at risk of type 2 diabetes are offered support in a digital heath program to prevent the development of the illness through access to personal health coach, advice on lifestyle changes, access to sports products and services etc.
  - **Health Impact Bond** in collaboration with SEB and Skandia Insurance company for pilot project for type 2 diabetes prevention
  - Uppsala being the **first region** to have made **electronic health records** accessible to patients in 2012
  - …

KEY TAKEAWAYS

- The **level of innovation is different per region**, with Stockholm-Uppsala being the most advanced in HealthTech
- Reasons for decentralization include the **geographical uneven distribution of the country**, and the resulting **different needs per region.** Ensuring the same level of care quality is an issue and high priority for the country (e.g. access to care can be complicated in in less populated areas or because of weather conditions)

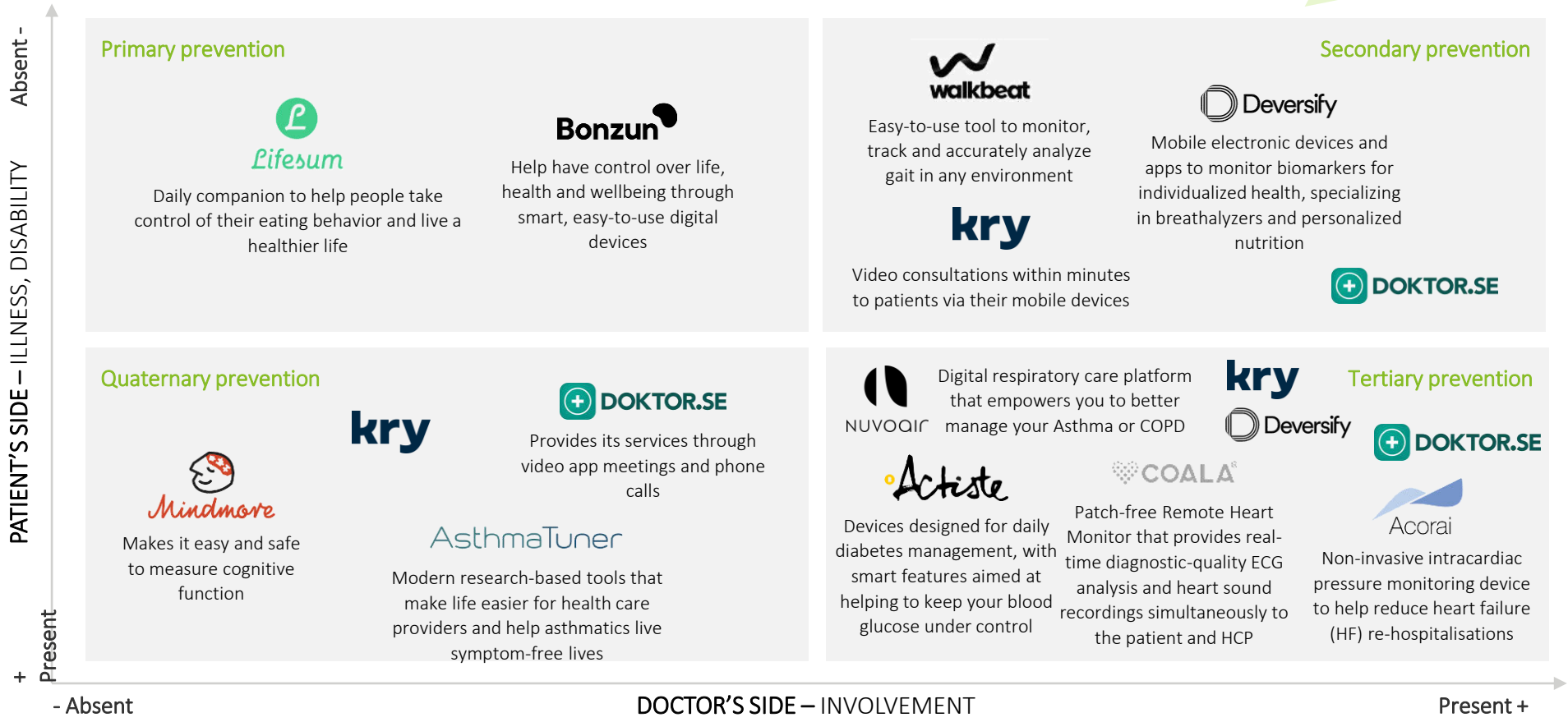
Source: European Commission (2021), Deloitte analysis, interviews (2022)

Sweden

Sweden has built a strong innovative ecosystem that fosters collaboration between authorities, health care providers, academia and industry players

Companies can differentiate themselves by their **user experience** or by **reducing waiting times**, a major problem in Sweden

Examples of innovative companies on the preventive health market[1]



Source: Deloitte analysis, interviews, company websites, EIT Health (2021) | Note: (1) In Sweden, the term "preemptive care" is used for prevention/ preventive care.

Germany

Germany shows a well-established health care system with a strong reimbursement scheme for digital health solutions; however, limited digital adoption and awareness hinder the development of the preventive care market

ECONOMIC

- **Total health care expenditure** reached **403.4 B EUR** in 2019 (increase of 5,2%), representing around 11,7% of GDP
- **Preventive care expenditure** compared to total health care expenditure amounted to **3,2%** in 2018, which is quite limited but higher than the EU average of 2,8%, and represents 148 EUR per inhabitant
- Health care is financed by **contributions**, which guarantees low fees for the inhabitants
- The German **health care market grew yearly 4,5%** over the past 5 years

POLITICAL

- The German health care system is based on a **decentralized and self-governing** system
- There are two types of insurance: **statutory health insurance (SHI)**, known as sickness funds (88% of population) and **private health insurance (PHI)** (11% of population)
- **Strong reimbursement scheme** in place **(DiGA)** for digital health solutions, often considered a pioneering initiative in Europe

SOCIOLOGICAL

- Challenges of the health system include the prevalence of **chronic diseases**, the **socially determined health inequality** and the **ageing of the society**
- **Awareness on preventive care** remains **limited**
- **General digital adoption** of the German population is **lower than its EU peers**, along with the population's openness to new technologies/digital solutions and willingness to share personal data
- However, **strong growth potential in the digital health market**, particularly driven by the adoption of digital health devices

TECHNOLOGICAL

- The pandemic has shown that Germany is **lagging on digitalization in health care** compared to its EU peers, but the country has been working on shifting the trend in recent years (e.g., Digital Health Care Act, DiGA)
- Since 2020, Germany is the first country to **prescribe health apps and digital services**, which can be reimbursed (Digital Healthcare Act, 2019)
- The increasing digitalization and the reimbursement of digital health apps **promote the development of preventive care solutions** on the market

LEGAL/ETHICAL

- In 2015, the **Act to Strengthen Health Promotion and Prevention (Prevention Act)** was adopted by the federal government
- In October 2015, the **National Prevention Conference (NPC)** was established. Its focus: goal-oriented cooperation of stakeholders for health promotion and prevention
- February 2016, the NPC issued Federal Framework Recommendations, in which three main objectives were defined: **healthy growing up, healthy life and work** and **healthy in old age**
- Besides the EU **MDR**[1] regulation and getting **CE-marked**, it is required to **notify BfArM**[2] by using the DIMDI[3] system once the medical device is placed on the German market

Source: Deloitte analysis, interviews, other sources detailed in the next slides | Note (1) MDR: Medical Device Regulation ; (2) BfArM: Federal Institute for Drugs and Medical Devices ; (3) DIMDI: German Institute of Medical Documentation and Information

Germany

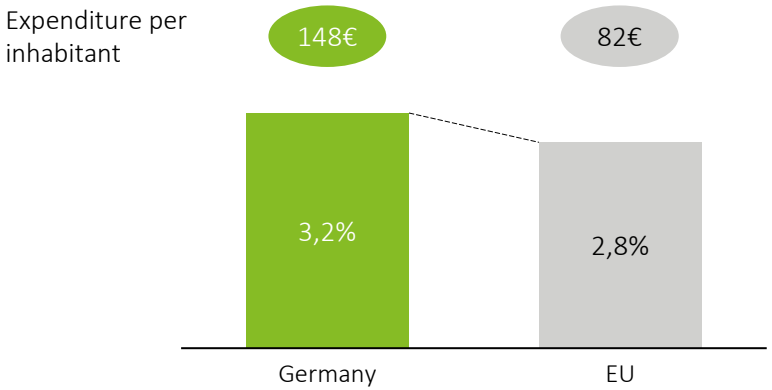
Despite the high total health expenditure compared to other European countries, Germany's focus on prevention remains limited

Health care and preventive care expenditure

Eurostat (2018,2019)

Percentage of health care expenditure spent on preventive care, 2018

Number of inhabitants: 83,2M



Total health care expenditure *was* ***403.4 B EUR*** *in 2019 (increase of 5,2%), representing around* ***11,7% of GDP*** *(against 11,7% for EU)*

Zoom on Novartis success story

Novartis launched the **telemedical health program Mecor** in cooperation with the health insurance company KNAPPSCHAFT. By using digital technologies, the program provides active support and guidance in everyday life for people with chronic heart failure, reducing the risk of new hospital admissions

What lessons can we derive from it?

- **Personalized care** makes it possible to inform and involve the general practitioner at an early stage, enabled by **sharing of personal data**
- The program uses not only an **application** but also **telephone monitoring** and coaching with a caregiver and daily **monitoring via telemetric or telemedicine scales** and health monitor to intervene in case of danger

KEY TAKEAWAYS

- Germany has the **highest per capita expenditure on health care** of all EU Member States, illustrated e.g. with the highest number of hospital beds per capita
- A **shift towards ambulatory care** can be observed, due to an oversupply of hospital beds and understaffing, with health expenditure being mostly spent on providers **of ambulatory health care** (31,4% vs 25,5% in Europe). In addition, there is also a push towards **home care** in order not to overload ambulatory care

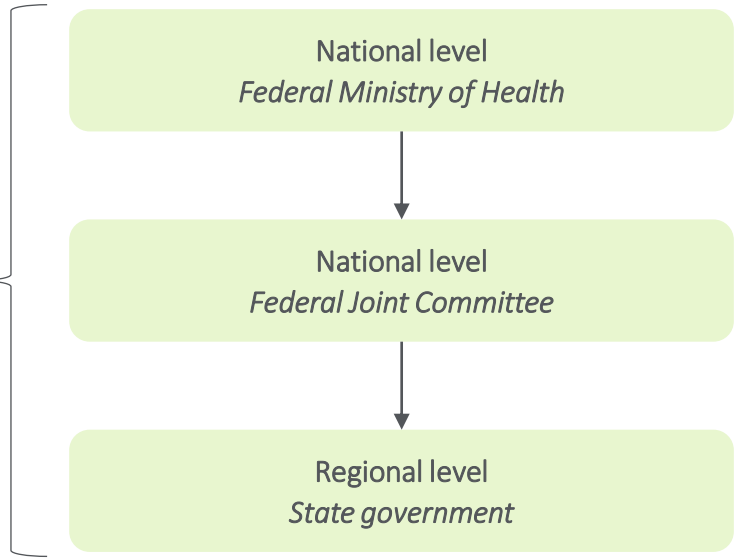
Source: Eurostat (2018, 2019), OECD (2020), Novartis website (2022), Deloitte analysis

Germany

The German health care system is based on a decentralized and self-governing system

Overview of health care system and responsibilities

*System regulated by the **Federal Joint Committee and the Federal Ministry of Health***



- Defines the **legal framework** and the effectiveness of the statutory health insurance (SHI)
- **Provides long-term care** for people in need of long-term care, their relatives and nursing staff
- Launches **prevention campaigns and initiatives**
- Federal Centre for Health Education **advises and supports sickness funds** in designing targeted prevention projects to reach specific target groups

- **Highest decision-making body of the joint self-government** of doctors, dentists, psychotherapists, hospitals and health insurance funds in Germany
- Determines the **benefits, reimbursement systems and quality assurance of SHI**

- Supervises the **self-governing bodies at the regional level**
- Supervises **public health services** and the running of public health offices
- Are responsible for hospital planning and investments, as well as medical education

KEY TAKEAWAYS

- The **federal government** has wide-ranging regulatory power over health care but is not directly involved in care delivery. **The Federal Joint Committee**, which is supervised by the **Federal Ministry of Health**, determines the services to be covered by sickness funds
- In 2017, total health expenditure accounted for 11,5% of GDP. Of this health expenditure, **8.4% went to private health insurance and 57% went to statutory health insurance**

Source: The Commonwealth Fund (2020), Welcome Center Germany (2021), State of Health in the EU – Country Health Profile Germany (2021)

Germany

Through the Health Promotion and Prevention Act, the government has strengthened its focus on prevention in recent years

Government's policies regarding preventive health care

Strengthening Health Promotion and Prevention Act – 2015

The Prevention Act was adopted by the federal government and made preventive health care mandatory for statutory health insurances by:

- Implementing more screenings, stricter vaccination policies e.g., counselling for parents of unvaccinated children before the child can enter a day-care facility or school
- Proposing measures and financial support to tackle the rising burden of behavioral risk factors for the development of diseases (e.g., screening programs, preventive recommendations by HCPs…)

National Prevention Conference (NPC) – 2015

A national preventive health care strategy was established in order to foster goal-oriented cooperation of stakeholders for health promotion and prevention

- Stakeholders include the umbrella organizations of the statutory insurance agencies for health, accident, pensions and long-term care and the association of private health insurance companies
- Three main objectives: Healthy growing up; Healthy life and work; Healthy in old age
- Every 4 years, the institutions involved must document and evaluate their activities regarding the implementation of the federal framework recommendations in a prevention report. The report should include conclusions and recommendations to refine the spending guidelines in primary prevention and health promotion and should be submitted to Germany's Federal Ministry of Health
- Several action areas were defined in which the Statutory Health Insurance and Private Health Insurance can encourage and support citizens to adopt healthy behaviors (e.g., dietary advice, exercise programs, stopping smoking…)

KEY TAKEAWAYS

- **Spending in preventive health care has increased** due to the legal obligation for sickness funds and long-term care funds to invest more in health promotion and prevention
- Although the willingness to focus more on preventive health care is present, **awareness on preventive solutions** and their long-term impact remains **limited**

Source: The Commonwealth Fund (2020), Welcome Center Germany (2021), State of Health in the EU – Country Health Profile Germany (2021)

Germany

The German health care system is funded by contributions and has two main types of insurance systems of which Statutory Health Insurances are mandated to provide preventive health care

Two types health insurances exist on the German market

Statutory Health Insurance (SHI) – *'Sickness funds' ~89% of population*	Private Health Insurance (PHI) – *~11% of population*
Government Health Insurance System, regulated by the Ministry of Health and the Federal Joint Committee	**Private, regulated by the Ministry of Health** and the Federal Financial Supervisory Authority
~110 competing **public, non-profit, nongovernmental** health insurance companies	~40 substitutive **private** health insurance companies of which ~25 are for profit
People earning less than the threshold and public servants and self-employed citizens who elect to remain in the publicly financed scheme (75%)	People earning more than the threshold, public servants and self-employed citizens can elect to purchase substitutive private health insurance
• Funded through **contributions based on salary**: **compulsory wage contributions** (14,6% of gross wages) and a **supplementary contribution** (1% of wages on average), both shared by employers and workers and **state funded by contribution** from tax revenue • They are **centrally pooled in a health fund** and reallocated to individual sickness funds	• There are **no government subsidies** for private insurance • Funded through **contributions based on multiple criteria**: person's health, the age at which they take out the insurance, their individual risk, the type of coverage and any excess
• Everyone has the same types of care; children are covered as well • Takes longer to see a doctor/specialist • Treatment costs directly arranged between the doctor and the insurance company • SHI can be combined with supplemental private health insurance • **Mandated to provide preventive care services**[1]	• You can see a doctor/specialist faster because they earn more from PHI than SHI (they can charge 2 to 3 times more to PHI patients) • Treatment costs are paid by the patients and reimbursed by their private health insurance companies upon submission of an invoice

KEY TAKEAWAYS

- The German health insurances are currently still very much **focused on the curative** perspective of health care. However, SHI is increasingly spending on preventive health care treatments, especially on vaccinations and early detection of illnesses
- SHI spending on preventive health care treatments reached **5.7 B EUR in 2018** of which SHI funds invested **544 M EUR in primary prevention and health promotion (<1%)**

Source: The Commonwealth Fund (2020), Welcome center Germany (2021), State of Health in the EU – Country Health Profile Germany (2021), Deloitte analysis | Note: (1) SHI preventive services include regular dental check-ups, child check-ups, basic immunizations, check-ups for chronic diseases, and cancer screening at certain ages.

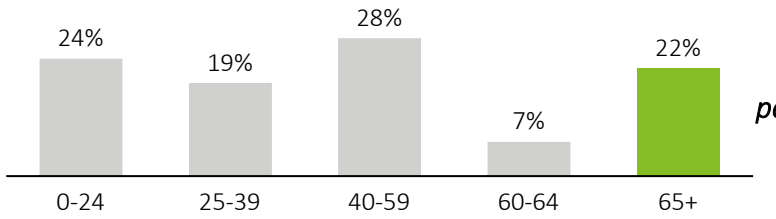
Germany

The main sociological challenges identified for the German society are the prevalence of lifestyle-related chronic diseases and the ageing population…

Population & life expectancy

OECD (2020), Statista (2020)

Population distribution per age



*Germany has a high percentage of **elderly population** with 1 in 5 people having 65 years or more*

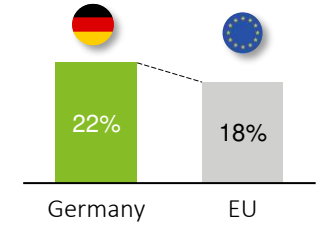
Number of inhabitants: 83,2M

Life expectancy is high, especially for women

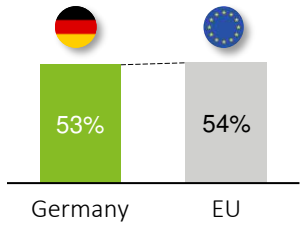
Lifestyle indicators

OECD (2019, 2020), Eurostat (2021)

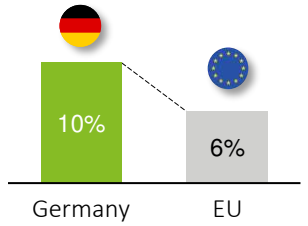
Daily smokers



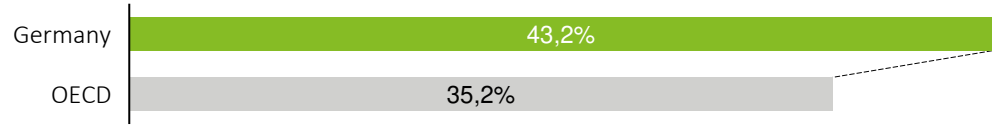
Obesity rate



Diabetes rate



Proportion of population (16+) with longstanding illness or health problem (2019)



KEY TAKEAWAYS

- **Chronic diseases** are highly prevalent, with 43% of inhabitants (16+) living with a longstanding illness or health problem, which is higher than the OECD average. This shows the **need for preventive health care**

Source: OECD (2019, 2020), Statista (2020), Eurostat (2021), Deloitte analysis

Germany

… as well as the low digitalization in health care, along with low digital inclusion

Germany can be an **interesting market for European HealthTech startups** thanks to the following elements

- Germany has the **largest health care system in Europe** (and the 2nd largest in the world)
- It is Europe's **strongest economy**
- It as a **population of 83 million people**

However, companies face multiple **obstacles** when entering the health care market as digital solution

- **Limited subscription of DiGA's** (ca. 45 000 prescriptions compared to the more than 440m traditional drug and medical aid prescriptions that are typically written per year)
- Many companies **withdraw their applications for the reimbursement** scheme or are rejected, mostly due to **lack of meeting the requirements for clinical studies** and many doctors and insurers were reluctant to support tools that were considered to have weak evidence
- In the incentive's strategy, German regulators have **not considered the upcoming, more accelerating technologies** such as the convergence of sensors, implants, remote patient monitoring, AI, bioengineering and others
- **Low patient awareness** of digital health solutions due to the lack of information or education about them
- **Communication still very paper-based**: though 90% of the GP's are connected to telematics infrastructure, **95% of communication** between outpatient physicians and hospitals is still paper-based

KEY TAKEAWAYS

- **Digital inclusion is still a struggle;** however, the mindset of the population and the HCPs is changing, especially after the **COVID-19 crisis** which identified **significant deficiencies** in the system

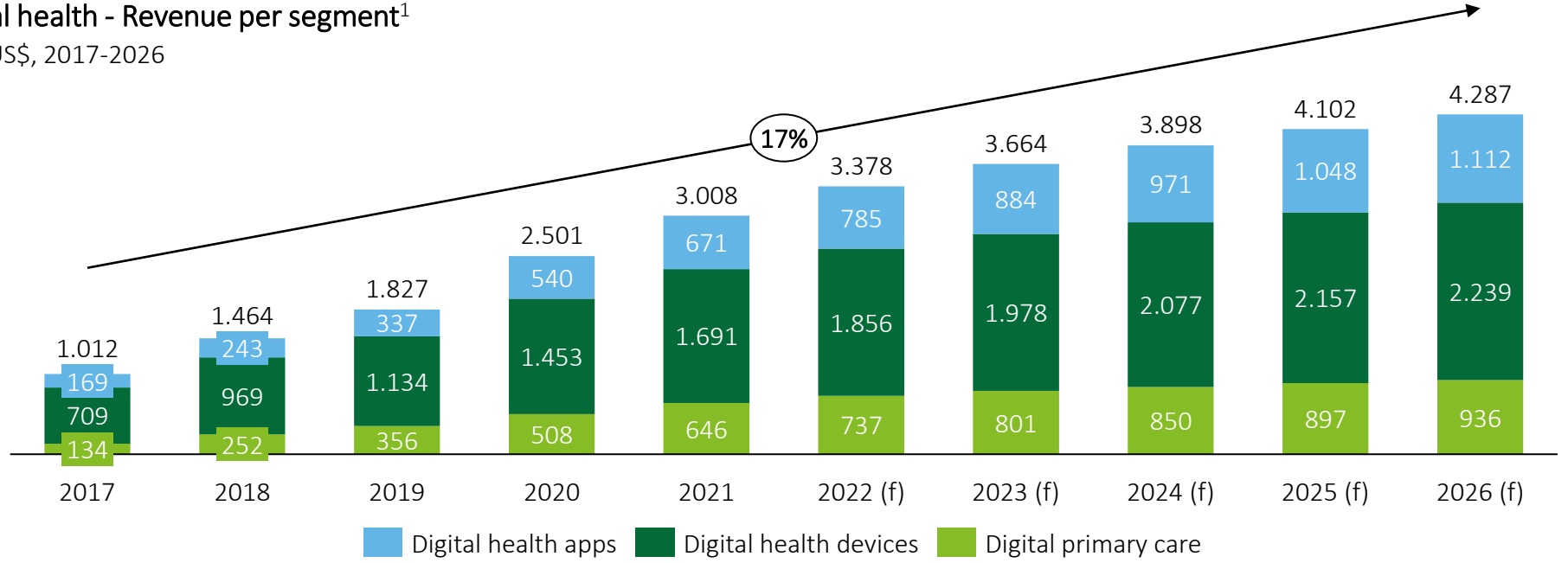
Source: Statista (2022), Sifted.eu (2022), interviews (2022), Deloitte analysis

Germany

However, the digital health market shows strong growth potential, particularly driven by the adoption of digital health devices

Digital health - Revenue per segment[1]

In M US$, 2017-2026



Compound annual growth rate (CAGR) over the period 2017-2026 for selected countries:

- 17% Sweden
- 17% **Germany**
- 21% Belgium

KEY TAKEAWAYS

- **Digital health** represents a big market in Germany **with a high growth potential,** as it can be observed with 3,3bn US$ of revenues expected in 2022 and with a **CAGR of 17% in digital health revenues** over the period 2017-2026
- The largest share of revenues comes from digital health devices, followed by digital health applications and digital primary care (online consultations)
- With 83,24M inhabitants in Germany (2020), it is estimated that the **revenue of digital health per inhabitant in 2026 will be $52**

Source: Statista (2022), interviews (2022), Deloitte analysis | Note: (1) Digital health apps include apps that help users monitor/detect/analyze physical health conditions as well as fitness, nutrition and meditation apps; digital health devices include biosensors that collect information on a variety of health parameters and vital signs of a person and devices that are explicitly intended for fitness and motion tracking; digital primary care include online doctor consultations

Germany

With the Digital Healthcare Act of 2019, Germany has set the legal framework for doctors to prescribe digital health applications (DiGAs) and boost the digitalization in the health care sector

Health care system and digitalization

Digital Healthcare Act – 2019
Act to Improve Healthcare Provision through Digitalization and Innovation

Public Healthcare Act – 2020
Act to promote the digitalization of public health services

The Digital Healthcare Act includes the following:

1. **Apps on prescription (DiGA)**. As first country in the EU, Germany makes digital healthcare apps eligible for coverage by the SHI funds
2. Extended investment of **€200 million per year in the German Innovation Fund** until 2024, which aim is to promote improvements in the quality of medical care provided under the statutory health insurance system
3. Easy use of **(reimbursed) online video consultations**
4. **Electronic patient records** will be mandatory in pharmacies and hospitals
5. **Obligatory digital network for the health sector** providing electronic services such as electronically prescribed sick leave notices, e-prescriptions and other
6. Access to a **secure health care data network** for treatment everywhere (legal foundation to transfer data from the sickness funds into a research data center and which makes it accessible to the scientific community)
7. Further **open and standardised interfaces** that will allow information to be exchanged faster and more easily in the future, based on international standards

KEY TAKEAWAYS

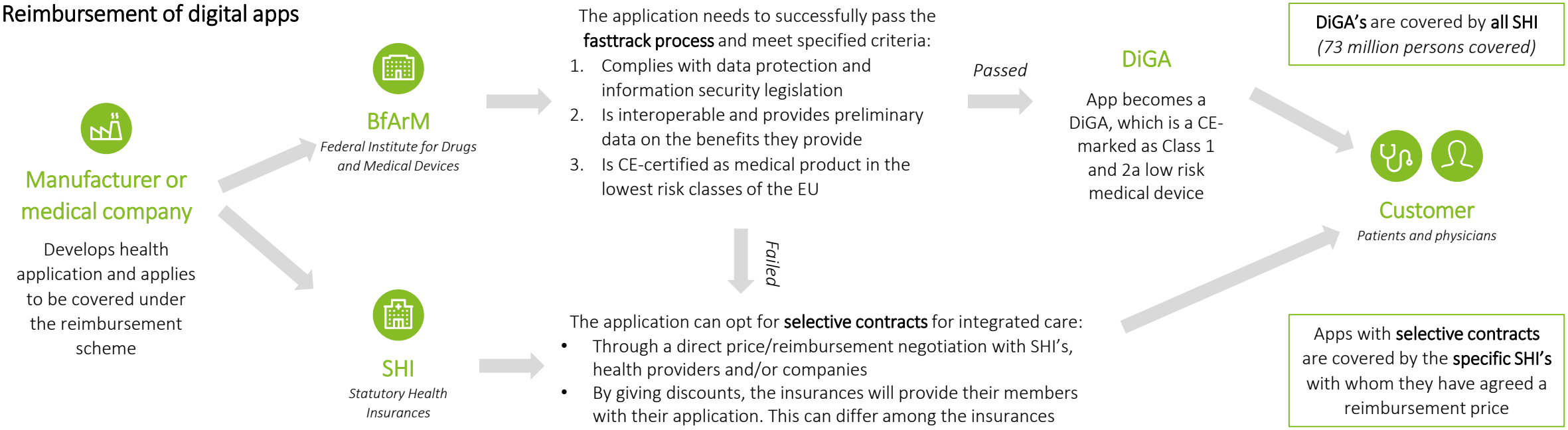
- DiGAs create an opportunity to **boost the development of preventive solutions** in the future
- Approximately 73 million persons covered by the SHI are entitled to use a DiGA prescribed by a physician or psychotherapist
- In addition, the **DiPA** program is about **digital applications focused on nursing care** (e.g., fall risk prevention, personalized memory games for people with dementia) - not yet available by prescription. DiPAs are not yet being reimbursed, as the legislative process for this has not yet been completed

Source: Federal Ministry of Health (2020), bfarm.de, charité.de, pharma.iges.com, Healthtech analysis, State of Health in the EU – Country Health Profile Germany (2021)

Germany

Germany has developed a standardized process for reimbursement of digital health applications; however, primary prevention solutions are currently not covered under the reimbursement scheme

Reimbursement of digital apps



KEY TAKEAWAYS

- The **total amount of digital health apps** covered under the reimbursement scheme currently includes 31 DiGAs and **is increasing**, but is still **limited due to strict criteria**
- DiGA must serve to support the recognition, monitoring, treatment, alleviation or compensation of injuries or disabilities, therefore digital applications serving **primary prevention are not recognized as a DiGA** (since legal definition does not contain the aspect of avoiding or preventing a disease)

Source: Research 2 Guidance (2022), Bundesinstitut für Arzneimittel und Medizinprodukte, State of Health in the EU – Country Health Profile Germany (2021), diga.bfarm.de (2022)

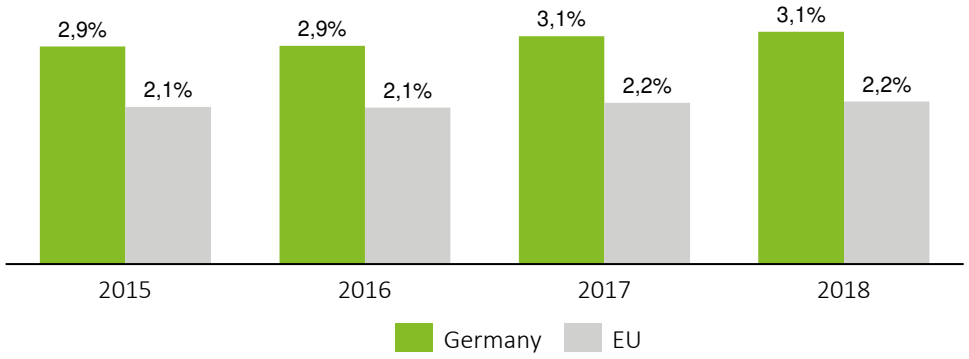
Germany

Germany has a strong VC funding in life sciences, which illustrates a dynamic innovative environment and offers growth potential for the preventive health care market

Total research & development expenditure

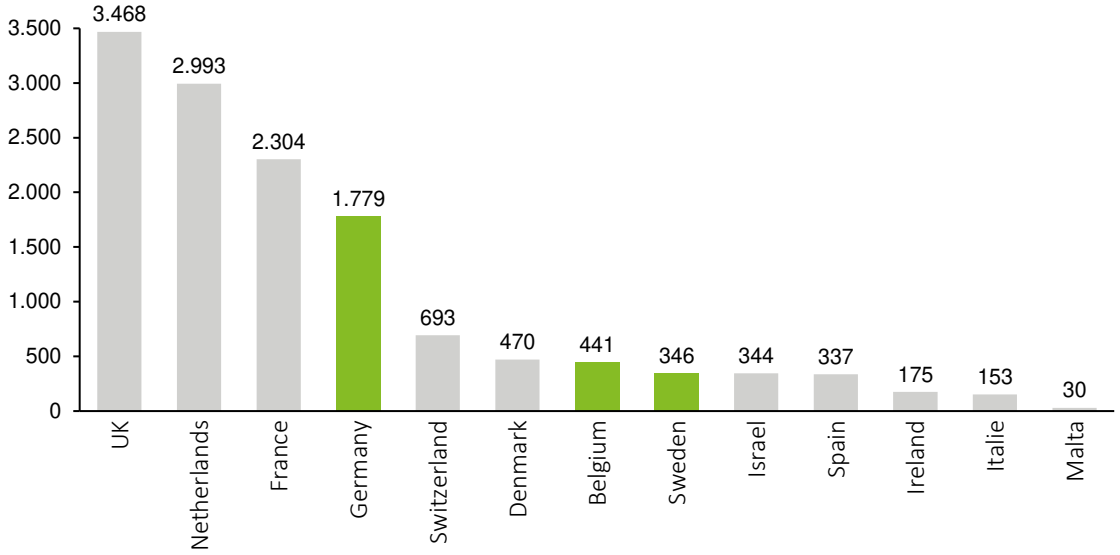
% of GDP, 2018

*In 2018, Germany had the **second highest percentage of R&D expenditure** compared to its GDP in the European Union*



Biggest European VC funding in life sciences[1]

In M EUR, 2021



KEY TAKEAWAYS

- Germany makes part of **'Strong Innovators' group in Europe**, according to the European Innovation Scoreboard). Germany's VC funding in life sciences reaches 1,779 M EUR in 2021, being the **4th biggest on European level**, which is more than double of the VC funding in life sciences of Belgium and Sweden

Source: The World Bank (2018), EIS (2021), Labiotech (2021) Deloitte analysis | Note (1): includes investment funds raised by European life sciences investors and funds that are focused on European and Israeli life sciences.

Germany

Driven by these different initiatives, Germany has witnessed the development of preventive solutions across the different types of prevention

Examples of innovative companies on the preventive health market

Source: Company websites, diga.bfarm.de, Deloitte analysis

DiGA's companies

Belgium

Belgium shows willingness to invest more in prevention by reimbursing health applications, although it is very difficult to enter the market due to the complicated structure of the country

ECONOMIC

- **Total health care expenditure** reached **50.8 B EUR** in 2019, representing around 10,7% of GDP
- Budget spent on **prevention remains limited**, with the total **preventive care expenditure** compared to total health care expenditure amounting to **1,7%** in 2018 (below the 2,8% average in Europe), representing 69 EUR per inhabitant
- The preventive care expenditure in EUR per inhabitant corresponds to **69 EUR per inhabitant**, which is lower than the 82 EUR per inhabitant on a EU average

POLITICAL

- **Fragmented and complex health care system**, divided among the federal state and federated entities
- **Prevention** is a **competence of the federated entities**, with some procedures remaining under the responsibility of the federal state (which can create conflicts of interest, with **the authority investing in prevention not being the one reaping the benefits**)
- System based on **compulsory health insurance** requiring **social contributions - sickness funds** operate the **reimbursement system of health care services** covered by the compulsory health insurance
- **Limited screening policies** and processes for chronic diseases such as cancers and limited promotion of healthy lifestyle

SOCIOLOGICAL

- **Good access** to many **high-quality health services**
- **Increasing life expectancy** (79,8 for men and 84,3 for women) situated just above the EU average
- Challenges observed include an **ageing population**, an **increase of chronic diseases**, **appropriateness of pharmaceutical care** (overuse of antibiotics and psychotropic drugs) and **socioeconomic inequalities** in health status
- With more than 1 out of 2 citizens that are obese, Belgium has a **high obesity rate** (higher than the EU average)
- In Belgium **1 out of 4 citizens** have **a chronic disease,** which is lower than the EU average

TECHNOLOGICAL

- A **growing number of preventive digital solutions on the market**, driven by the mHealth validation pyramid that enable reimbursement of health applications since 2021 – *see Legal/Ethical pillar*
- There are currently 36 mHealth applications that have level M1 of which 11 of them have reached level M2. **Only 1 digital mhealth has reached level M3 -** and is temporarily reimbursed by NIHDI (MoveUp Coach) – *see Legal/Ethical pillar*

LEGAL/ETHICAL

- Health application **MDR and GDPR** in Belgium raises **challenges and barriers** for innovative companies in digital health
- **mHealth validation pyramid in place** for reimbursement of applications - only **mHealth applications**, health applications which have passed **through M1, M2 and M3**, are considered for **permanent funding by NIHDI** (level M3+)

Source: Deloitte analysis, interviews, other sources detailed in the next slides

Belgium

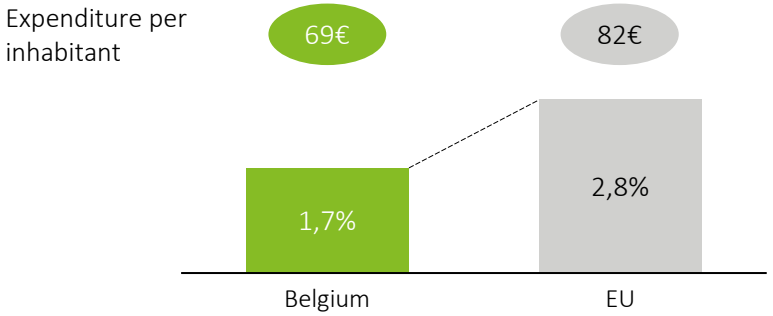
Both the total health care expenditure and the health care expenditure on preventive healthcare are lower than the EU average

Health care and preventive care expenditure

Eurostat (2018, 2019)

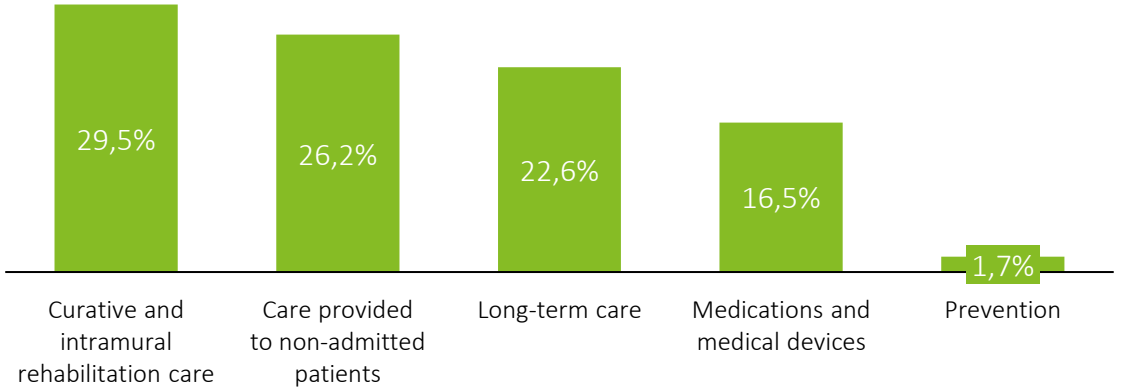
Percentage of health care expenditure spent on preventive care, 2018

Number of inhabitants: 11,7M



Total health care expenditure *was* ***50.8 B EUR*** *in 2019, representing around* ***10,7% of GDP*** *(against 11,7% for EU)*

Breakdown of healthcare expenditure in Belgium by function, 2018



KEY TAKEAWAYS

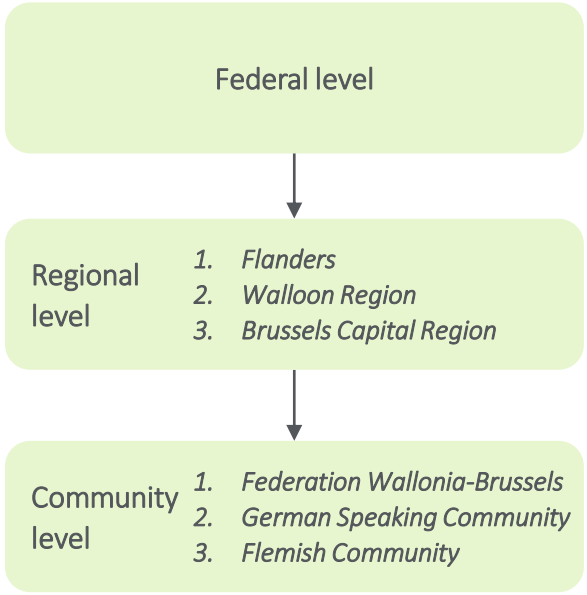
- Belgium has a **low health care expenditure spent on preventive care** compared to the EU
- Prevention is a competence of the **federated entities** in Belgium, with some responsibility remaining on a federal level, which can create conflicts of interest, with **the authority investing in prevention not being the one reaping the benefits**
- The **various policy levels** make the Belgian system complicated to navigate

Source: Eurostat (2018, 2019), OECD (2020), Deloitte analysis , Christian Mutuality (2021)

Belgium

Due to the complex regulatory structure of the health system, it is hard for companies to enter the Belgian market

Overview of health care system and responsibilities



- The national measures on prophylaxis (field of activity of public health: medical equipment management, crisis policy, administrative service support, scientific policy and prevention at work)
- The management of compulsory health and disability insurance

- Each federated entity is responsible for its own prevention and health promotion policy, which thus varies from state to state. The policies around prevention and health promotion are driven by:
  - Flanders: Agentschap Zorg & Gezondheid
  - Walloon Region: Agence pour une Vie de Qualité (AViQ)
  - Brussels Capital Region: the French-speaking Community Commission (Cocof), the Flemish Community Commission (FCC) and the Joint Community Commission (CGC)
- Have the competences concerning "health education and preventive medicine activities and services".
- The French community retains its competences in the field of prevention and health promotion, and especially those related to youth and education.
- The Ministry of the German-speaking Community follows up on all matters related to various health topics.
- The Flemish community exercises its powers through the same public service as the Flemish Region

KEY TAKEAWAYS

- The regularization of prevention is very complicated because, institutionally speaking, prevention and health promotion are often part of other competences and therefore **dependent on the level of government to which the competence belong**.
- In Flanders, the regional and community powers are managed by one public service. In the case of the French-speaking, additional powers have been transferred from the Wallonia-Brussels Federation on the one hand (= community level) to the Brussels-Capital Region and the Walloon Region on the other (= regional level).

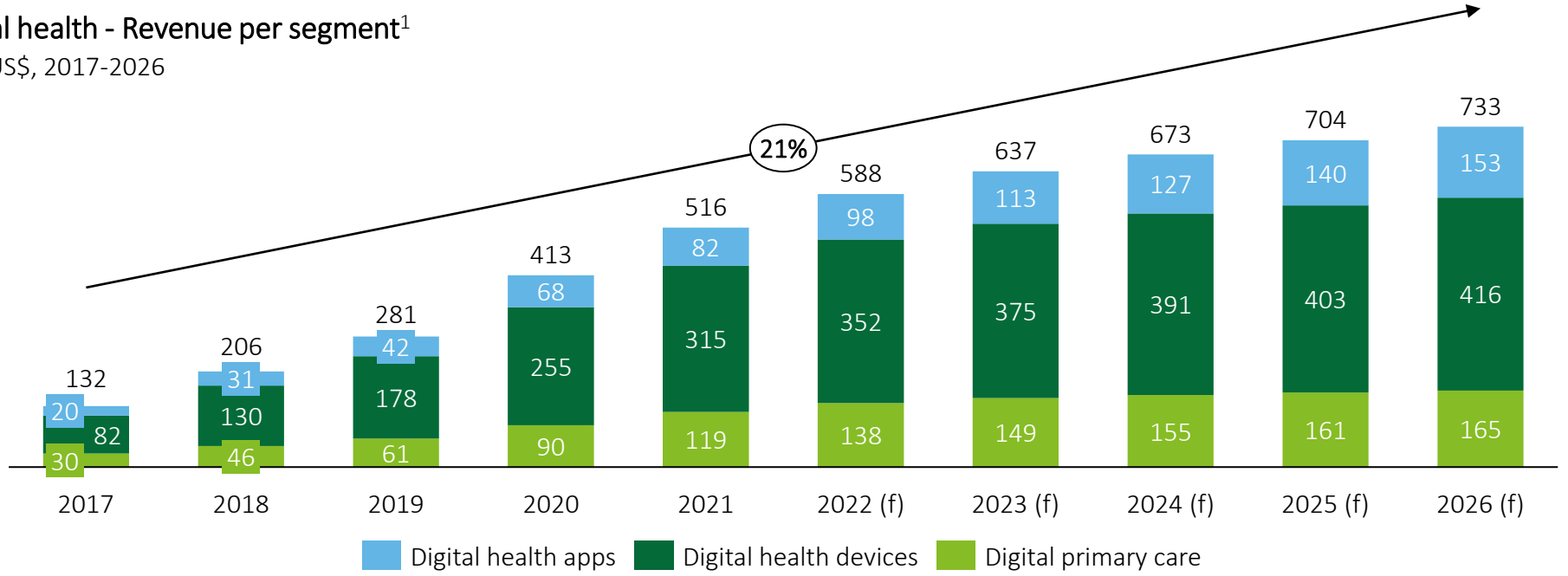
Source: Deloitte analysis , Christian Mutuality (2021)

Belgium

Belgium shows a strong digital adoption in health with an expected growth rate of 21% between 2016-2027

Digital health - Revenue per segment[1]

In M US$, 2017-2026



Compound annual growth rate (CAGR) over the period 2017-2026 for selected countries:

- 17% Sweden
- 17% Germany
- 21% **Belgium**

KEY TAKEAWAYS

- There is a **strong adoption** in digital health and mostly in **digital health devices**
- Belgium has a **higher CAGR than Sweden and Germany** over the period 2017-2026
- With 11,56M inhabitants in Belgium (2020), it is estimated that the **revenue of digital health per inhabitant in 2026 will be $63**

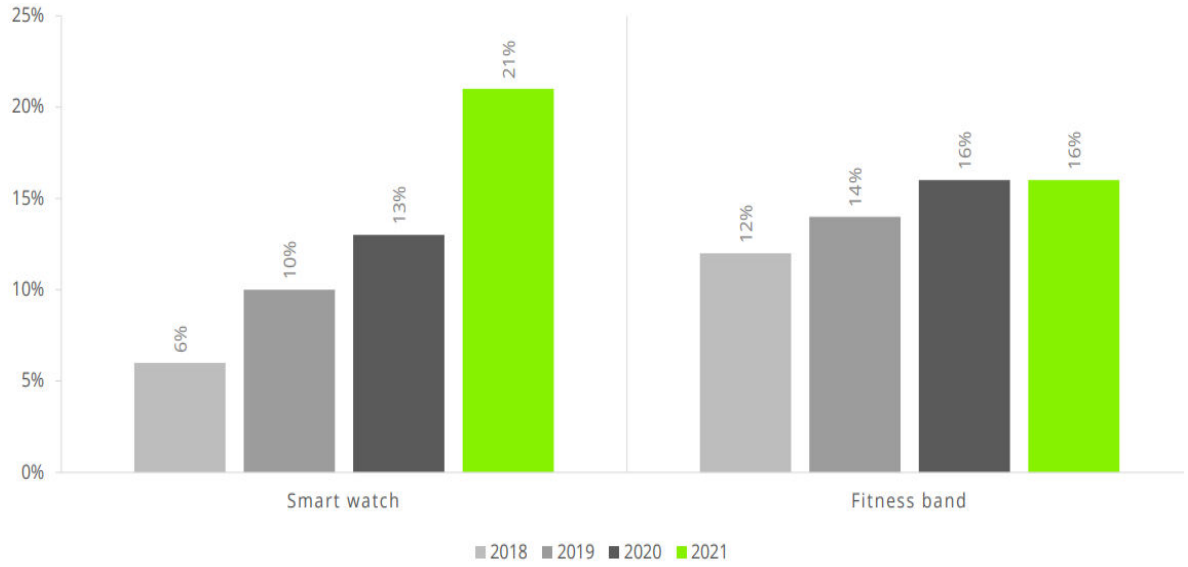
Source: Statista (2022), interviews (2022), Deloitte analysis | Note: (1) Digital health apps include apps that help users monitor/detect/analyze physical health conditions as well as fitness, nutrition and meditation apps; digital health devices include biosensors that collect information on a variety of health parameters and vital signs of a person and devices that are explicitly intended for fitness and motion tracking; digital primary care include online doctor consultations

Belgium

The Belgian consumer is increasing its digital presence and uses smart devices to monitor its health digitally

Access to wearable devices

Deloitte Insights (2018-2021)



Most monitored functions through wearable devices

Deloitte Insights (2021)

- ***48%*** monitor steps
- ***26%*** monitor heart rate
- ***20%*** monitor sleeping pattern
- ***16%*** monitor weight
- ***9%*** monitor blood pressure
- ***9%*** monitor calorie in-take
- ***7%*** monitor stress levels
- ***7%*** monitor blood O2 levels

KEY TAKEAWAYS

- Through smartphones and other technologies, people are **more connected** than ever
- There has been a **surge in smart watch ownership** in the past years
- Nearly half of smartphone/fitness device owners **monitor their steps**, 1 in 4 **monitor heart rate** and 1 in 5 **monitor their sleeping pattern**

Source: Deloitte insights (2021)

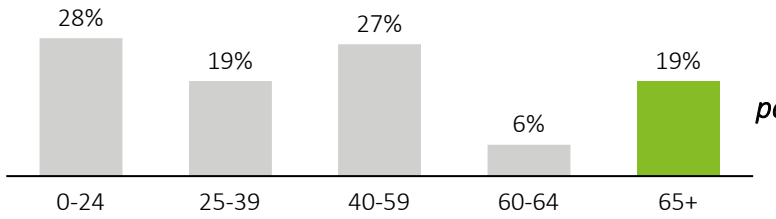
Belgium

In Belgium, one out of four citizens suffers from a chronic disease, which is lower than the OECD average

Population & life expectancy

OECD (2020), Statista (2021)

Population distribution per age (2021)



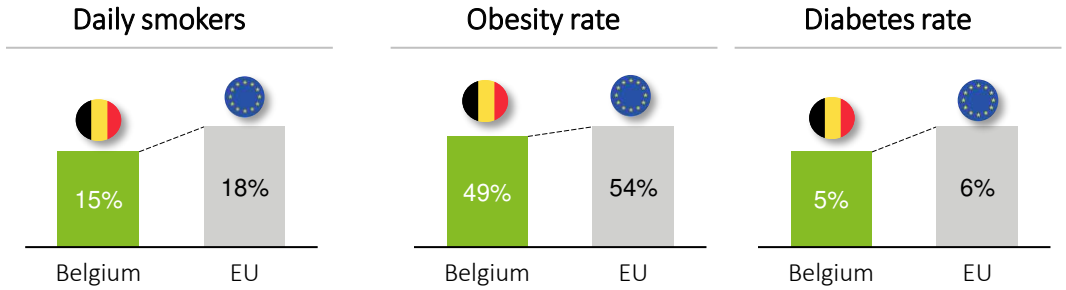
*Belgium has a high percentage of **elderly population** with 1 in 5 people having 65 years or more*

Number of inhabitants: 11,7M

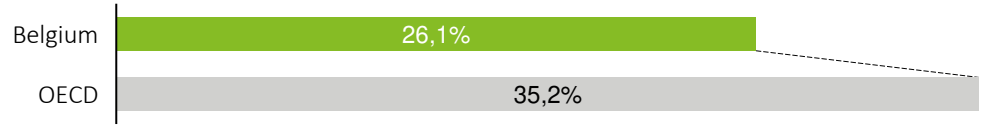
Life expectancy is high, especially for women

Lifestyle indicators

OECD (2019, 2020), Eurostat (2021)



Proportion of population (16+) with longstanding illness or health problem (2019)



KEY TAKEAWAYS

- With more than 1 out of 2 citizens considered as obese, Belgium has a **high obesity rate**. It is higher than Germany, Sweden and the EU average.
- In Belgium **1 out of 4 citizens** have **a chronic diseases,** which is **lower than Sweden and Germany** where 1 out of 3 citizens have a chronic disease.

Source: OECD (2019, 2020), Statista (2020), Eurostat (2021), Deloitte analysis

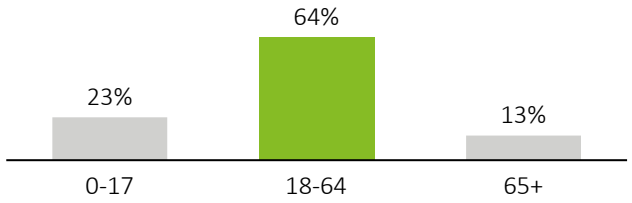
Belgium - Brussels

Brussels has an important middle-aged population, and a generally lower life expectancy than the Belgian average

Population & life expectancy

Statista (2020, 2021)

Population distribution per age (2021)



*Brussels has a large **middle-aged population***

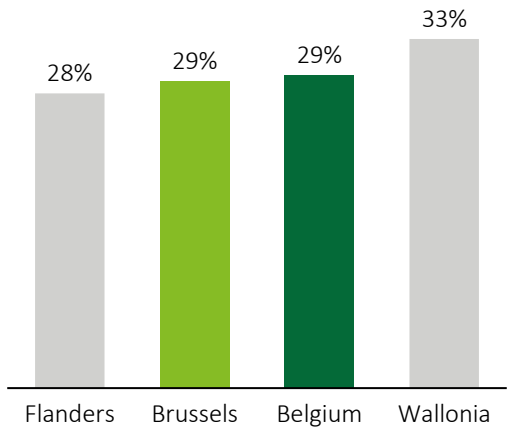
Number of inhabitants (Brussels): 2,1 M

Life expectancy in Brussels is high but lower than the Belgian average (2020)

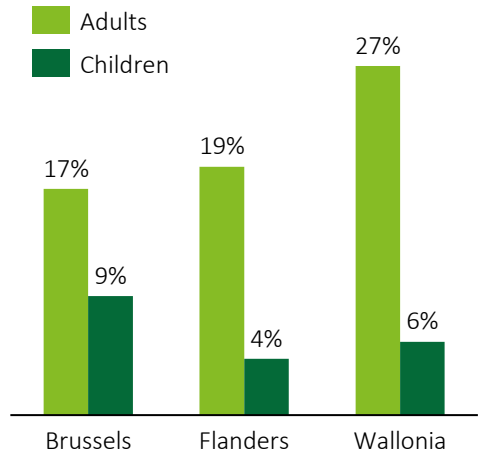
Lifestyle indicators

Healthybelgium (2018), Worldobesity (2018)

Self-reported prevalence of chronic disease (2018)



Obesity rate per region (2018)



KEY TAKEAWAYS

- In 2018, the obesity rate in Brussels was lower than Flanders and Wallonia, and generally **more severe for children** than for adults across the different regions

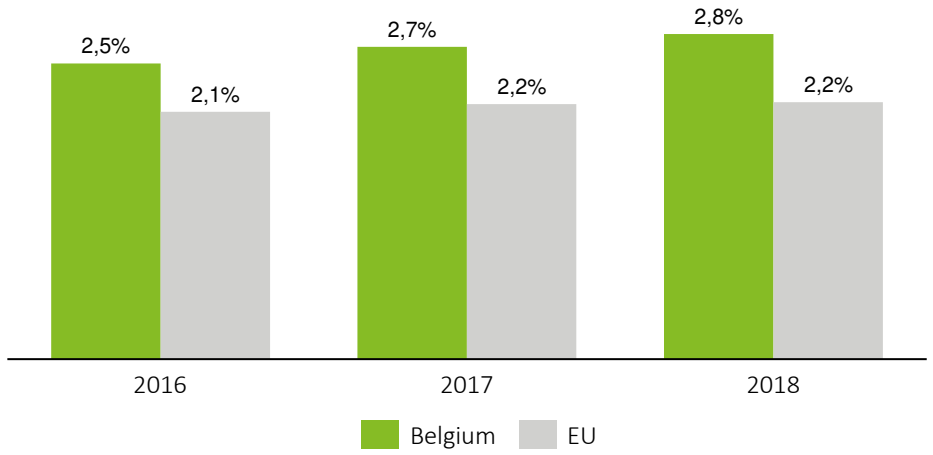
Source: Healthybelgium (2018), Statista (2020), Worldobesity (2018), Deloitte analysis

Belgium

Looking at general R&D expenditure and funding of digital health startups, it seems that Belgium ranks behind Sweden and Germany

Total research & development expenditure

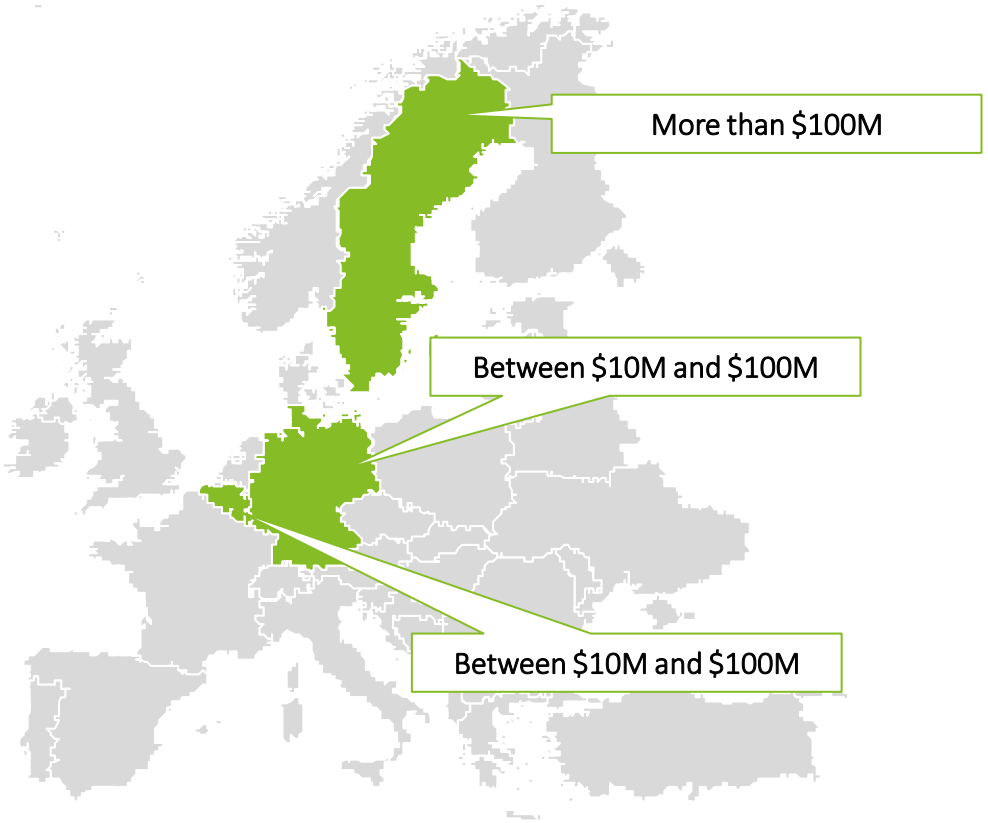
% of GDP, 2018



In terms of general R&D expenditure, Belgium had in 2018 a higher percentage than the EU average but lower than Germany (3,1%) and Sweden (3,3%)

Funding of digital health start-ups

In $M, 2015-2020



Source: The World Bank (2018), CB Insights (2020), Deloitte analysis

Belgium

Belgium has put in place a standardized process for the reimbursement of mHealth applications

Reimbursement of digital apps – mHealth applications

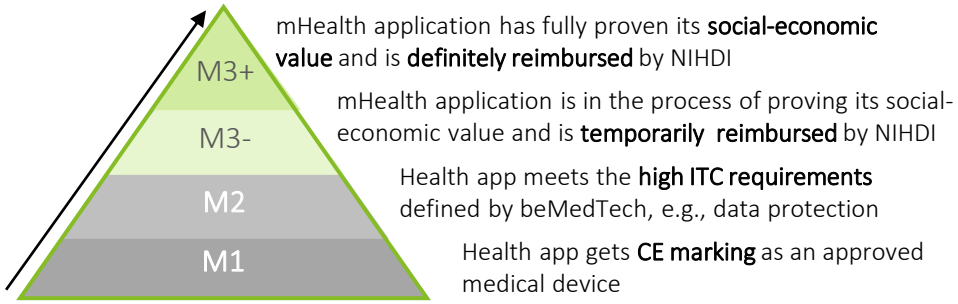
Manufacturer/ medical company

Develops health application and applies to be covered under the reimbursement scheme

NIHDI/RIZIV

National Institute for Health and Disability Insurance

The application needs to successfully pass the **mHealthBelgium validation pyramid** which consists of four levels:



- mHealth application has fully proven its **social-economic value** and is **definitely reimbursed** by NIHDI
- mHealth application is in the process of proving its social-economic value and is **temporarily reimbursed** by NIHDI
- Health app meets the **high ITC requirements** defined by beMedTech, e.g., data protection
- Health app gets **CE marking** as an approved medical device

Health care providers

Physicians and hospitals

The specific reimbursement is made through an agreement between the INAMI/RIZIV and the health care providers

Customer

Patients and physicians

The health application, reimbursed by NIHDI, is used by the patient and health care professionals

KEY TAKEAWAYS

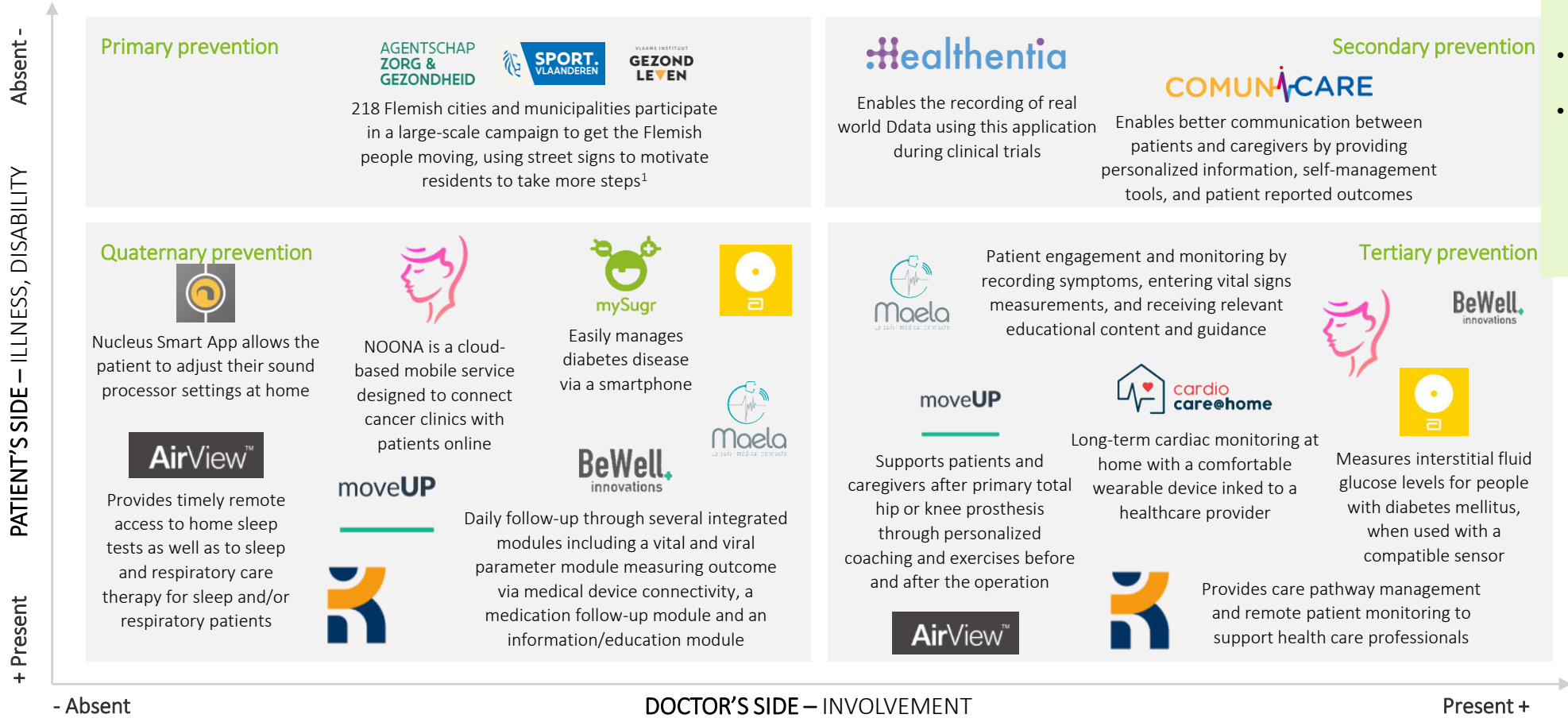
- Only **mHealth applications**, health applications which have passed **through M1 and M2**, are considered for **funding by NIHDI**. There are currently 36 mHealth applications that have level M1 of which 11 of them have reached level M2; and 1 mHealth application has reached M3- and is temporarily reimbursed by NIHDI (MoveUp Coach) – *status in April 2021*
- The process to get reimbursement is complex due to different factors such as the **time required to reach the M3- level in practice** (6 years for MoveUp), the difficulty to show **immediate return on investment due to the timeline of clinical trials** etc.

Source: mhealthbelgium.be (2022)

Belgium

The 12 companies that have reached the M2 level of the mHealthBelgium validation pyramid are mainly focused on tertiary and quaternary prevention

Examples of innovative companies on the preventive health market



Impact measures on prevention include for example:

- **MoveUp**: medical record progress and rehabilitation progress
- **mySugr**: impact on glycemic control
- **Epihunter**: study comparing the number of absence attacks for patients using Epihunter and for patients not using Epihunter

Source: Deloitte analysis, interviews, company websites, EIT Health (2021) | Note (1) the example of primary prevention initiative is not part of the mHealthBelgium validation pyramid

Market deep-dive

The following levers have been identified for a thriving preventive care market, and will enable to assess the maturity of the different countries in this market

	Less favorable environment	Favorable environment	Very favorable environment
PREVENTION STRATEGY	• No clear focus and strategy regarding prevention (e.g. only vaccinations) • Low percentage of health care expenditure spent on preventive care	• Prevention put as a national priority but not translated locally or across the prevention types • Average percentage of health care expenditure spent on preventive care	• Prevention put as a national and local priority, with clear strategy/focus across the different types of prevention • High percentage of health care expenditure spent on preventive care
REGULATORY FRAMEWORK	• Inefficient regulators in terms of responsiveness, expertise, process… • Stringent regulatory framework (e.g. numerous conditions to fulfill)	• Efficient regulators or simple regulatory framework (1 out 2 conditions fulfilled)	• Efficient regulators in terms of responsiveness, expertise, process… • Simple regulatory framework
REIMBURSEMENT SCHEME	• No process in place for reimbursement of digital health solutions • Service-based reimbursement system	• Process being implemented for reimbursement of digital health solutions • Service-based reimbursement system	• Established process for reimbursement of digital health solutions • Value-based reimbursement system
DIGITAL ADOPTION & INCLUSION	• Non-tech savvy population • Reluctance towards new technologies and digital solutions	• Population becoming increasingly tech savvy • Growing openness towards new technologies and digital solutions	• Tech savvy population • Strong openness towards new technologies and digital solutions
ACCESS TO DATA AND INTEROPERABILITY	• No infrastructure in place allowing data sharing and centralization (e.g., API) • High reluctance to share personal data • No interoperability and standards in place	• Infrastructure in development to allow data sharing • Increasingly open population to share data • Interoperability/standards being developed	• Infrastructure in place for data sharing and centralization • Population very open to share personal data • Interoperability and standards in place
CONSUMER MARKET FOR PREVENTIVE HEALTH CARE	• Consumers reluctant to pay for out-of-scope digital health products & services (not covered by public scheme or insurance)	• Consumers willing to pay only for specific out-of-scope digital health products & services (not covered by public scheme or insurance)	• Consumers highly willing to pay for out-of-scope digital health products & services (not covered by public scheme or insurance)

Market deep-dive

Sweden shows high maturity in terms of preventive care driven by a high level of digitalization and digital adoption in health care, while Belgium and Germany have room for improvement, especially on data usage and access to data

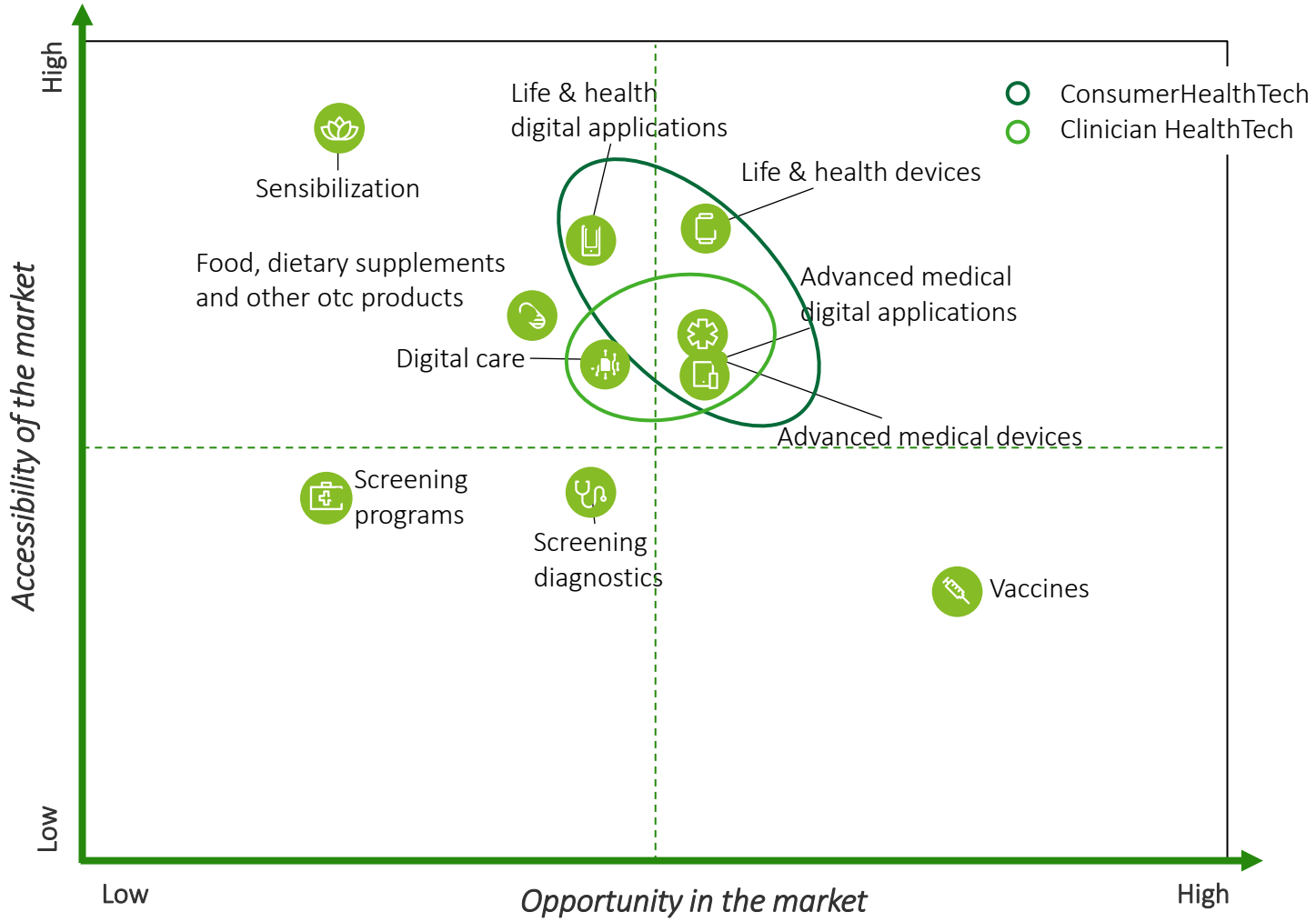
	GERMANY	BELGIUM	SWEDEN
PREVENTION STRATEGY	• Strengthening Health Promotion and Prevention Act at national level since 2015 to promote prevention • Higher preventive care expenditure than EU average but remains limited (3,2% vs 2,8%)	• Need for further strengthening of prevention policies and initiatives (today mainly vaccination and some cancer screening) • Lower proportion of preventive care expenditure than EU average (1,7% vs 2,8%)	• Greater focus on health and prevention put as a priority in the national life sciences strategy, but still under development (e.g. still limited sensibilization) • Higher preventive care expenditure than EU average but remains limited (3,3% vs 2,8%)
REGULATORY FRAMEWORK	• Decentralized and self-governing conservative system, which makes it complex for new solutions to get reimbursed, e.g. digital health applications must comply with strict criteria	• Conservative and complex health care system, with competences shared between federal state and federated entities	• Decentralized system, making it complex to develop new product/service due to the approval required from 1) the national reimbursement scheme and 2) the different regional committees
REIMBURSEMENT SCHEME	• Standardized process for digital health apps reimbursement through the Digital Healthcare Act (DiGA) • Service-based system	• mHealth Validation Pyramid to assess the quality and effectiveness of digital health applications for reimbursement, but reimbursement limited for other digital health solutions (e.g. teleconsultation) • Service-based system	• No standardized process existing for reimbursement of digital health apps but in development, and no other public incentives • Value-based pricing & reimbursement system
DIGITAL ADOPTION & INCLUSION	• Less tech savvy population • Slower in digital adoption compared to its EU peers • Estimated revenue of digital health per inhabitant (2026) is $52	• Tech savvy population • Open to new technologies and digital solutions • Estimated revenue of digital health per inhabitant (2026) is $63	• Tech savvy population • Early adopters, strong adoption of new technologies and digital solutions • Estimated revenue of digital health per inhabitant (2026) is $53
ACCESS TO DATA AND INTEROPERABILITY	• No national database • Electronic patient record initiative under development • Reluctancy to share personal data, representing a barrier to the development of digital health solutions	• Fragmentation of data sources/ lack of national databases • Access to electronic health records but still in a limited/non-exhaustive way • Relative openness to share personal data	• National Health Information Exchange (HIE) platform to enable interoperability between regional systems and centralized access to electronic health records • Openness to share personal data, allowing personalization of services
CONSUMER MARKET FOR PREVENTIVE HEALTH CARE	• Strong growth potential in digital health with a CAGR of 17% expected over the period 2017-2026 (market of 3,3bn US$ in 2022)	• Strong growth potential in digital health with a CAGR of 21% expected over the period 2017-2026 (market of 588m US$ in 2022)	• Strong growth potential in digital health with a CAGR of 17% expected over the period 2017-2026 (market of 417m US$ in 2022)
	LAGGER	**EMERGING**	**MATURE**

Less favorable | Favorable | Very favorable

KEY CONCLUSIONS

Key conclusions

Scoping preventive healthcare for Brussels by focusing on consumer and clinician HealthTech



Remarks

The following criteria have been used to assess the preventive solutions in terms of 1) accessibility of the market and 2) opportunity in the market:

1. Accessibility of the market

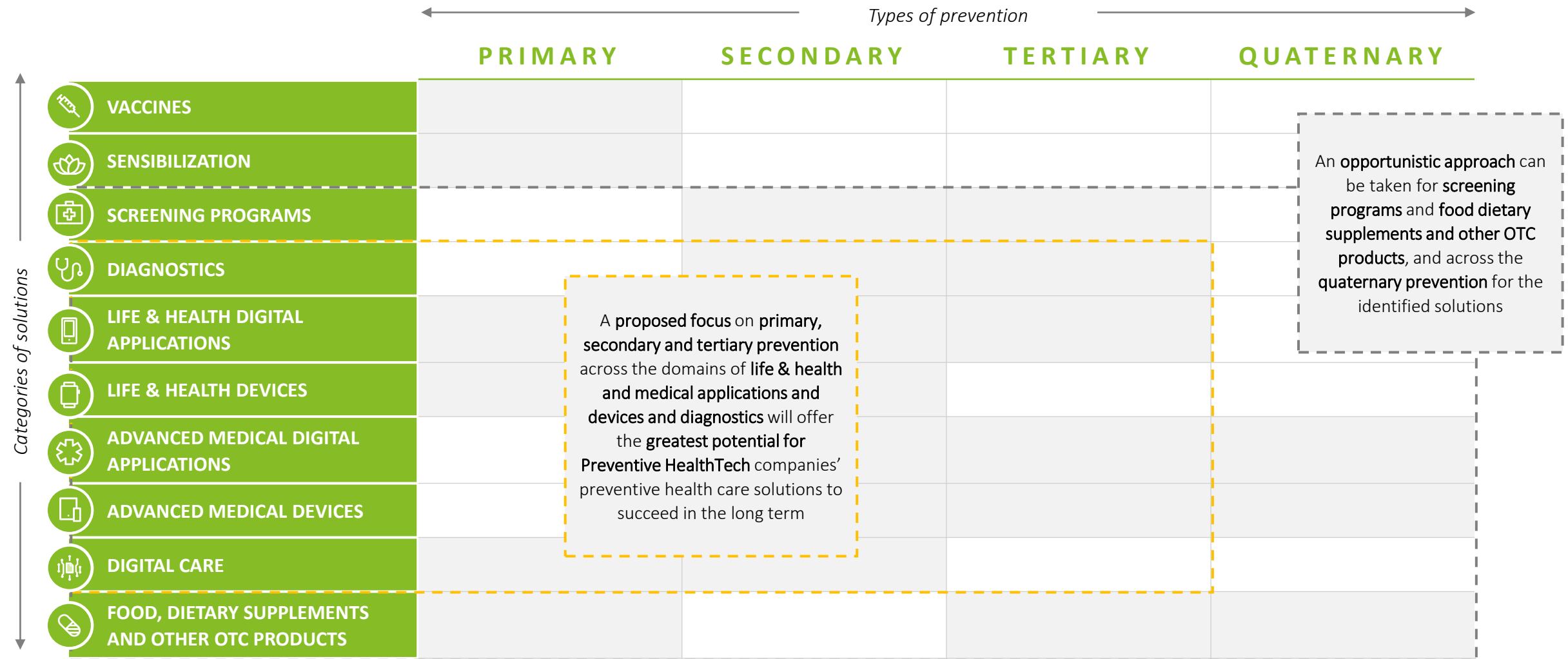
- Accessibility through government
- Accessibility through reimbursement process
- Accessibility through digitalization (digital mindset/adoption, access to data)
- Footprint in Brussels

2. Opportunity in the market

- Public revenues (government, organizations)
- Consumer revenues

Key conclusions

These categories of solutions are present on the market in different ways depending on the type of prevention



Source: : Deloitte analysis

Key conclusions

What can Belgium do to develop the preventive care market?

GOVERNMENT PUSH

What can the government do to promote prevention?

Define clear strategy and focus on prevention	› Define the **focus areas** in which preventive solutions can provide the **biggest value** (across the types of prevention and the categories of solutions), based on the **existing disease burden** and **costs on the health care system**
Ensure framework for reimbursement	› Ensure reimbursement framework that covers **the different types of preventive care solutions** (e.g. not only digital health applications but teleconsultations, medical devices etc.)
Ensure framework for quality of solutions	› Ensure a framework for **assessing the quality of preventive care solutions**, which will foster acceptance of these solutions
Initiate and support initiatives that promote prevention	› **Raise awareness (sensibilization)** around preventive health care, **facilitate collaboration within the ecosystem** and **access to health care professionals**
…	

PRIVATE SECTOR PULL

What are the opportunities for the private sector?

Focus on specific segments	› Overall health care systems are still quite traditional and **reimbursement opportunities are low**. Most companies **focus on the consumer market** with a dedicated strategy towards **segments with higher willingness to pay**, such as › Amateur sports enthusiasts and optimizers › Health-aware middle-aged men and women › Patients with a chronic medical condition with solutions that improve disease management
Gain entry to the market	› Gain **entry to the market** through **partnerships** (e.g. academics, public-private cooperations) and specific **channels** (e.g. food supplement stores and bicycle shops) to reach target segments
Leverage local initiatives for access to professionals	› **Leverage local initiatives** and **frameworks** (e.g. DiGA) to gain trust of, and access to HCPs and other professionals (e.g. coaches)
…	

APPENDIX

Limitations of the report

We have encountered the following limitations in the development of this study

DATA ON PREVENTION

- Data on prevention is very limited, **both at public** (government, authorities) **and private level** (companies in the sector)
- **Proxy indicators** (e.g. the health care market and the digital health care market) were used in the context of some analysis of the report

SCOPE OF PREVENTION

- Due to the recent nature of the subject, and the resulting **limited documentation on the topic**, there is **no officially recognized scope of prevention**
- **Based on our research** and on the solutions observed on the market, **a scope has been defined** for the preventive care market which categorizes the different types of solutions

EXPERTS WITH HOLISTIC VIEW ON PREVENTION

- There are **limited experts having a holistic view** in the field of prevention, across the entire value chain (expertise is often specific to one market – e.g. digital health or to one type of solution)

References of the report

Organization	Title	Year
Bertelsmann-stiftung	#SmartHealthSystems: International comparison of digital strategies	-
BfArM	The Fast-Track Process for Digital Health Applications (DiGA) according to Section 139e SGB V	-
BfArM	List of all DiGA's	-
Bundesgesundheitsministerium	The German healthcare system	2020
Business Sweden	Life science: create a healthier future with Sweden	-
Charité	The German Innovation Fund (Innovationfonds)	2020
Deloitte	Breaking the cost curve: Deloitte predicts health spending as a percentage of GDP will decelerate over the next 20 years	2021
Deloitte	Digital Consumer Trends 2021 Belgium	2021
European Commission	COMMISSION STAFF WORKING DOCUMENT Country Report Sweden 2020	2020
European Commission	European and Regional Innovation Scoreboards 2021 – Questions and Answers	2021
European Journal of General Practice	Quaternary prevention: reviewing the concept	2018
Eurostat	Healthcare expenditure across the EU: 10% of GDP	2020
Eurostat	3% of healthcare expenditure spent on preventive care	2021
Eurostat	Health care expenditure by provider	2021
(U.S.) Food & Drug Administration	Spectrum of diseases/conditions	2019
Federal Ministry of Health	Driving the digital transformation of Germany's healthcare system for the good of patients	2020
Germany works	Life sciences	2020
Government Offices of Sweden	European Centre for Disease Prevention and Control – an EU agency located in Sweden	2017
Healthpolicypartnership	Secondary prevention of heart attack and stroke	2021
Healthxl	The role of DiGA in your go-to-market strategy for Germany	2021
Healthybelgium	Description of the Belgian health system	2022
Healthybelgium	Preventive care	2022
IGES	DiPA - the new digital application in nursing care in Germany	-
InterNations	Health Insurance and Healthcare in Sweden Explained	-
Invest Stockholm	Health Tech: Business opportunities in Stockholm-Uppsala	2017
Labiotech.eu	European Biotech Investors Cap Off Record Year in Fundraising	2021
Lif – Vasco	Innovation in European healthcare – what can Sweden learn?	-
Medium	Diving into Germany's Venture Capital landscape in 2020	2020
mHealthBelgium	mHealthBelgium validation pyramid and apps	2020

Organization	Title	Year
National Library of Medicine	Organization and financing of public health services in Europe: Country reports	2018
OECD	OECD data Sweden	-
OECD	OECD data Germany	-
OECD	OECD data Belgium	-
OECD	Health policy in Sweden	2016
OECD	State of Health in the EU Sweden Country Health Profile 2017	2017
OECD	Alcohol consumption	2020
Onafhankelijke Ziekenfondsen	Chronische ziektes in België - Prevalentie en kosten 2010-2018	2020
Our Commeons	A brief introduction to the Swedish system for pricing and reimbursement of pharmaceutical products	2017
Regdesk	Medical Device Regulatiuons in Germany	2019
Rise Research Institutes Of Sweden	Preventative healthcare can rescue Swedish healthcare	2019
Sifted	European healthcare needs stronger medicine than Germany's weak digital law	2022
SNS	Reimbursement models and e-health Sweden	2019
Statista	Population in Sweden in 2021, by age group	2021
Sweden Innovation Days	Preventative health and well-being	
Sweden Sverige	Swedish healthcare is largely tax-funded. And the overall quality is high.	2022
Swedish government	Sweden's national life sciences strategy	2020
Symbiocare	Keeping people healthy is a good investment	-
Symbiocare	How Sweden achieved world-class medical and social care	-
Task Force Health Care	TGHC Market Study: Aligning Dutch Smart Solutions to Swedish Opportunities	2017
The Commonwealth Fund	International Health Care System Profiles Germany	2020
The Commonwealth Fund	International Health Care System Profiles Sweden	2020
The World Bank	Research and development expenditure (% of GDP)	2021
Welcome Center Germany	Healthcare in Germany: the German healthcare system	-
World Health Organization	The case for investing in public health Europe	2014
World Health Organization	EPHO5: Disease prevention, including early detection of illness	-
World Health Organization	Physical activity factsheet for the 28 European union member states of the WHO European region	2018

Monitor
Deloitte.