eHealth Report Italy

Statista Digital Market Outlook – Market Report

September 2018

Agenda

The WHO defines eHealth as the use of IT in healthcare

Definition: eHealth

According to the World Health Organization, the official definition of eHealth is as follows: **"eHealth is the secure use of information and communications technologies in support of health and health-related fields, including healthcare services and processes, prevention, health surveillance, treatment, health literature and health education, knowledge and research. eHealth can help cut costs and also includes a high sales potential."**

The field of eHealth is wide and it is not simply possible to cover all areas that represent the eHealth market in its entirety. Therefore, this report contains selected, most relevant eHealth areas with certain examples:

Health surveillance:

- Apps and devices for fitness and health

- Ambient Assisted Living

Treatment:

- Online medication

- Heart failure

- Diabetes

- Hypertension
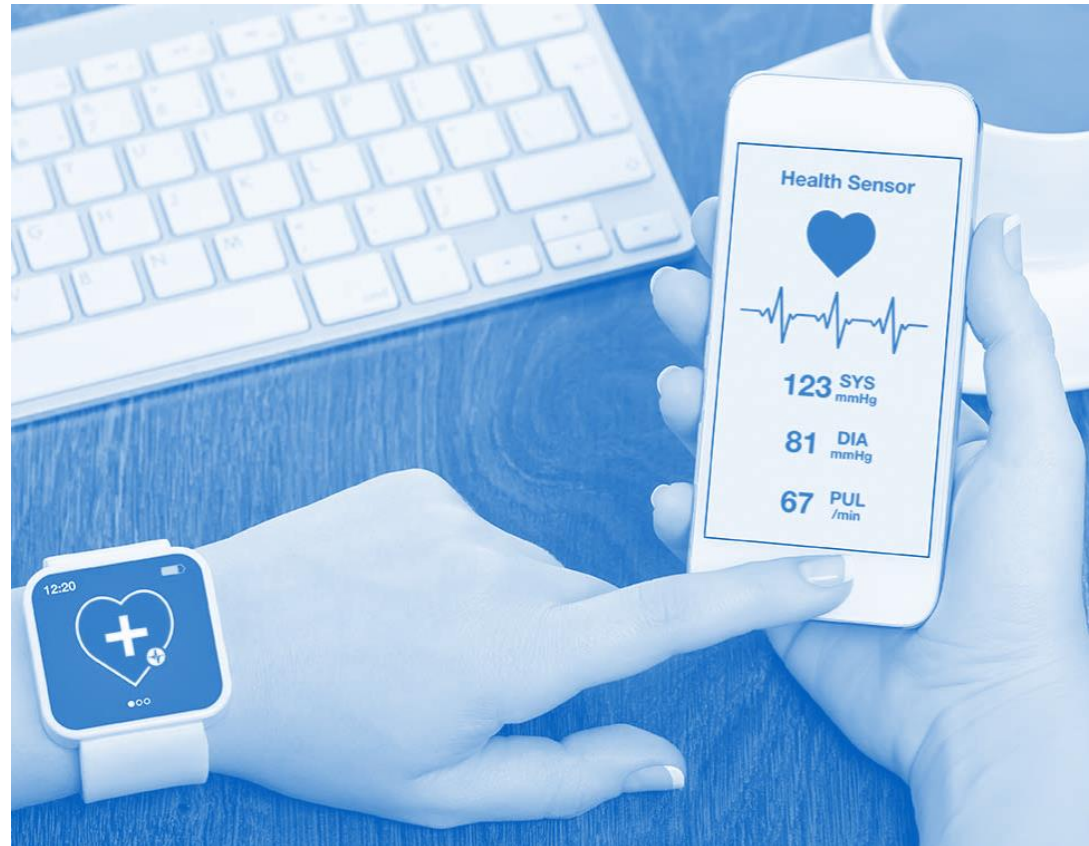
COUNTRY OVERVIEW

The country overview provides a broader understanding of the country-specific healthcare system and the population's health status.

In this chapter, healthcare expenditure will be discussed and various health-related variables will be presented. Also, an overview of the state of digital infrastructure in the context of eHealth is given.

Every Italian is covered by the statutory health insurance

Healthcare system overview: introduction

The Italian healthcare system is based on a **public health insurance** scheme, which covers all citizens and residents universally and automatically. This public healthcare is mainly **financed by corporate tax,** which is distributed among the provinces based on the proportions of their distributions, leading to regional differences in healthcare funding.

Private insurance can be arranged to **cover additional cost and services** not included in public healthcare, e. g. dental care, or offer extra services like a higher standard of privacy in hospitals. Private insurance is either offered by corporations to their employees or can be bought individually. Since participation in the public healthcare system is **mandatory** and coverage large, the **private sector** is estimated to be **comparably small** despite tax incentives for complementary insurances.

Italy is struggling with a rising healthcare cost combined with an outstandingly high public debt. While overall **spending** on healthcare **had constantly been rising since 2000**, the increase in spending only amounts to 0.8% for the years from 2008 onwards. Average per-capita spending is below the **OECD average**.

In this context, physician density hasn't changed since 2000 and the number of **hospital beds is decreasing**. Still, the overall amount of people with chronic conditions remains more or less stable and Italy is retaining its high life expectancy.

Benefits in private insurance rise with premiums, while statutory insurance is need based

Healthcare system overview: insurance systems

Statutory health insurance

Rich → **Poor**

Contribution according to level of income

Solidarity principle

Benefits according to need

Sick → **Healthy**
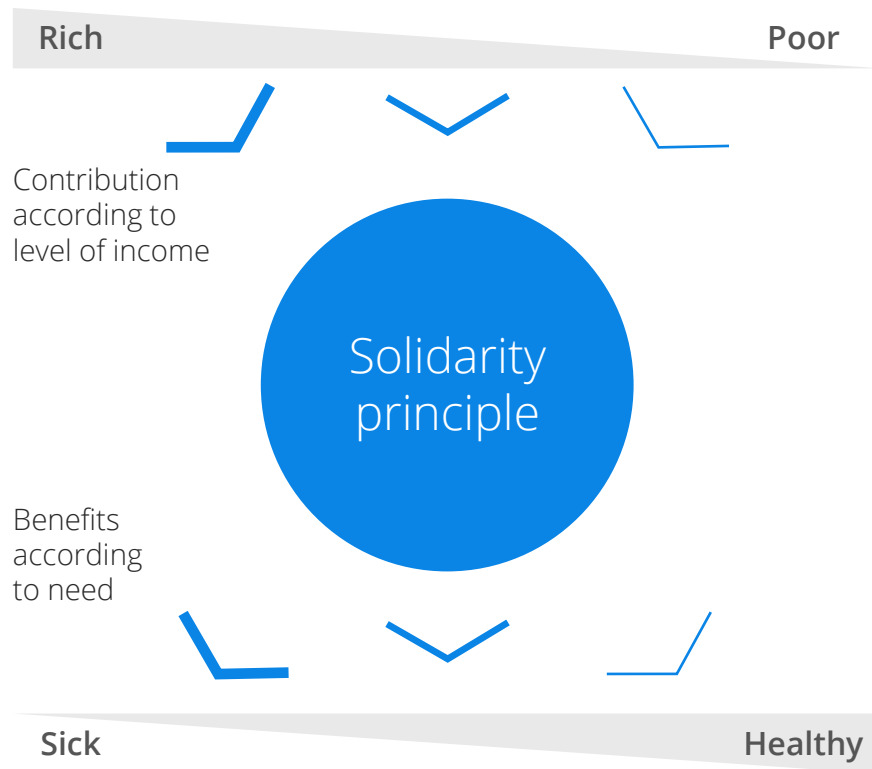
Private health insurance

High premium → **Low premium**

Premium according to risk and benefits agreed upon

Equivalence principle

Benefits according to contract

High benefits → **Low Benefits**

Note: Thickness of arrows represents amount of contributions/premiums and benefits. Thicker arrows stand for a higher amount.
Source: medical-allee
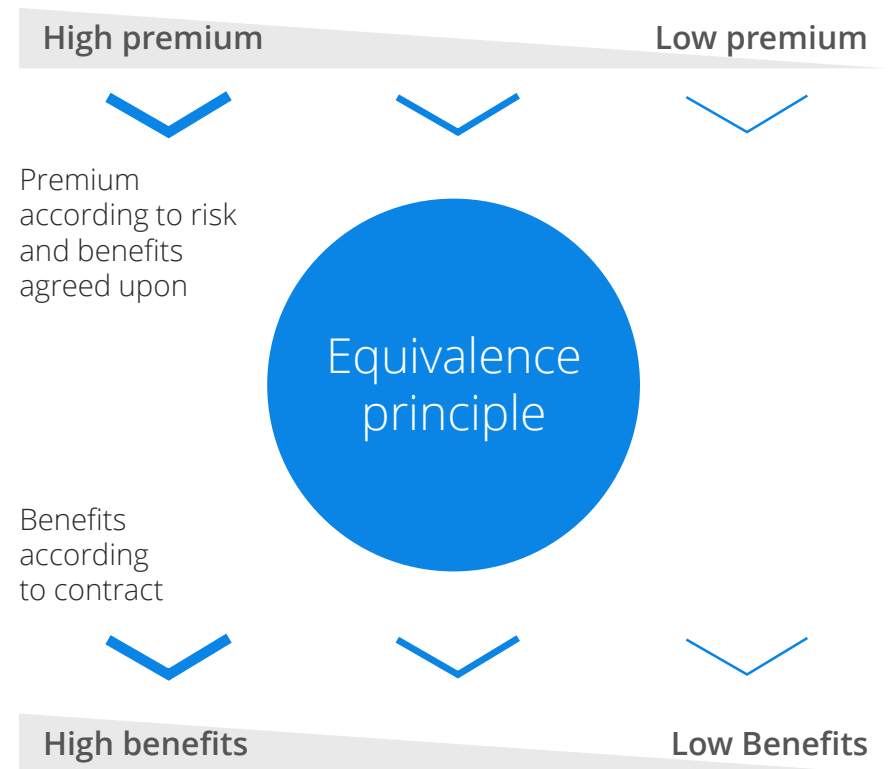
Total spending on healthcare in Italy is slightly increasing

Healthcare system overview: spending (1/4)

Health expenditure in billion €

+2.9%[1]

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
93.9	100.9	106.2	109.2	118.6	124.6	131.0	131.4	139.7	141.2	143.7	144.7	144.5	143.6	146.2	148.0	149.5

In 2016, Italy spent 8.9% of GDP on healthcare

Healthcare system overview: spending (2/4)

Spending on healthcare in % of GDP

Year	Value
2000	7.6
2001	7.8
2002	7.9
2003	7.9
2004	8.2
2005	8.4
2006	8.5
2007	8.2
2008	8.6
2009	9.0
2010	9.0
2011	8.8
2012	9.0
2013	9.0
2014	9.0
2015	9.0
2016	8.9

9.0% of GDP OECD average 2016
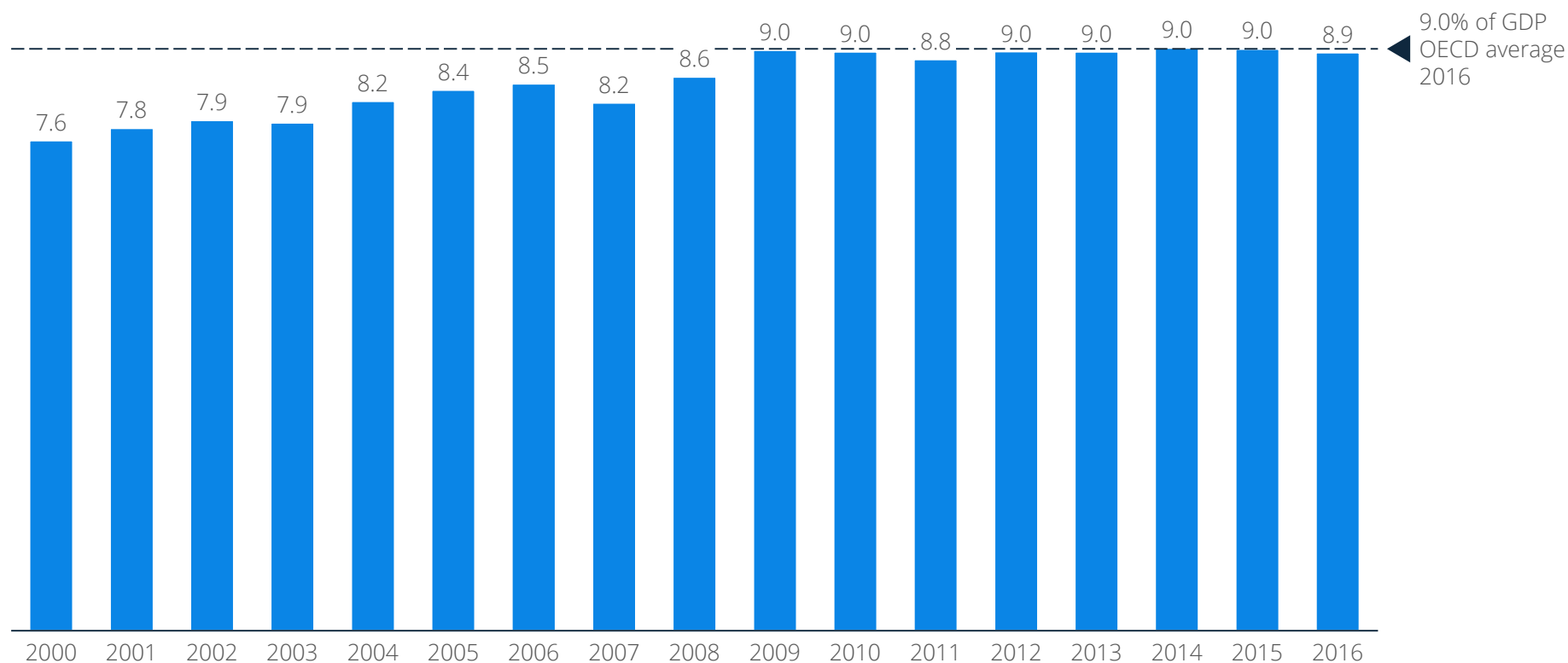
Italy's healthcare spending per capita is below the OECD average

Healthcare system overview: spending (3/4)

Healthcare spending per capita in €

€3,624
OECD Average 2016

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1,650	1,771	1,862	1,906	2,056	2,149	2,253	2,248	2,375	2,389	2,424	2,436	2,427	2,385	2,404	2,437	2,464
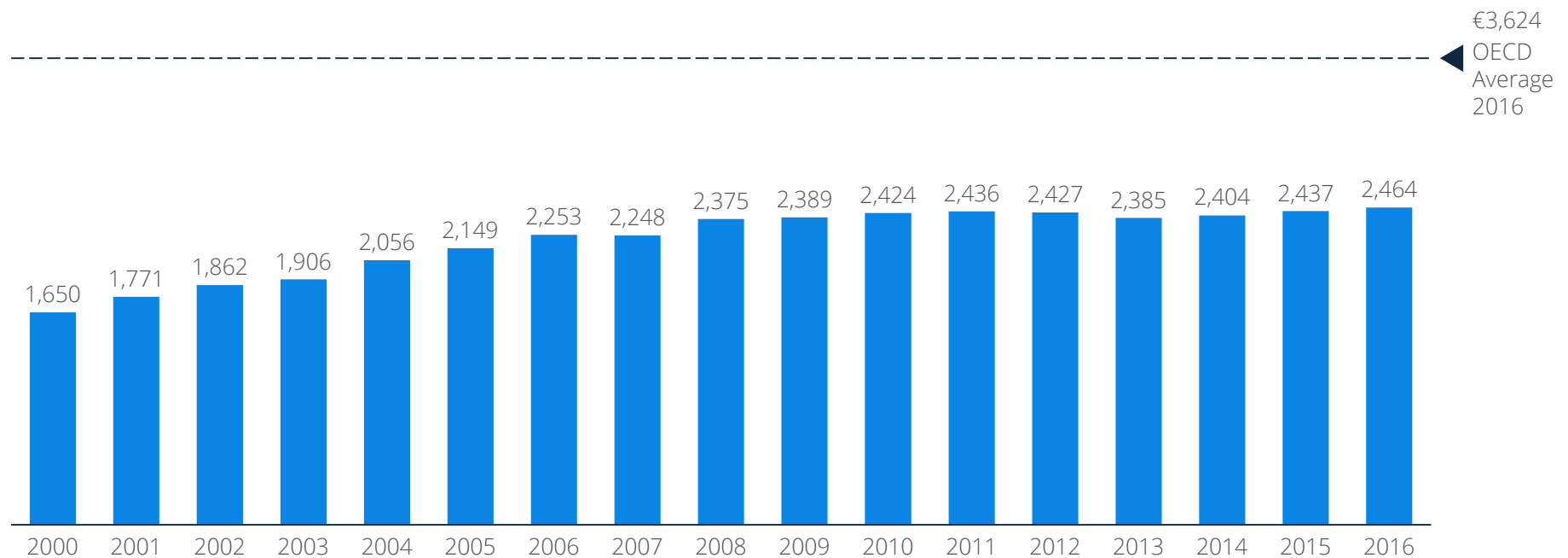
74.9% of Italian per-capita spending comes from compulsory health insurance

Healthcare system overview: spending (4/4)

Healthcare spending per capita in €

■ Government / Compulsory   ■ Voluntary / Out-of-pocket payments

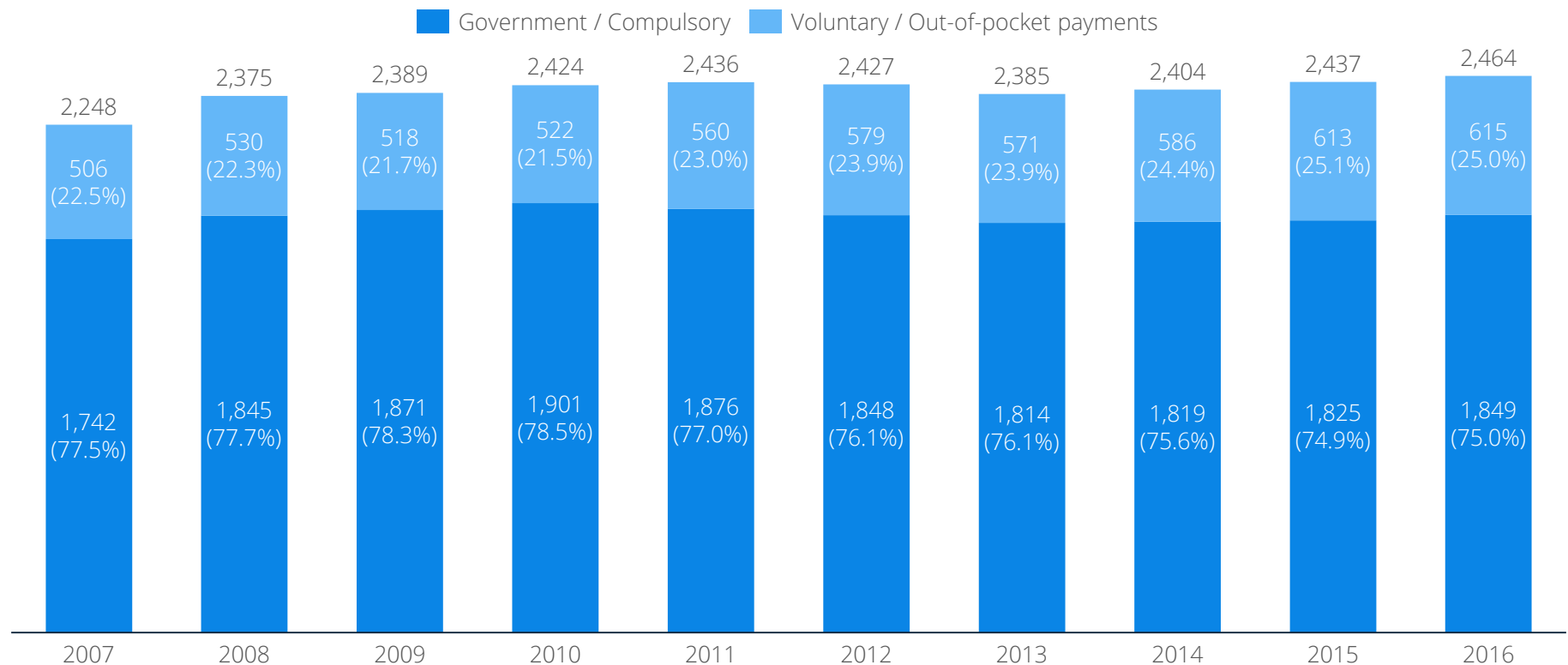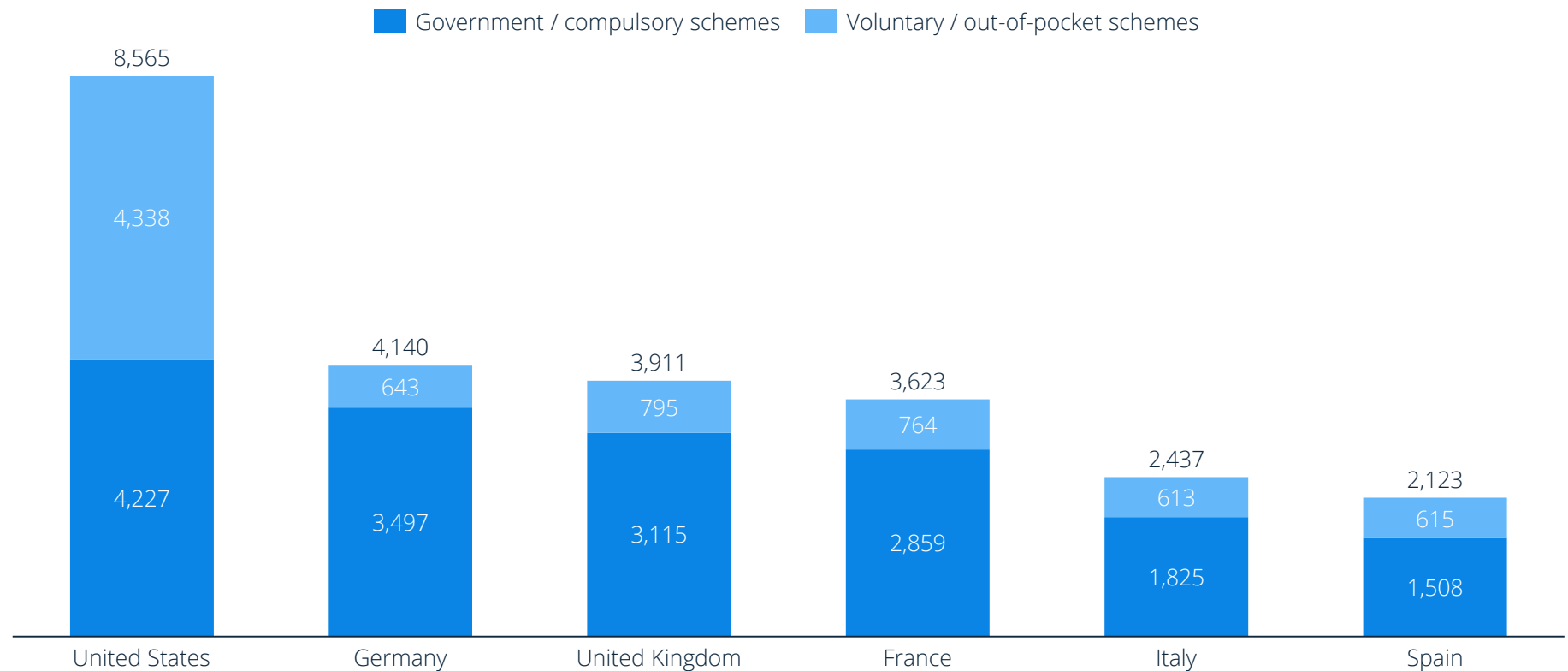|	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total	2,248	2,375	2,389	2,424	2,436	2,427	2,385	2,404	2,437	2,464
Voluntary / Out-of-pocket	506 (22.5%)	530 (22.3%)	518 (21.7%)	522 (21.5%)	560 (23.0%)	579 (23.9%)	571 (23.9%)	586 (24.4%)	613 (25.1%)	615 (25.0%)
Government / Compulsory	1,742 (77.5%)	1,845 (77.7%)	1,871 (78.3%)	1,901 (78.5%)	1,876 (77.0%)	1,848 (76.1%)	1,814 (76.1%)	1,819 (75.6%)	1,825 (74.9%)	1,849 (75.0%)

Note: Data in current prices; 2016 estimated values
Source: OECD

Italy's health spending per capita is low compared to other European countries

Healthcare system overview: country comparison (1/2)

Healthcare spending per capita in 2015 in €

■ Government / compulsory schemes　■ Voluntary / out-of-pocket schemes

	United States	Germany	United Kingdom	France	Italy	Spain
Total	8,565	4,140	3,911	3,623	2,437	2,123
Voluntary / out-of-pocket	4,338	643	795	764	613	615
Government / compulsory	4,227	3,497	3,115	2,859	1,825	1,508

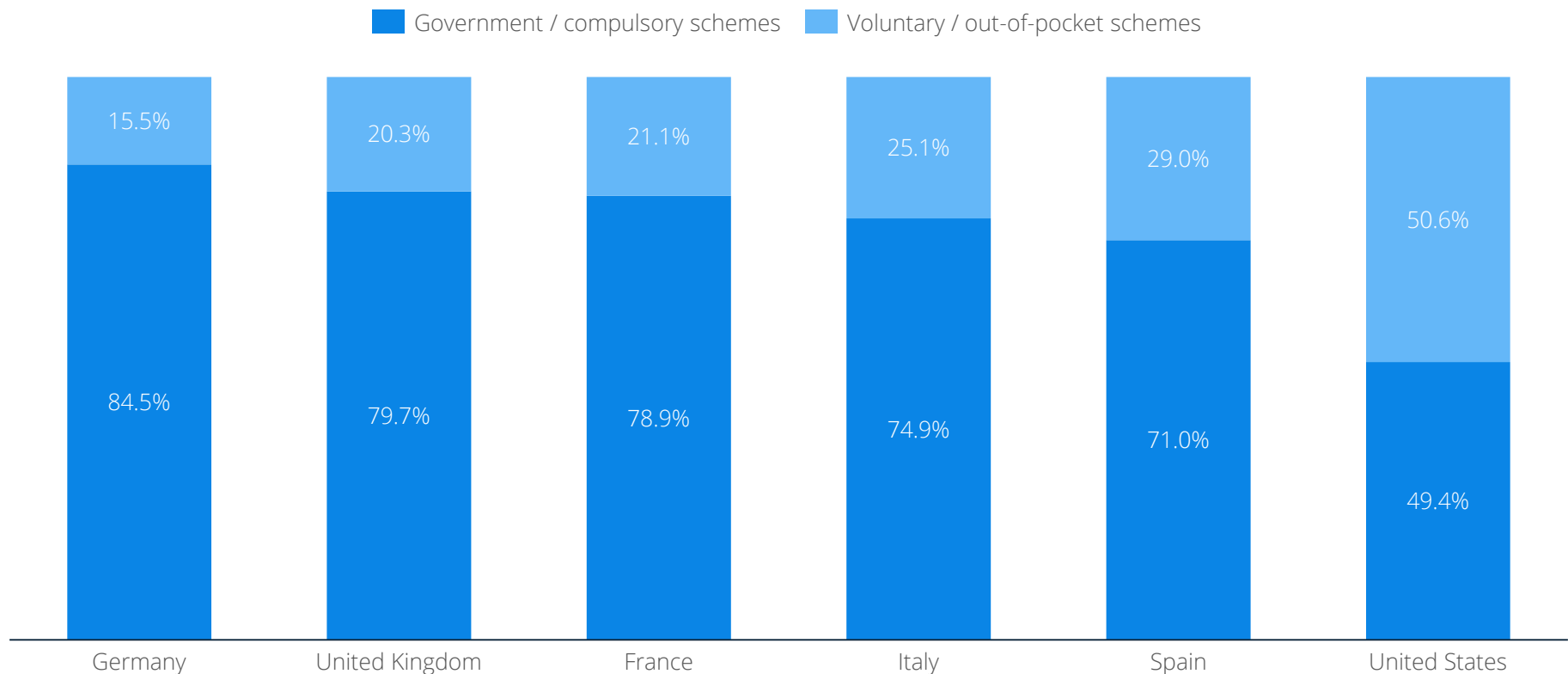Note: Data for the UK (GBP/EUR 1.3771) and the U.S. (USD/EUR 0.9009) converted according to the average exchange rate for 2015
Source: OECD, Oanda

Around 25% of healthcare spending per capita comes from voluntary insurances or private spending in Italy

Healthcare system overview: country comparison (2/2)

Share of healthcare spending per capita by source in 2015 in €

■ Government / compulsory schemes   ■ Voluntary / out-of-pocket schemes

|	Germany	United Kingdom	France	Italy	Spain	United States
Voluntary / out-of-pocket schemes	15.5%	20.3%	21.1%	25.1%	29.0%	50.6%
Government / compulsory schemes	84.5%	79.7%	78.9%	74.9%	71.0%	49.4%

Note: Data for the UK (GBP/EUR 1.3771) and the U.S. (USD/EUR 0.9009) converted according to the average exchange rate for 2015
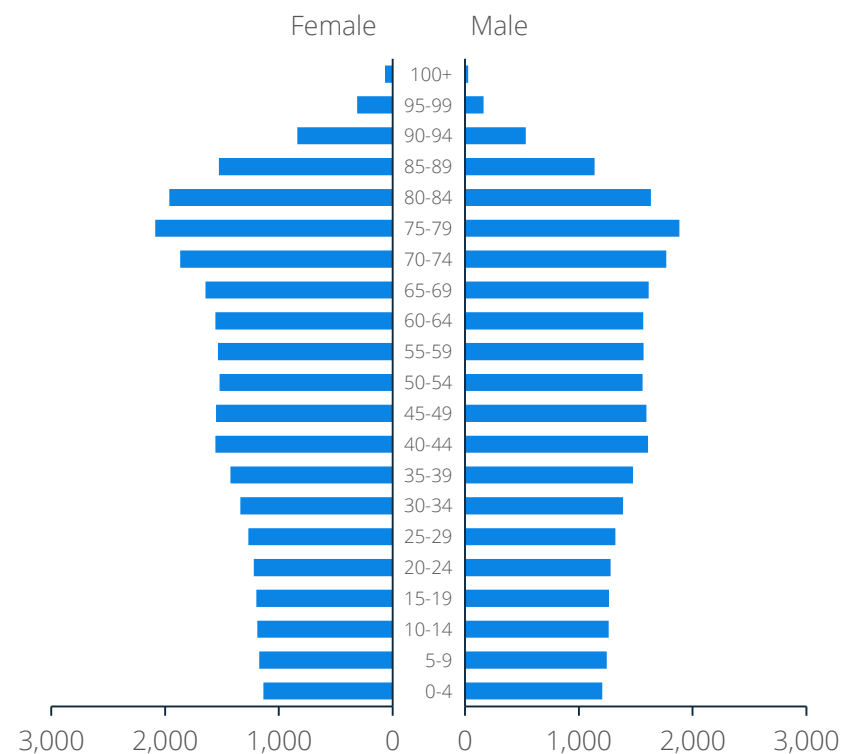Source: OECD, Oanda

The Italian population will be increasingly older

Population health status: age demographics (1/2)
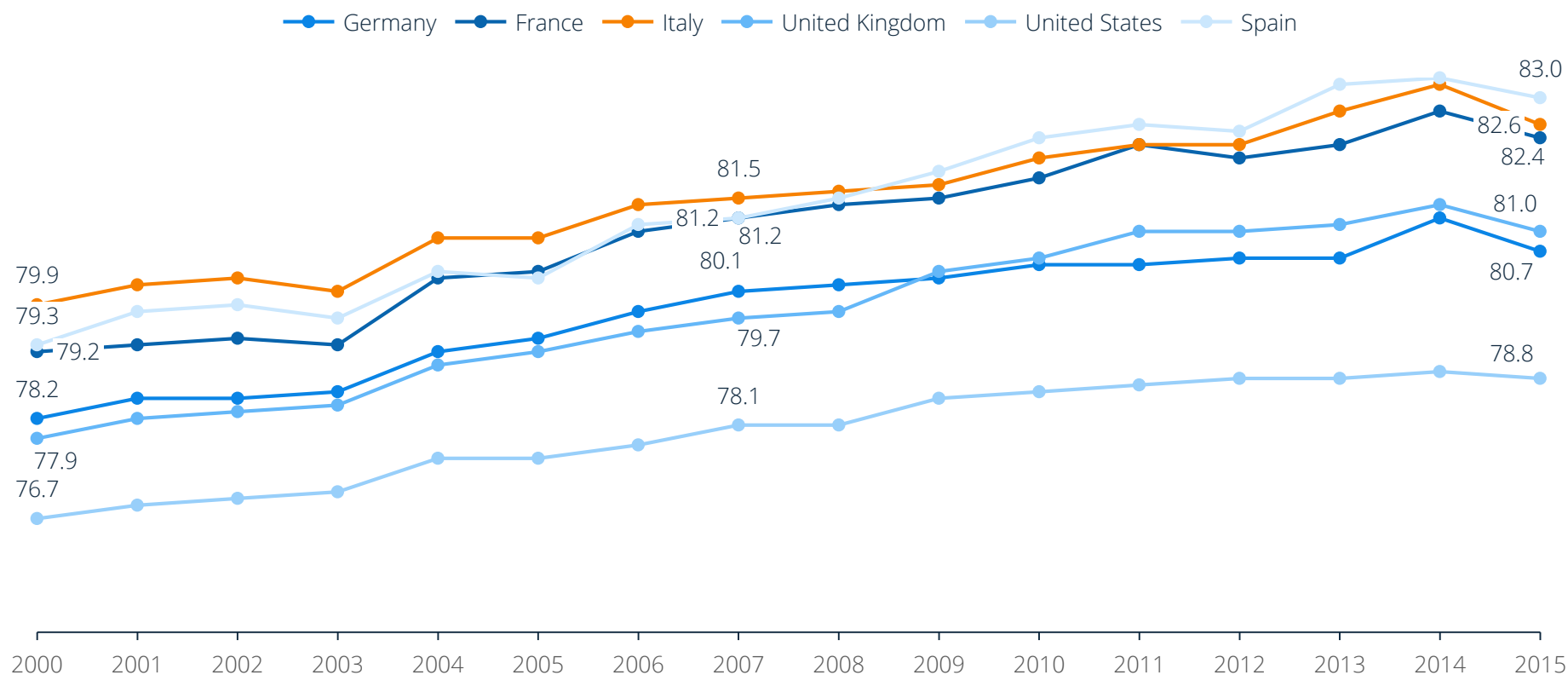
Population per age group in thousand in 2015

Population per age group in thousand in 2050

Source: UN Department of Economic and Social Affairs
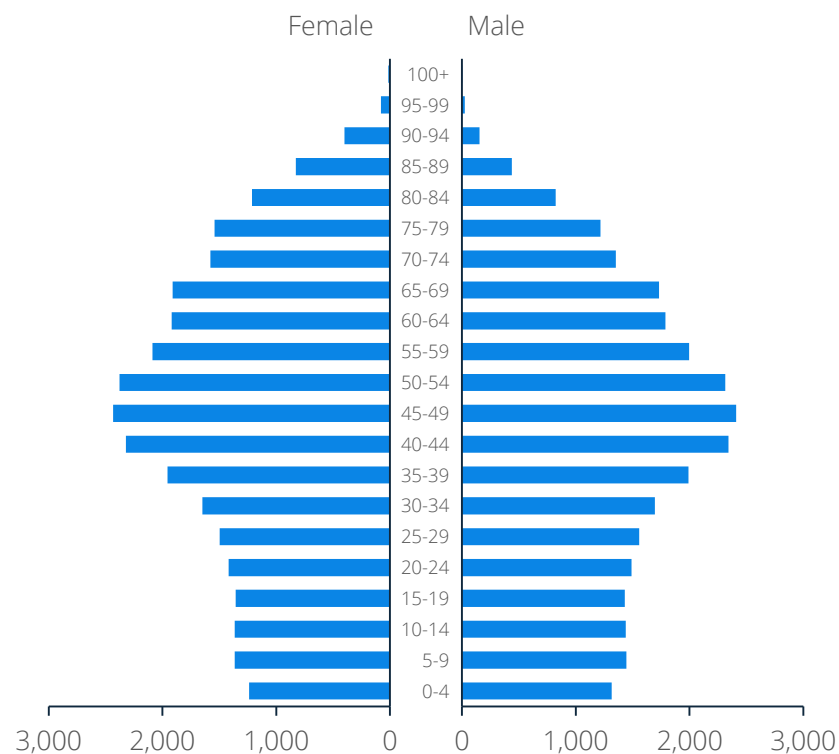
Italy shows a comparably high life expectancy

Population health status: age demographics (2/2)

Life expectancy in years

Legend: Germany, France, Italy, United Kingdom, United States, Spain

Years: 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015

Data labels: 79.9, 79.3, 79.2, 78.2, 77.9, 76.7, 81.5, 81.2, 81.2, 80.1, 79.7, 78.1, 83.0, 82.6, 82.4, 81.0, 80.7, 78.8

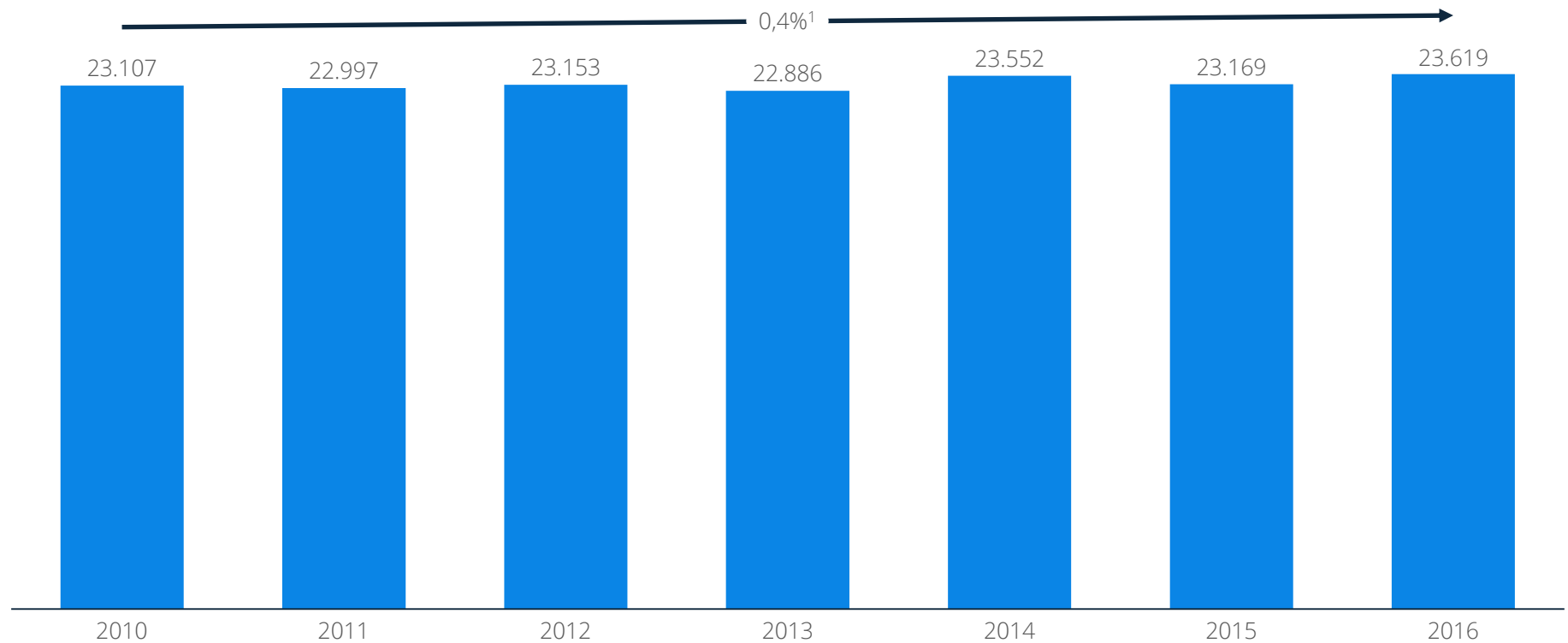Source: OECD

The total number of people with chronic diseases is slightly increasing

Population health status: illness & disease (1/2)

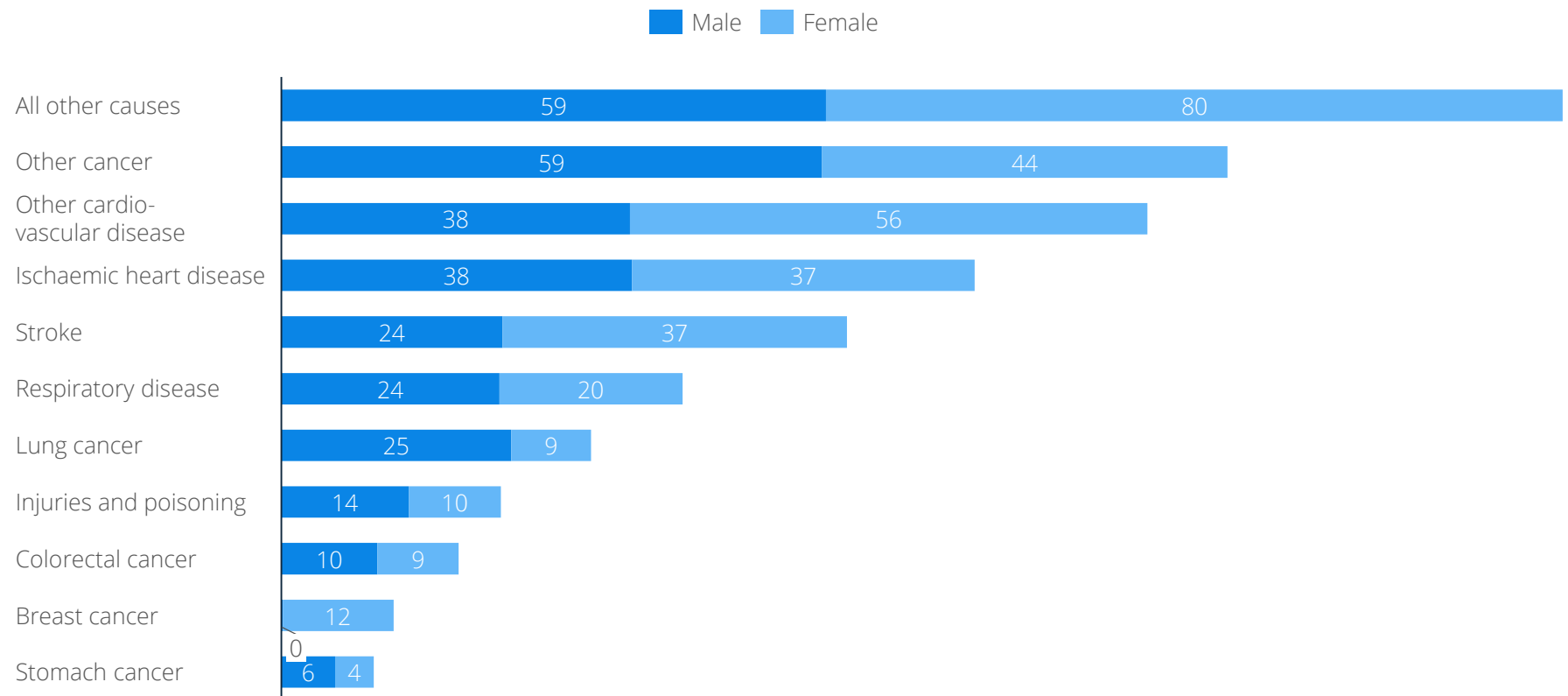**Total number of people affected by at least one chronic disease in thousand**

0,4%[1]

2010	2011	2012	2013	2014	2015	2016
23.107	22.997	23.153	22.886	23.552	23.169	23.619

Ischaemic heart disease is one of the major causes for death in Italy

Population health status: illness & disease (2/2)

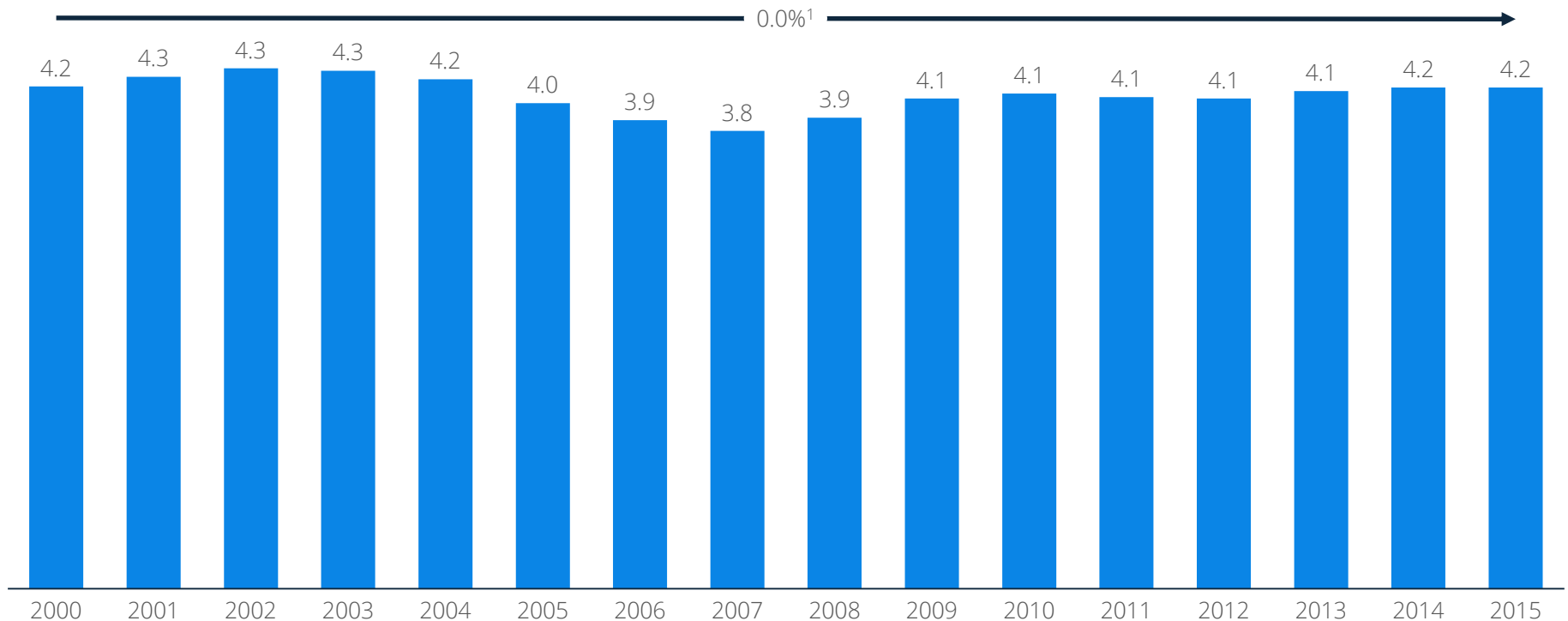**Number of deaths in 2012 by cause in thousand**

■ Male ■ Female

Cause	Male	Female
All other causes	59	80
Other cancer	59	44
Other cardio-vascular disease	38	56
Ischaemic heart disease	38	37
Stroke	24	37
Respiratory disease	24	20
Lung cancer	25	9
Injuries and poisoning	14	10
Colorectal cancer	10	9
Breast cancer	0	12
Stomach cancer	6	4

Source: European Heart Network

Though volatile, overall physician density remains stable in Italy

Population health status: healthcare resources (1/2)

Physician density[2] per 1,000 inhabitants in head counts

0.0%[1]

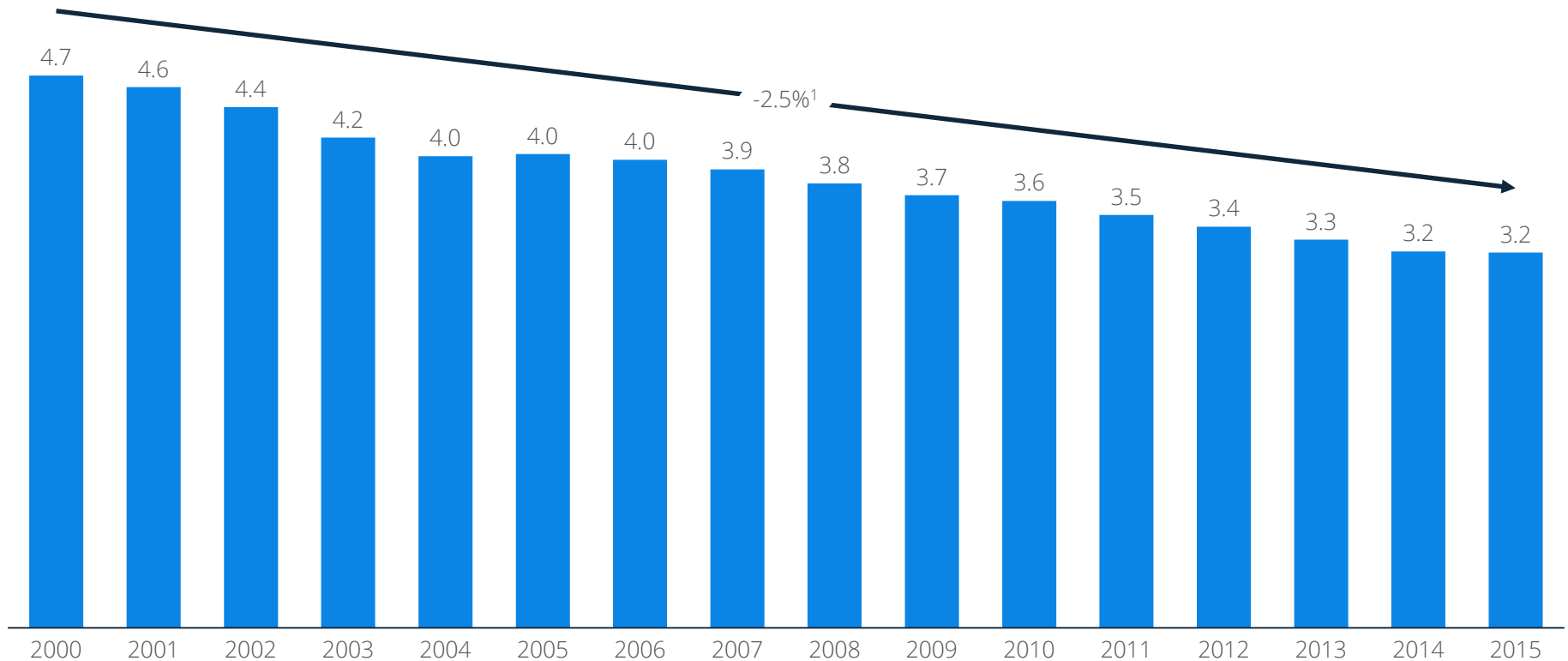| 2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
4.2	4.3	4.3	4.3	4.2	4.0	3.9	3.8	3.9	4.1	4.1	4.1	4.1	4.1	4.2	4.2

1: CAGR: Compound Annual Growth Rate / average growth rate per year 2: Professionally active physicians including practicing physicians and other physicians for whom their medical education is a prerequisite for the execution of the job
Source: OECD

The number of hospital beds per 1,000 inhabitants is decreasing in Italy

Population health status: healthcare resources (2/2)

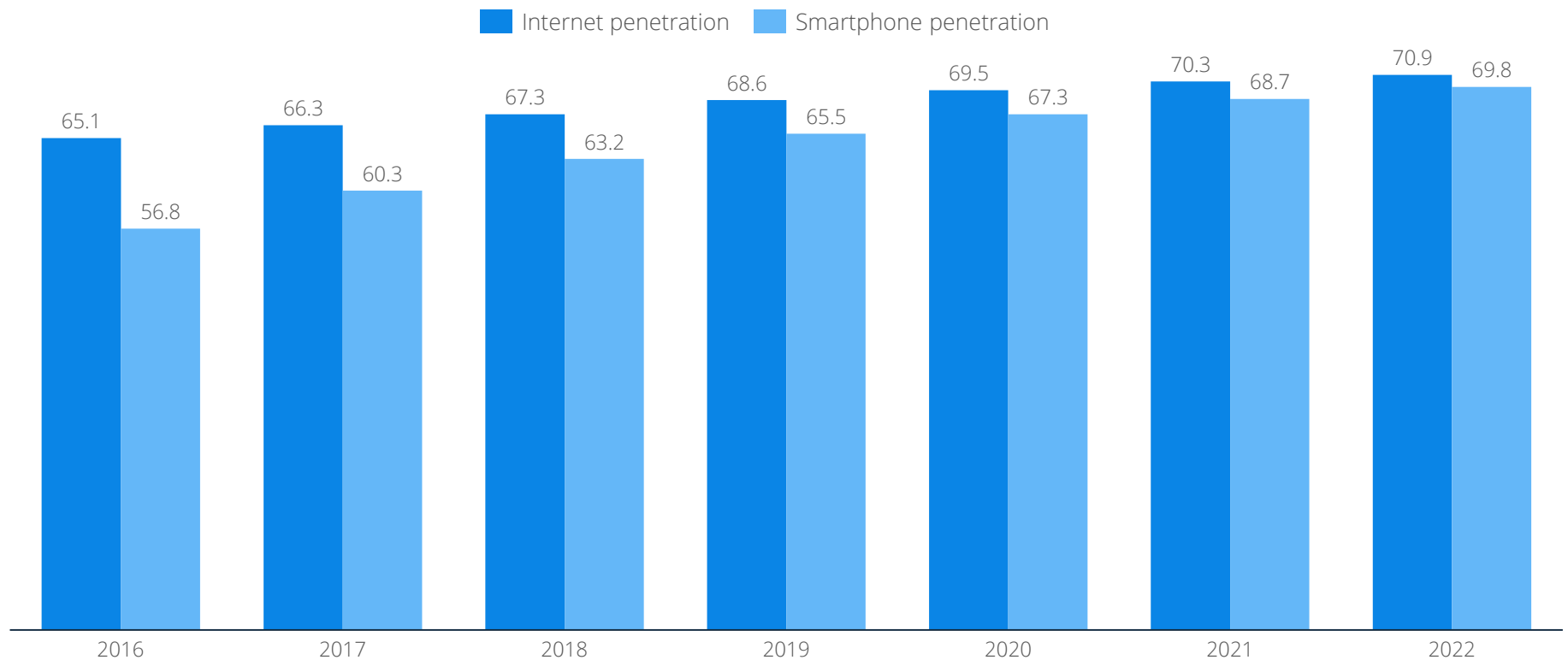**Number of hospital beds per 1,000 inhabitants in head counts**

-2.5%[1]

Year	Value
2000	4.7
2001	4.6
2002	4.4
2003	4.2
2004	4.0
2005	4.0
2006	4.0
2007	3.9
2008	3.8
2009	3.7
2010	3.6
2011	3.5
2012	3.4
2013	3.3
2014	3.2
2015	3.2

Italian internet penetration is expected to grow, with smartphone penetration catching up

Digital infrastructure: technology penetration (1/2)

Internet and smartphone penetration in %

Legend: Internet penetration | Smartphone penetration

Year	Internet penetration	Smartphone penetration
2016	65.1	56.8
2017	66.3	60.3
2018	67.3	63.2
2019	68.6	65.5
2020	69.5	67.3
2021	70.3	68.7
2022	70.9	69.8

People in Italy have more than one cellular subscription

Digital infrastructure: technology penetration (2/2)

Mobile cellular subscriptions and fixed broadband subscriptions per 100 capita

— Fixed broadband subscriptions   — Mobile cellular subscriptions

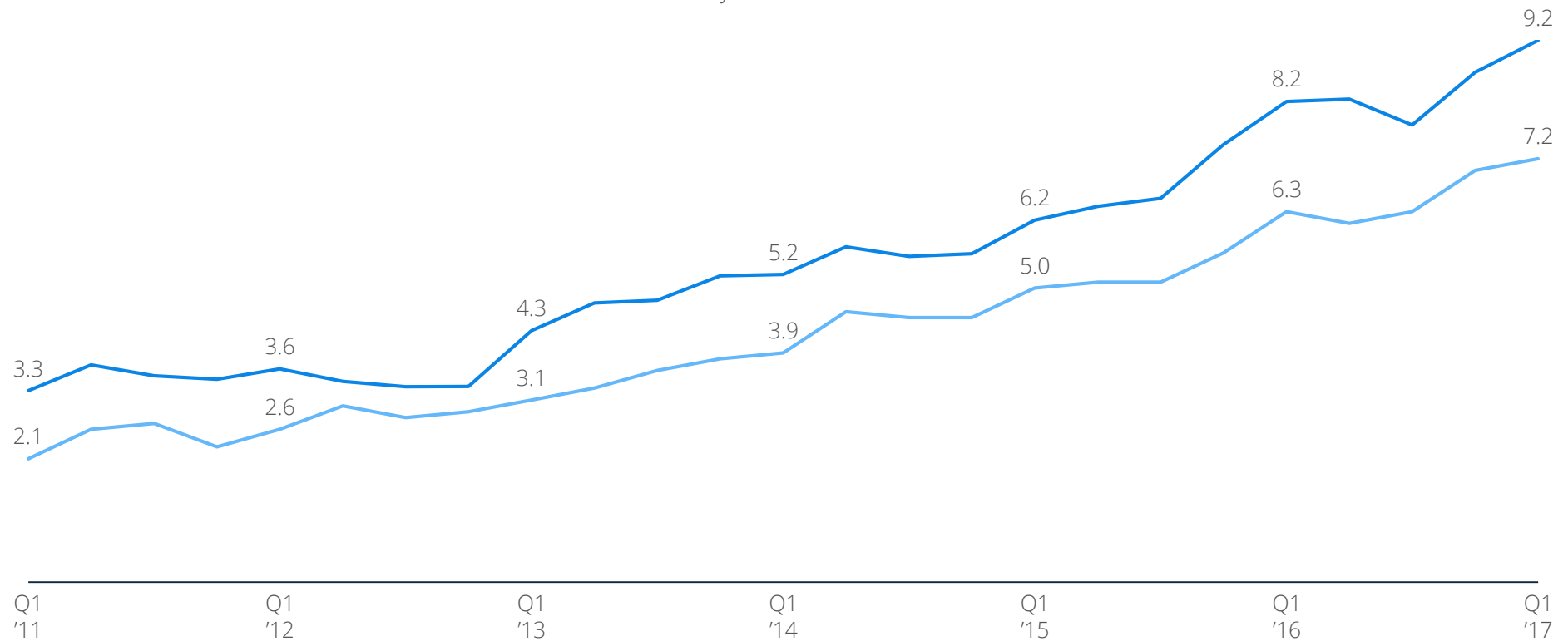Source: Statista Digital Market Outlook 2018, Worldbank
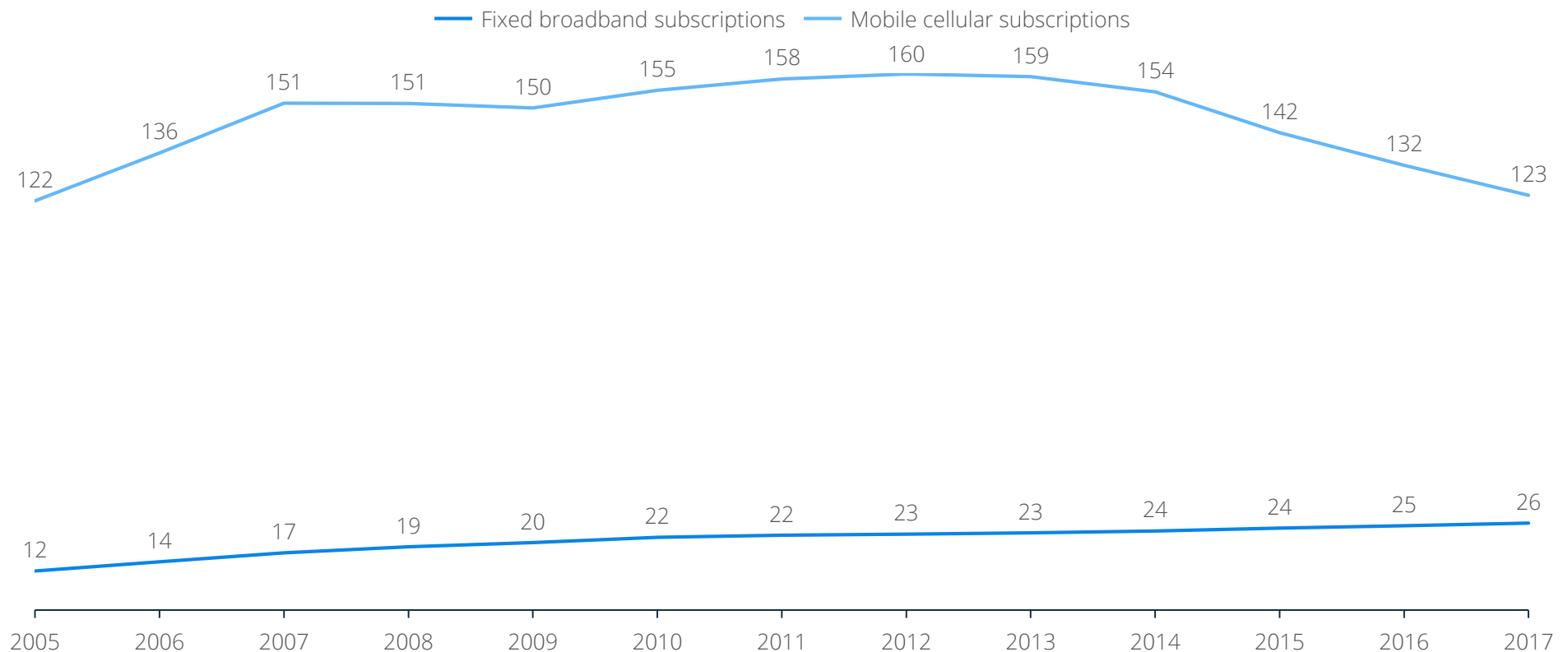
Italian internet connection speed is constantly rising and exceeding 9,000 Kbit/s

Digital infrastructure: connectivity

Average transmission speed of internet connections in Mbit/s

— Italy   — worldwide

Italy: 3.3 3.6 4.3 5.2 6.2 8.2 9.2
worldwide: 2.1 2.6 3.1 3.9 5.0 6.3 7.2

Q1 '11   Q1 '12   Q1 '13   Q1 '14   Q1 '15   Q1 '16   Q1 '17

Source: Akamai Technologies

FITNESS

The Fitness segment includes apps and wearables that measure and analyze physical activity or body functions.

In this chapter, the current market size, trends and expected developments of the Fitness market will be discussed. Also, an overview of selected wearables will be presented.

Customers benefit from information about their bodies to reach fitness goals

Fitness: segment overview

There are different ways in which customers can benefit from Fitness wearables/trackers and Fitness apps. Fitness **wearables measure and analyze physical activity** or body functions. They are usually combined with an app to give valuable insights into an individual's fitness. These insights can help users to understand their body better and support them in reaching specific fitness goals, for example losing weight, by tracking calories or calculating burned calories with a tracker.

An activity tracker that counts steps can also **motivate** people of average fitness to reach a certain target (e.g. 10,000 steps a day). It can also help **increase everyday activities** by **encouraging** the user to take the stairs instead of the lift, for example.

In the end, everyone who exercises can benefit. Wearables are **handy** and give an **overview of current vital signs**. It is thus more practical and less bulky to use wristwear to get real-time insights into current health data while exercising, than to carry a smartphone. Apps and wearables have features that allow for **tracking progress and setting fitness achievements**. This keeps users motivated and helps them enjoy exercising even more.

Wearable tech is not only appealing to athletes, in fact it is also beneficial for people **with health concerns,** since it gives valuable medical information (e.g. heartrate) and improves **clinical knowledge.**
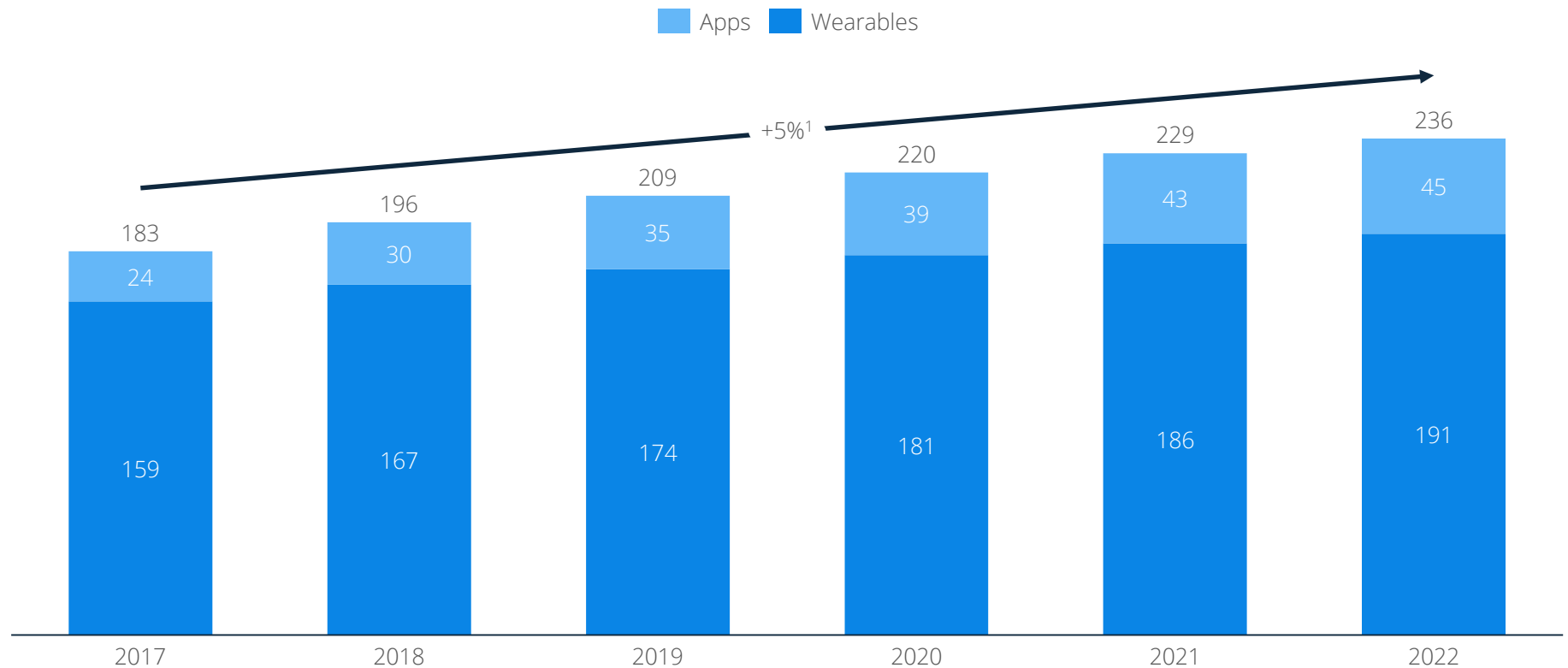
Key takeaways

- Revenue in the Fitness segment amounts to €183 million in 2017

- Revenue is expected to show an annual growth rate (CAGR[1] 2017-2022) of 5.3%, resulting in a market volume of €236 million by 2022

- The average revenue per user amounts to €21 in 2017

- From an international perspective, most revenue will be generated in the U.S. (€3,907 million by 2022)

Source: Statista Digital Market Outlook 2018

Revenues of Fitness products are increasing at a CAGR[1] of 5%

Fitness: market size and future developments (1/3)

Revenue in million €

Legend: Apps, Wearables

Year	Total	Apps	Wearables
2017	183	24	159
2018	196	30	167
2019	209	35	174
2020	220	39	181
2021	229	43	186
2022	236	45	191

+5%[1]

Germany shows a high user growth in Fitness Apps

Fitness: market size and future developments (2/3)

Users in million

Segment	2017	2018	2019	2020	2021	2022	CAGR[1] 17 – 22
Wearables	2.9	3.0	3.1	3.2	3.2	3.3	2.5%
Apps	1.6	1.9	2.2	2.4	2.6	2.8	11.8%

Wearables show a significantly higher average revenue per user than Apps

Fitness: market size and future developments (3/3)

Average revenue per user in €

Apps Wearables

	2017	2018	2019	2020	2021	2022
Apps	15	15	16	16	16	16
Wearables	55	55	56	57	57	58

Source: Statista Digital Market Outlook 2018
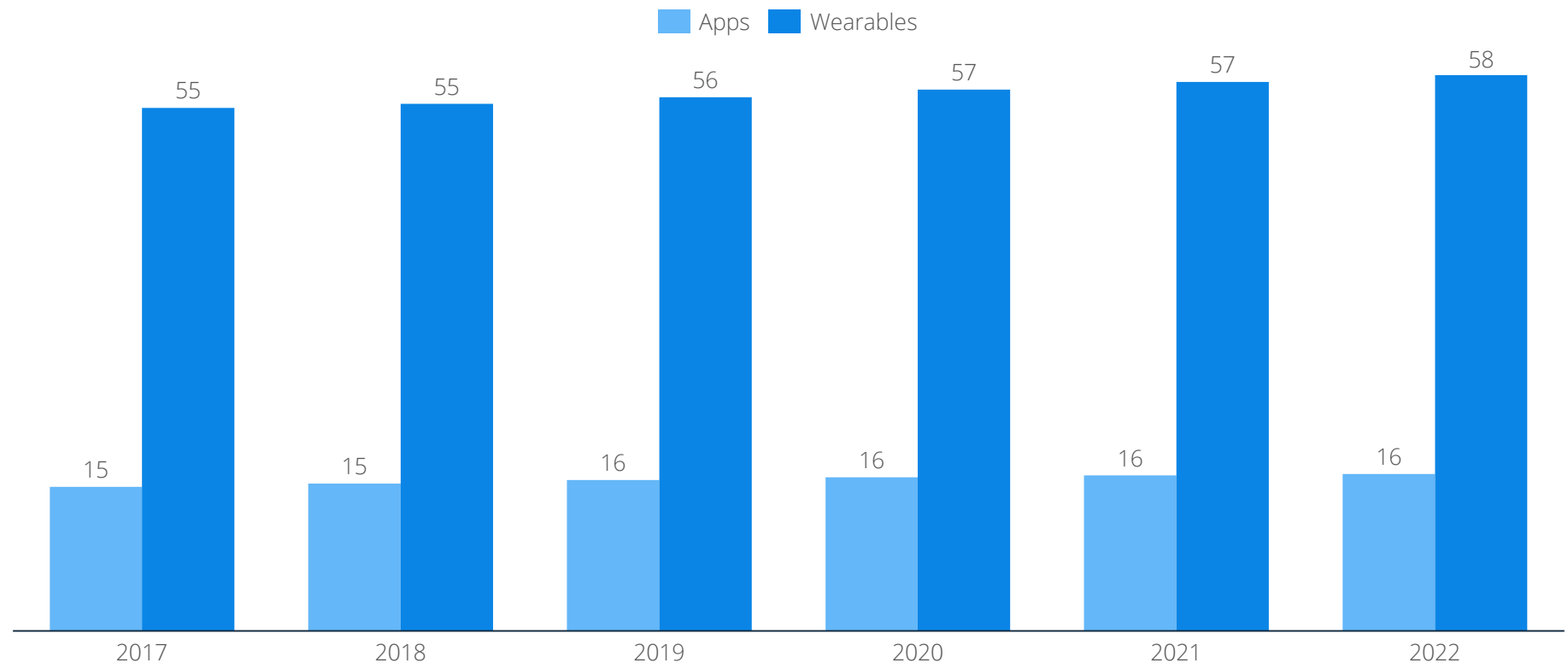
Athos designs workout apparel that measures body functions and muscle activity

Deep dive: fitness wearables (1/2)

Athos - smart clothes

Athos designs training clothes that are woven with micro-EMG sensors. They detect which muscles are working and transfer this workout data to a smartphone via a Bluetooth core. The clothes use machine learning to provide insights specific to every athlete's muscle composition and strength, called muscle-activity-based feedback.

Under Armour - smart shoes

Via a sensor these shoes track, analyze & store running metrics and synchronize with Under Armour's MapMyRun App. Additionally to measuring the distance covered, speed or time, the shoes can measure muscle fatigue by a so called "jump test". Based on this information, the runner receives recommendations on how to train that day.

Source: Company Information

Wearable X launches mobile-connected yoga pants that guide users through yoga exercises

Deep dive: fitness wearables (2/2)

Sensoria – running socks

Sensoria launched smart running socks in order to help analyze and improve people's running behavior. Pressure sensors integrated in the plantar area of the socks record cadence, foot-landing, pace as well as distance, and transmit this data to the electronic anklet which is attached to the sock. As the anklets are connected to a mobile app, the runner is able to track, store and analyze the gathered data.

Wearable X - Nadi X yoga pants

The Nadi X yoga pants are Bluetooth-enabled fitness clothes with pulse sensors on the hips, knees and ankles. The embedded sensors release soft vibrations to guide, instruct and facilitate yoga exercises. The yoga practitioner can use the Nadi X mobile app, which is connected to the sensors via Bluetooth to adjust impulse frequency and intensity in order to optimize movements and hold yoga postures. The mobile app offers 30 different yoga exercises that are connected with the smart pants.

Source: Company Information

AMBIENT ASSISTED LIVING

The Ambient Assisted Living segment includes products and devices that help care-dependent people to manage their household activities on their own.

In this chapter, the current market size, trends and expected developments of the Ambient Assisted Living market will be discussed. Also, the further impact of robotics and artificial intelligence will be presented.

Sales potential of AAL products is forecast to be €33 million by 2022

Ambient Assisted Living: segment overview

Ambient Assisted Living (AAL) helps elderly people, but also people with special needs, to **manage their household activities** better on their own. It is ideal for people who require monitoring in general, including e.g. children and chronically ill people. The trend is part of the eHealth sector since the respective devices track the user's health data at home. Furthermore, it can be seen as the **smart home part of eHealth,** as AAL products usually aim at providing assistance in a domestic context.

For the depicted calculations the following elements were considered: Devices include **pressure mats** that detect if a person has fallen and check whether he or she gets up again, as well as **emergency buttons** that are either attached to walls or worn on the body. With these buttons, users can notify emergency services whenever needed without having to dial a telephone number. In addition to these hardware devices, the **underlying services for elderly monitoring** and on-demand contacts are also part of the market. Devices not connected to the internet are not part of AAL.

Driven by the rising number of elderly people in society and an ever higher adaption of smart home devices, **AAL becomes increasingly important**. While in the current stage of the AAL market products focus on help in case of emergency, integrated home automatization and robotics, which aim to enable an independent life as long as possible, will become more relevant in the future.
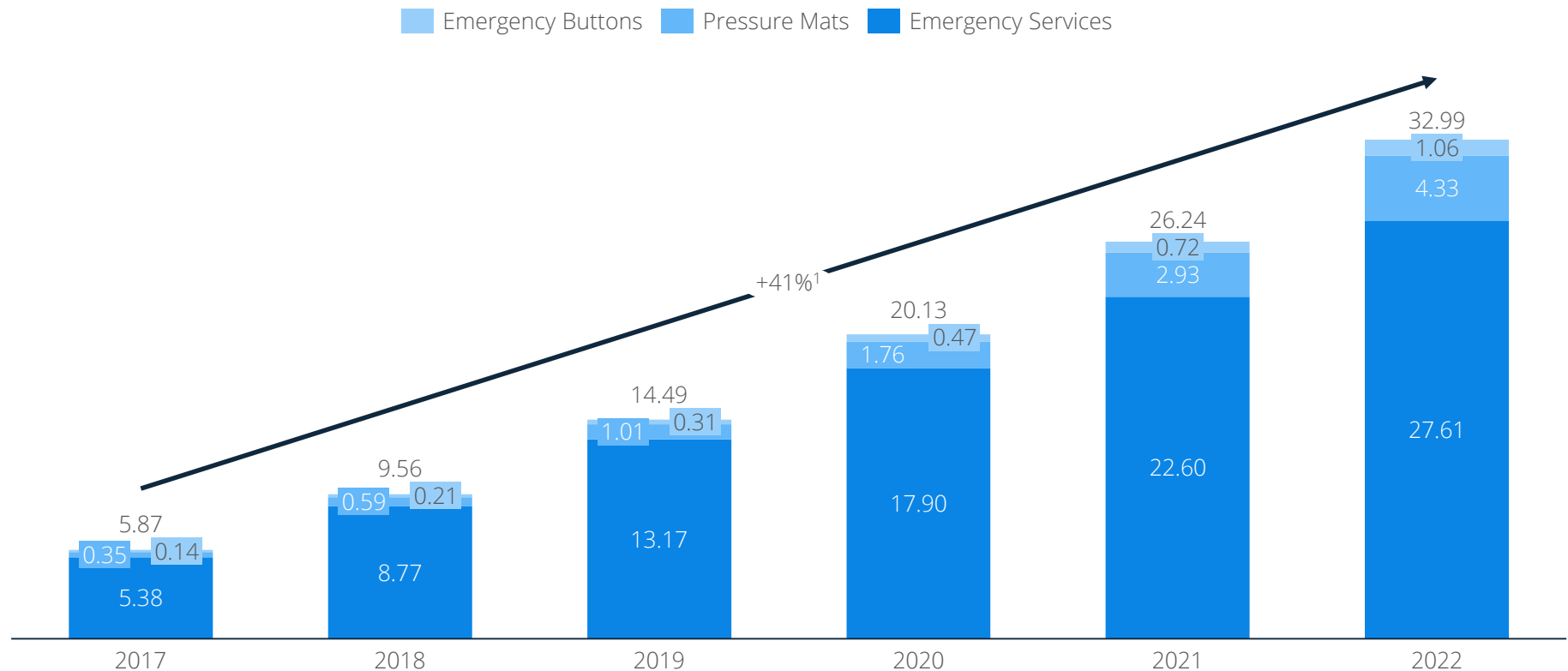
Key takeaways

- Revenue in the Ambient Assisted Living (AAL) segment amounts to €6 million in 2017

- Revenue is expected to show an annual growth rate (CAGR[1] 2017-2022) of 41.2%, resulting in a market volume of €33 million by 2022

- The average revenue per Smart Home is the highest for Emergency Services with €1,005 in 2017

- From an international perspective, most revenue will be generated in the U.S. (€1,800 million by 2022)

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

Revenues of AAL products will significantly increase at a CAGR[1] of 41%

Ambient Assisted Living: market size and future developments (1/3)

Revenue in million €

■ Emergency Buttons ■ Pressure Mats ■ Emergency Services

+41%[1]

Year	2017	2018	2019	2020	2021	2022
Total	5.87	9.56	14.49	20.13	26.24	32.99
Emergency Buttons	0.14	0.21	0.31	0.47	0.72	1.06
Pressure Mats	0.35	0.59	1.01	1.76	2.93	4.33
Emergency Services	5.38	8.77	13.17	17.90	22.60	27.61

Ambient Assisted Living is expected to experience high growth

Ambient Assisted Living: market size and future developments (2/3)
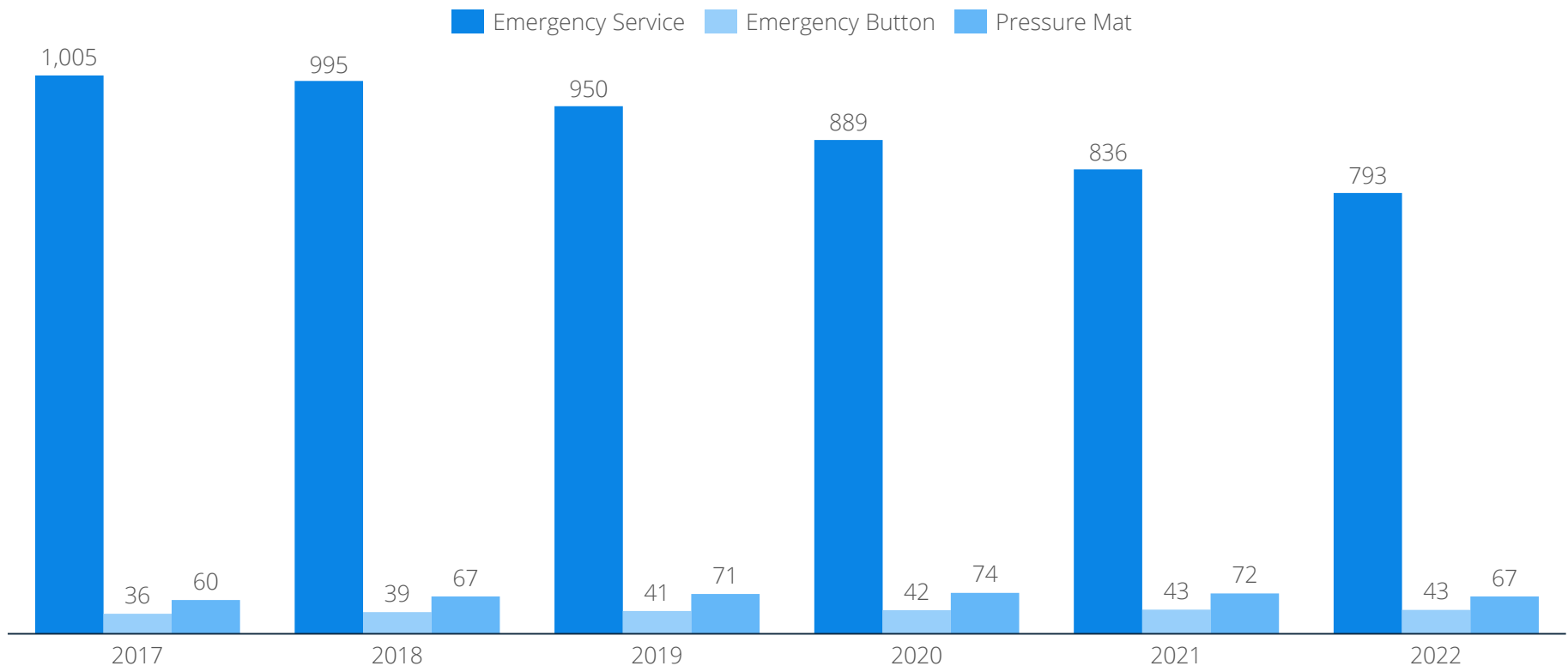
Homes with AAL functionalities in thousand

Segment	2017	2018	2019	2020	2021	2022	CAGR[1] 17 – 22
Pressure Mats	5.9	8.8	14.1	23.9	40.5	64.6	61.6%
Emergency Buttons	4.0	5.3	7.5	11.0	16.5	24.8	44.3%
Emergency Services	5.3	8.8	13.9	20.1	27.0	34.8	45.4%

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

Emergency Services generate the highest revenue per home due to regular fees

Ambient Assisted Living: market size and future developments (3/3)

Average revenue per home with AAL functionalities in €

Legend: ■ Emergency Service ■ Emergency Button ■ Pressure Mat

Year	Emergency Service	Emergency Button	Pressure Mat
2017	1,005	36	60
2018	995	39	67
2019	950	41	71
2020	889	42	74
2021	836	43	72
2022	793	43	67

Source: Statista Digital Market Outlook 2018

# Robotics will play an important role in the future AAL market

Deep dive: robotics and artificial intelligence in elderly care

While at the moment the focus in the AAL market lies with advanced home automation and emergency concepts, **robotic technology** will play an important role in the lives of elderly people in the near future. Robotic devices already exist in the broader smart home context and are also applied within **elderly care**, for example in the form of electrically powered mobility aids that automatically slow down when walking downhill, or household appliances like robotic vacuum cleaners. These technologies are going to be **more advanced** to satisfy a variety of needs in the future.

The concept of **Artificial Intelligence (AI)** is closely linked to the topic of robotics. The potential of AI within healthcare is huge. There is already an increasing amount of start-ups using AI. In future times, these systems might be used in **population health management**, for the reduction of drug discovery times and also for digital smart avatars capable of answering questions.

Chatbots are also part of AI. Patients in need of a quick diagnosis can ask chatbots, which are able to automate conversations. Hence, patients may use chatbots to check symptoms as well as treatment options, remind their owners about appointments, arrange transport like cabs or remind them to take their medicine.

Serious advancements have been observed in the development of complex **robotic devices to fulfill the needs of elderly people**. With „Pillo", one of the first home health robots is being developed. He helps people of all ages to better manage their health. He can answer
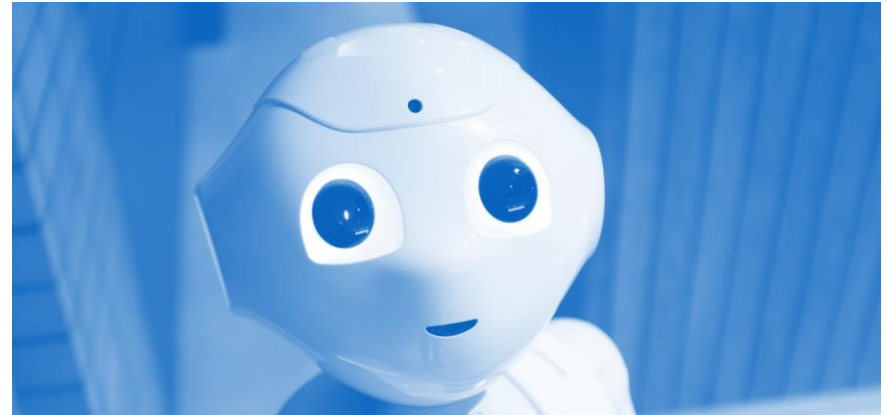
health and wellness questions, connect directly with healthcare professionals, and securely manage vitamins and medication; storing, dispensing, and ordering refills when needed. His functionalities grow as he learns about the user and other household members. The robot is still in funding phase.

In view of the ageing population, robotics could fill the gap in the nursing workforce in the long run. Japan, for example, is planning to spread acceptance of robotic aid among care recipients and the German Fraunhofer-Institut is developing and testing the Care-O-bot – a mobile robotic assistant that is designed to **assist people in domestic environments or support healthcare staff**.

Source: techemergence.com, theguardian.com, care-o-bot.de, pillohealth.com

ONLINE PHARMACY & PERSONAL CARE

The Online Pharmacy & Personal Care segment includes the sale of medical, pharmaceutical and cosmetic products via a digital channel, for example via online pharmacies.

In this chapter, the current market size, trends and expected developments of the market will be discussed. Also, shop profiles of relevant online pharmacies will be presented.

eCommerce revenues from pharmaceutical and personal care products are rising

Online Pharmacy and Personal Care: segment overview

The ePharmacy and Personal Care segment contains the online sale of **medicine, cosmetics, and pharmaceutical and personal care** products (inclusive of prescription drugs for the private end user (B2C). The market segment also includes **medical products for private use** (e.g. blood pressure monitors, disinfectants, dressings).

Alongside medicines, this market segment also includes cosmetic, cleaning and care products, and nutrition. All monetary figures refer to the annual gross revenue and do not factor in shipping costs. Major sales channels are **online pharmacies** or **online shops** of drugstores and other individual traders (e.g. cvs.com, walmart.com).

Online sales of medication become **increasingly relevant** within the eHealth market. Consumers are able to buy medication and personal care products at lower prices, for instance **from abroad**. Retailers often offer discounts since they profit from higher margins. For older patients or people suffering from chronic diseases, who need their medicine regularly, it is more **convenient** to order it online.

Key takeaways

- Revenues in the segment ePharmacy & Personal Care amount to €605 million in 2017

- Revenue is expected to show an annual growth rate (CAGR[1] 2017-2022) of 13.9%

- The average revenue per user is €69 in 2017

- From an international perspective most revenue is generated in the United States (€31,682 million in 2017)

With a CAGR[1] of 14% up to 2022, Medication and Personal Care is a fast-growing eCommerce category

Online Pharmacy and Personal Care: market size and future developments (1/2)

Revenues of the ePharmacy and Personal Care Segment in million €
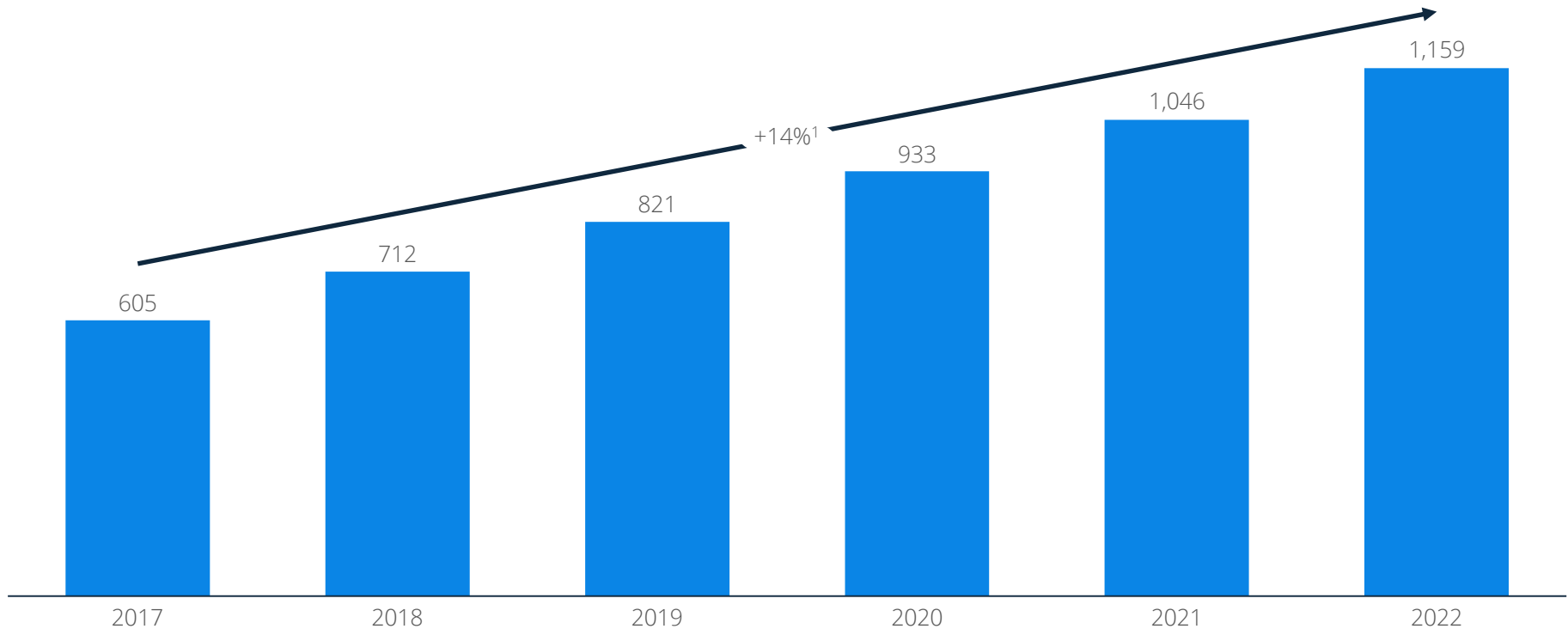
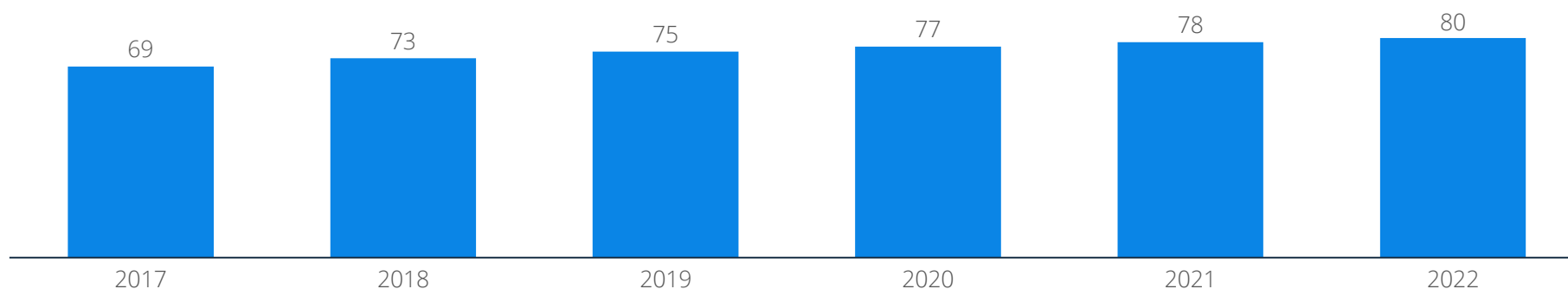| Year	Revenue
2017	605
2018	712
2019	821
2020	933
2021	1,046
2022	1,159

+14%[1]

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

The amount of people buying medication online is going to increase continuously

Online Pharmacy and Personal Care: market size and future developments (2/2)

Revenue per user in €

Year	Value
2017	69
2018	73
2019	75
2020	77
2021	78
2022	80

Users in million

Segment	2017	2018	2019	2020	2021	2022	CAGR[1] 17 – 22
Total	8.7	9.8	11.0	12.1	13.3	14.5	10.7%

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

farmae.it is one of the biggest Italian online players specialized in pharmaceutics

Shop profile: farmae.it

Key Facts

FARMAè
SALUTE E BENESSERE

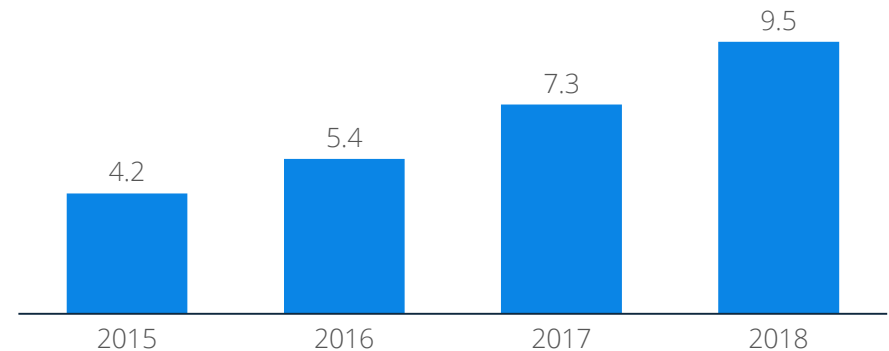|	
Headquarters:	Viareggio, Italy
Launch:	2012
Global eCommerce net sales '17:	€7.3 million
Main category:	Food & Personal Care

Global eCommerce net sales in million €

2015	2016	2017	2018
4.2	5.4	7.3	9.5

Background

farmae.it, operated by Farmaè Salute e Benessere, is an online store with nationally-focused sales. Its eCommerce net sales are generated almost entirely in Italy. With regards to the product range, farmae.it specializes in the Food & Personal Care category, particularly in the area of Medication and Personal Care. The website was launched in 2012.

Revenue split by categories in %

Medication and Personal Care

100

Source: ecommerceDB
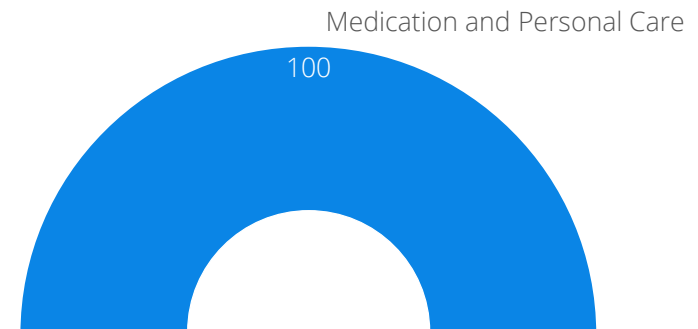
efarma.it is a major ePharmacy with a focus on the Italian market

Shop profile: efarma.it

Key Facts

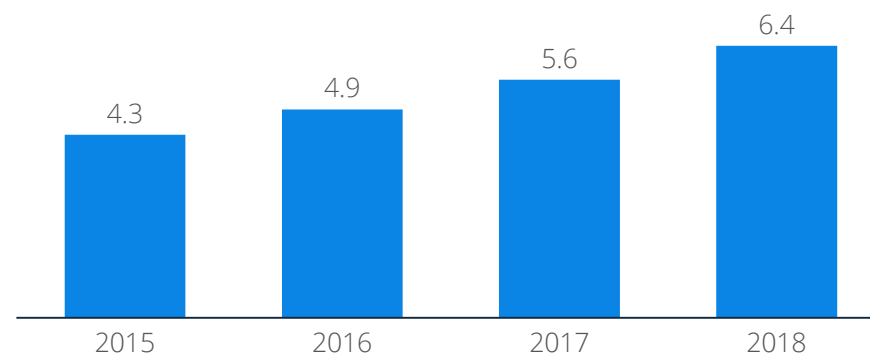|	
Main Country:	Italy
Launch:	2013
Global eCommerce net sales '17:	€5.6 million
Main category:	Food & Personal Care

Global eCommerce net sales in million €

2015	2016	2017	2018
4.3	4.9	5.6	6.4

Background

efarma.it, operated by Farmacia Zaccariello Dott. Raffaele, is an online store with nationally-focused sales. Its eCommerce net sales are generated almost entirely in Italy. With regards to the product range, efarma.it specializes in the Food & Personal Care category, particularly in the area of Medication and Personal Care. The website was launched in 2013.

Revenue split by categories in %

100 — Medication and Personal Care
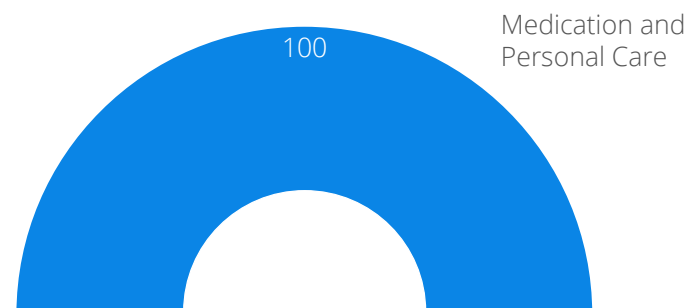
HEART FAILURE

The Heart Failure segment includes connected medical devices designed for patients suffering from heart failure to use at home (smart devices) as well as digital applications for smartphones and tablets.

In this chapter, the current market size, trends and expected developments of the market will be discussed. Also, the trend of telemonitoring in eHealth will be presented.

eHealth Heart Failure products are projected to reach a market volume of €24 million by 2022

Heart Failure: segment overview

The Heart Failure segment covers the user and revenue development of two eHealth product categories for people with **chronic heart failure**. Hardware and software solutions for healthcare professionals, e.g. medical equipment for hospitals and doctors' surgeries, are not included.

Smart Devices covers medical devices (hardware) which are equipped with dedicated interfaces or SIM cards that transmit measurement data across a **wireless connection** (e.g. via mobile networks, WiFi, Bluetooth, etc). In the context of heart failure therapy, there are various devices that can be used, for example connected weighing scales and Tele-ECG-cards or even **connected pacemakers and defibrillators**. The selection of suitable equipment is dependent on the **severity** of the heart failure and the presence of **other medical conditions**. Connected devices for heart patients are often used in combination with a telemedical monitoring service.

Apps contains heart function monitoring apps for instance for the collection of data and **self-management** of heart conditions. The user base covers paying customers only, i.e. users who pay for app downloads, premium/full versions and in-app purchases. The revenue figures only include revenues generated by paid app downloads, premium/full versions and in-app purchases. Furthermore, apps that come together with connected devices are excluded.
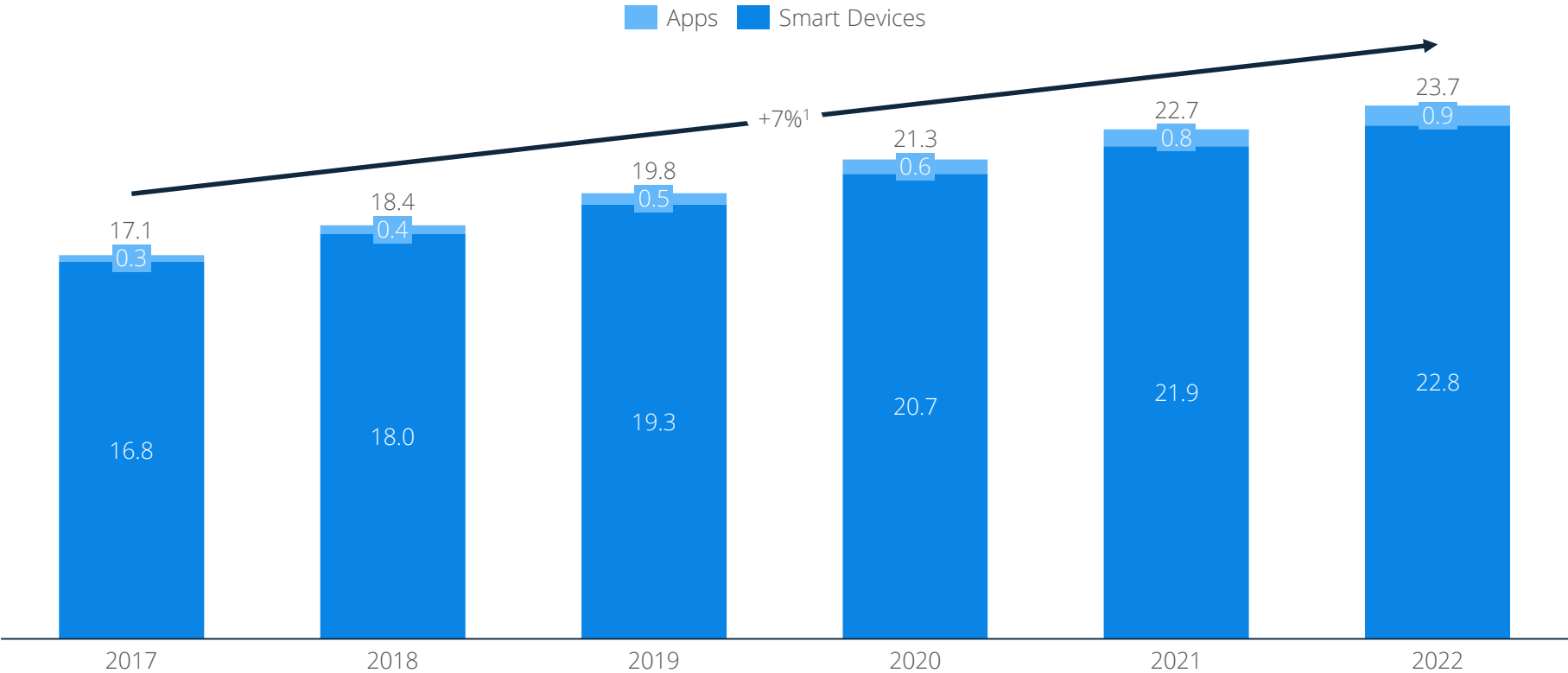
Key takeaways

- Revenues in the segment eHealth solutions for Heart Failure amount to €17 million in 2017

- Revenue is expected to show an annual growth rate (CAGR[1] 2017-2022) of 6.8%, resulting in a market volume of €24 million by 2022

- The average revenue per user (ARPU) currently amounts to €18 in Apps and €184 in Devices

- From a international perspective, most revenue is generated in the United States (€104 million in 2017)

Revenues of Apps are increasing at a CAGR[1] of 25%

Heart Failure: market size and future developments (1/3)

Revenue in million €

Legend: Apps, Smart Devices

Year	2017	2018	2019	2020	2021	2022
Total	17.1	18.4	19.8	21.3	22.7	23.7
Apps	0.3	0.4	0.5	0.6	0.8	0.9
Smart Devices	16.8	18.0	19.3	20.7	21.9	22.8

+7%[1]

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

The amount of App users is increasing at a CAGR[1] of 27 from 2017 to 2022
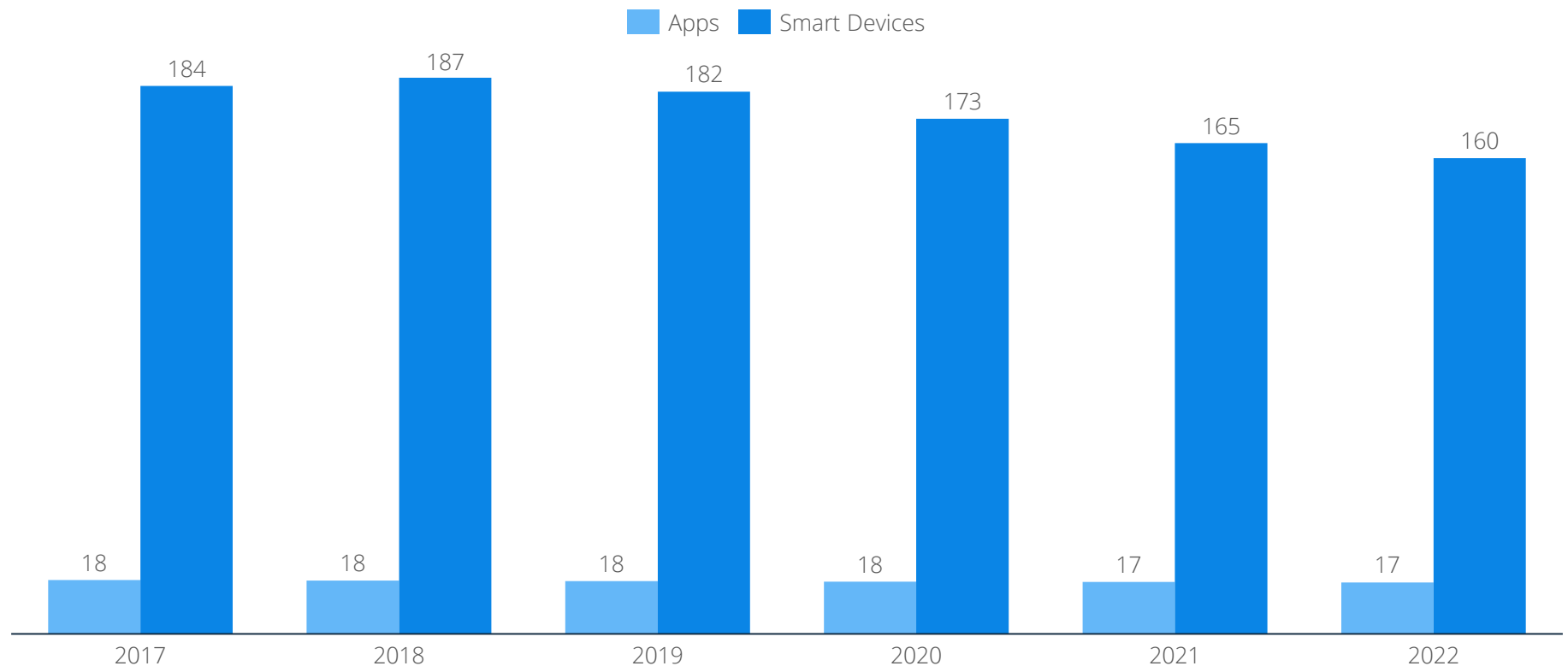
Heart Failure: market size and future developments (2/3)

Paying users in thousand

Segment	2017	2018	2019	2020	2021	2022	CAGR[1] 17 – 22
App	16	22	29	36	44	51	26.6%
Device	91	97	106	120	133	143	9.4%

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

Due to rising competition, prices are projected to decline in the future

Heart Failure: market size and future developments (3/3)

Average revenue per user in €

■ Apps ■ Smart Devices

Year	Apps	Smart Devices
2017	18	184
2018	18	187
2019	18	182
2020	18	173
2021	17	165
2022	17	160

Source: Statista Digital Market Outlook 2018

Telemonitoring significantly improves monitoring of patients with heart failure

Deep dive: telemonitoring

Telemonitoring is one of the latest trends in eHealth. It is defined by the remote exchange of data between clinicians and their patients, using electronic information and telecommunications technologies. This definition includes among other things video-consultation, store-and-forward imaging, streaming media as well as terrestrial and wireless communications. These services lead to a higher **time efficiency** and **more convenience** at **lower costs**.

In addition, the innovations 'activity monitoring' as well as 'remote medication monitoring' are especially used to support patients with **long-term conditions** by exchanging data between them and their doctors to assist in diagnosis and monitoring. Data can for instance be measured by wearables or smart clothes.

Assuring a reliable monitoring practice between patients and doctors can also reduce emergencies and death rates by up to 45% according to a UK Department of Health study.

When it comes to **heart failure**, telemonitoring is particularly relevant, since patients are able to make measurements at home and send their **health information**, like heart rate, weight and blood pressure, to a doctor's office or a clinic where healthcare professionals read out the data and intervene if necessary.

This offers various **advantages**. From a patient's perspective, the frequent information and additional insights offers greater control over their own health. Plus, if the monitoring system provides the necessary communication channels, care providers can send further information like educational videos or motivational messages, leading to a higher degree of **self care and awareness**.

DOCTOR ONLINE

DIABETES

The Diabetes segment includes connected medical devices designed for diabetes patients to use at home (smart devices) as well as digital diabetes applications for smartphones and tablets.

In this chapter, the current market size, trends and expected developments of the market will be discussed. Also, a best practice example will be presented.

eHealth Diabetes products will generate an estimated revenue of €6 million in 2018

Diabetes: segment overview

The Diabetes segment includes the user and revenue development of two eHealth product categories for people with diabetes. Hardware and software solutions for healthcare professionals, e.g. medical equipment for hospitals and doctors' surgeries, as well as professional health services like telemedical monitoring are not included.

The Smart Devices segment covers medical diabetes devices (hardware), which are equipped with **dedicated interfaces or SIM cards** that transmit measurement data across a wireless connection (e.g. via mobile networks, WiFi, Bluetooth): e. g. **connected** glucose meters or connected insulin injection devices. The measurement data can be sent to a **smartphone** and be synchronized with an **app**. Revenues from non-connected supplies, e.g. test strips, are excluded.

The Apps segment contains diabetes apps, e.g. diabetes diaries that assist in **self-management**, and **service-oriented** apps, which not only collect but also analyze health data, and make recommendations based on this analysis. The user base covers paying customers only, i.e. users who pay for app downloads, premium/full versions and in-app purchases. Users of **advertising-funded** apps or apps that come with a smart device are not included. The revenue figures only include revenues generated by paid app downloads, premium/full versions and in-app purchases. Furthermore, apps that come together with connected devices are excluded.
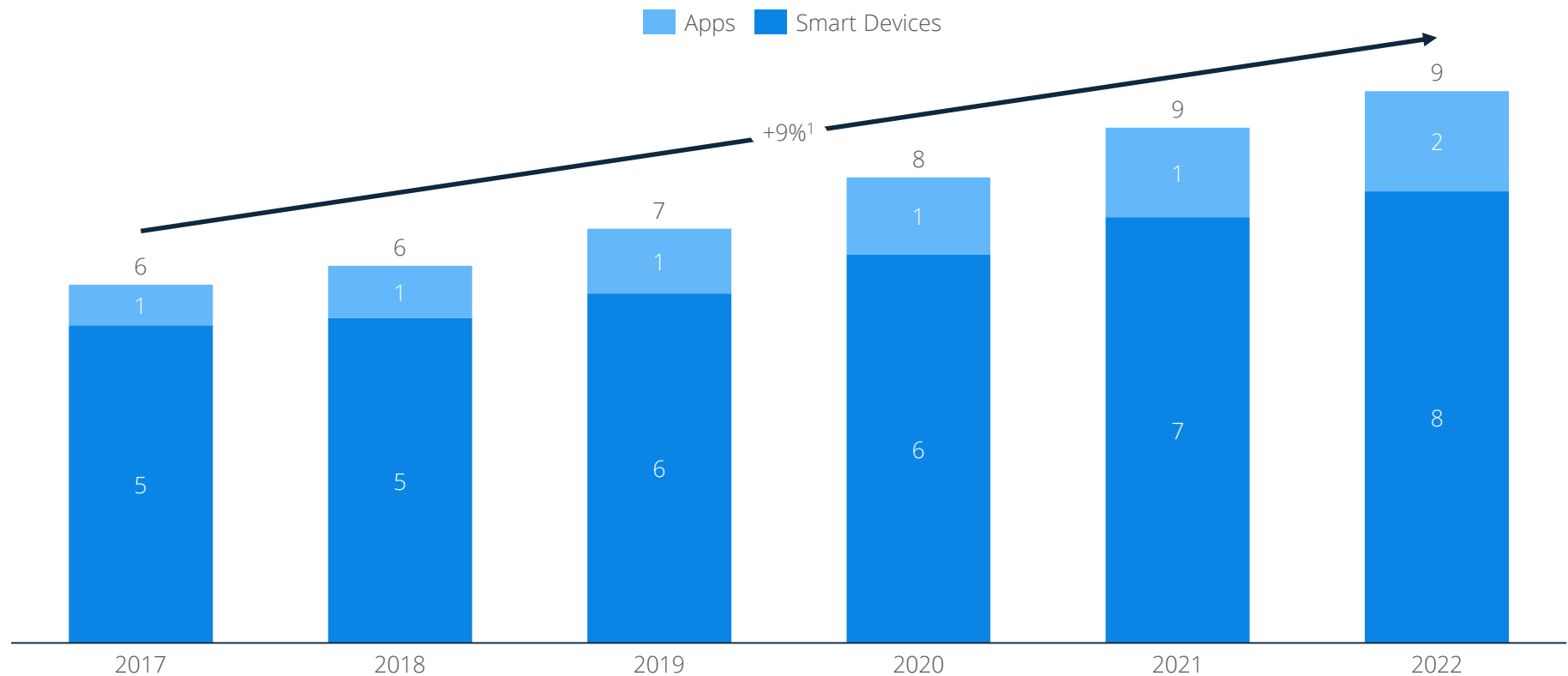
Key takeaways

- Revenue in the segment eHealth solutions for Diabetes amounts to €6 million in 2017

- Revenue is expected to show an annual growth rate (CAGR[1] 2017-2022) of 9.0%, resulting in a market volume of €9 million by 2022

- The average revenue per user (ARPU) currently amounts to €20 in apps and €62 in devices

- From an international perspective most revenue is generated in the United States (€109 million in 2017)

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

Revenues of Smart Devices for diabetes are projected to rise at a CAGR[1] of 9%

Diabetes: market size and future developments (1/3)

Revenue in million €

Legend: Apps (light blue), Smart Devices (dark blue)

Year	Smart Devices	Apps	Total
2017	5	1	6
2018	5	1	6
2019	6	1	7
2020	6	1	8
2021	7	1	9
2022	8	2	9

+9%[1]

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

0.1 million Diabetes Device users are expected by 2022

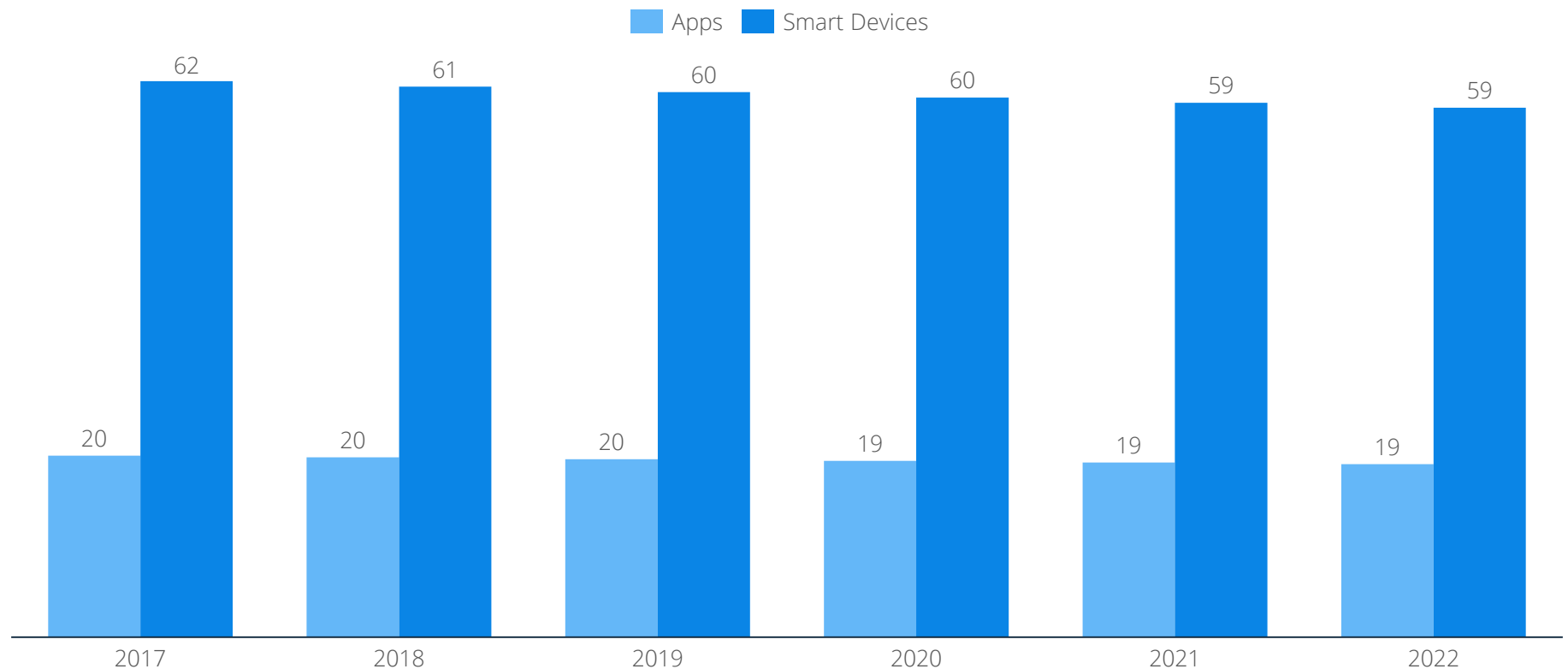Diabetes: market size and future developments (2/3)

Paying users in thousand

Segment	2017	2018	2019	2020	2021	2022	CAGR[1] 17 – 22
App	34	44	55	66	77	87	21.0%
Device	86	89	96	108	120	128	8.3%

Smart Devices for Diabetes will constantly generate the highest average revenue per user

Diabetes: market size and future developments (3/3)
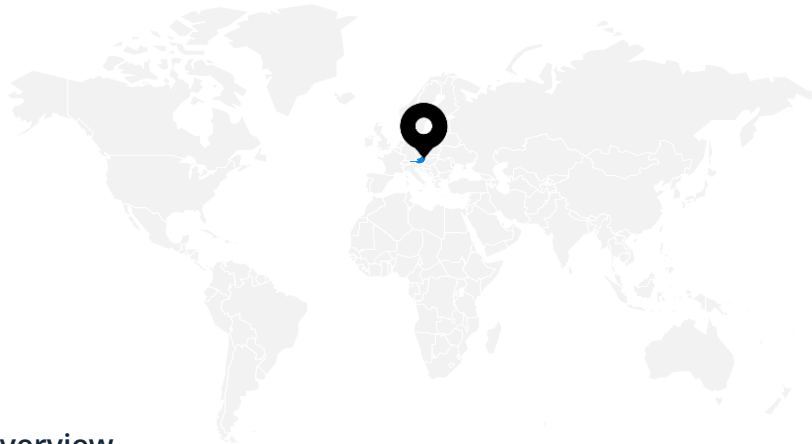
Average revenue per user

Legend: Apps, Smart Devices

Year	Apps	Smart Devices
2017	20	62
2018	20	61
2019	20	60
2020	19	60
2021	19	59
2022	19	59

The mySugr diabetes app reached over one million users in May 2017

Best practice: mySugr

Headquarters

Overview

- Headquarters: Vienna, Austria
- Total mySugr accounts: >1,000,000 (2017)
- Employees: >11.500 (2017)
- Active countries: >52 (2017)
- Founded: 2012

Background

mySugr is one of the leading providers in the field of digital diabetes management. The start-up started with the mySugr app and offers a monthly subscription bundle for e. g. around US$40 in the U.S. They are also in cooperation with various health insurance providers so that costumers can get there subscription fees refunded.

The bundle contains:

- The full version of the app plus a coaching service
- A glucometer that can be connected via Bluetooth
- Unlimited test stipes and lancets

Analyst opinion

mySugr is a good example of how digital services can help people with chronic conditions to manage their lives. The full version of the app does not only record therapy data such as blood sugar values, but it also helps its users to interpret the data and evaluate different scenarios. With the optional coaching service via the app, it also offers the possibility to find advice by diabetes educators anytime needed.

Altogether, the young company offers a comprehensive set of products and services for diabetes management. Its huge market potential and fast growth was also recognized by swiss pharmaceutical giant Roche, who bought the company for an estimated nine-figure sum in 2017.

Source: Company information

HYPER-TENSION

The Hypertension segment includes connected medical devices designed for hypertension patients to use at home (smart devices) as well as digital applications for smartphones and tablets.

In this chapter, the current market size, trends and expected developments of the market will be discussed. Also, the benefits of mHealth will be presented.

eHealth Hypertension products are projected to generate a revenue of €35 million by 2022

Hypertension: segment overview

The Hypertension segment covers the user and revenue development of eHealth products for people with hypertension.

Smart Devices cover medical hypertension devices (hardware) which are equipped with dedicated **interfaces** or SIM cards that transmit measurement data across a **wireless connection** (e.g. via mobile networks, WiFi, Bluetooth, M2M technologies, NFC, BLE): for example connected blood pressure monitors, which are able to send measurement data to a smartphone. If there is a higher **monitoring** need, the data can also be sent to a telemedical service center. Revenues from **non-connected supplies** of hypertension devices, e.g. electrodes, are excluded. Hardware and software solutions for healthcare professionals, e.g. medical equipment for hospitals and doctors' surgeries, as well as professional health services like telemedical monitoring are not included, either.

The Apps segment contains **blood pressure monitoring apps**. The user base covers **paying customers** only, i.e. users who pay for app downloads, premium/full versions, and in-app purchases. Users of advertising-funded apps are not included. The revenue figures only include revenues generated by paid app downloads, premium/full versions and in-app purchases. Furthermore, apps that come together with connected devices are excluded.
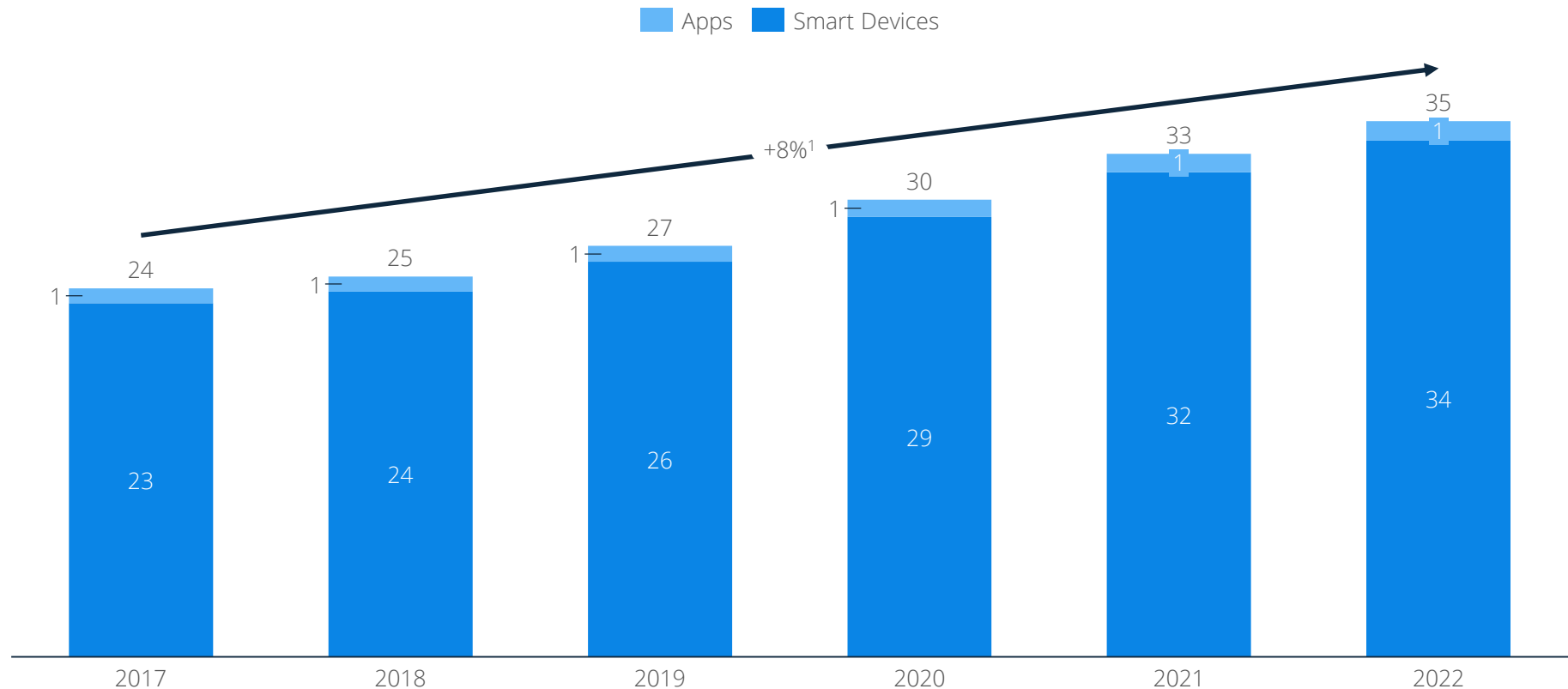
Key takeaways

- Revenues in the segment eHealth solutions for Hypertension amount to €24 million in 2017

- Revenue is expected to show an annual growth rate (CAGR[1] 2017-2022) of 7.8%, resulting in a market volume of €35 million by 2022

- The average revenue per user (ARPU) currently amounts to €2 in Apps and €29 in Devices

- From a international perspective, most revenue is generated in the United States (€74 million in 2017)

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

Revenues of Smart Devices are increasing at a CAGR[1] of 8%

Hypertension: market size and future developments (1/3)

Revenue in million €

Legend: Apps, Smart Devices

Year	Smart Devices	Apps	Total
2017	23	1	24
2018	24	1	25
2019	26	1	27
2020	29	1	30
2021	32	1	33
2022	34	1	35

+8%[1]

1: CAGR: Compound Annual Growth Rate / average growth rate per year
Source: Statista Digital Market Outlook 2018

Hypertension Devices will constantly generate the highest average revenue per user

Hypertension: market size and future developments (2/3)

Paying users in million

Segment	2017	2018	2019	2020	2021	2022	CAGR[1] 17 – 22
App	0.4	0.4	0.4	0.5	0.5	0.5	6.5%
Device	0.8	0.8	0.9	1.0	1.1	1.2	8.9%

Due to low prices for Apps, Hypertension Devices will generate a higher average revenue per user

Hypertension: market size and future developments (3/3)

Average revenue per user in €

Apps ▮ Smart Devices ▮

	2017	2018	2019	2020	2021	2022
Smart Devices	29	29	29	28	28	28
Apps	2	2	2	2	2	2
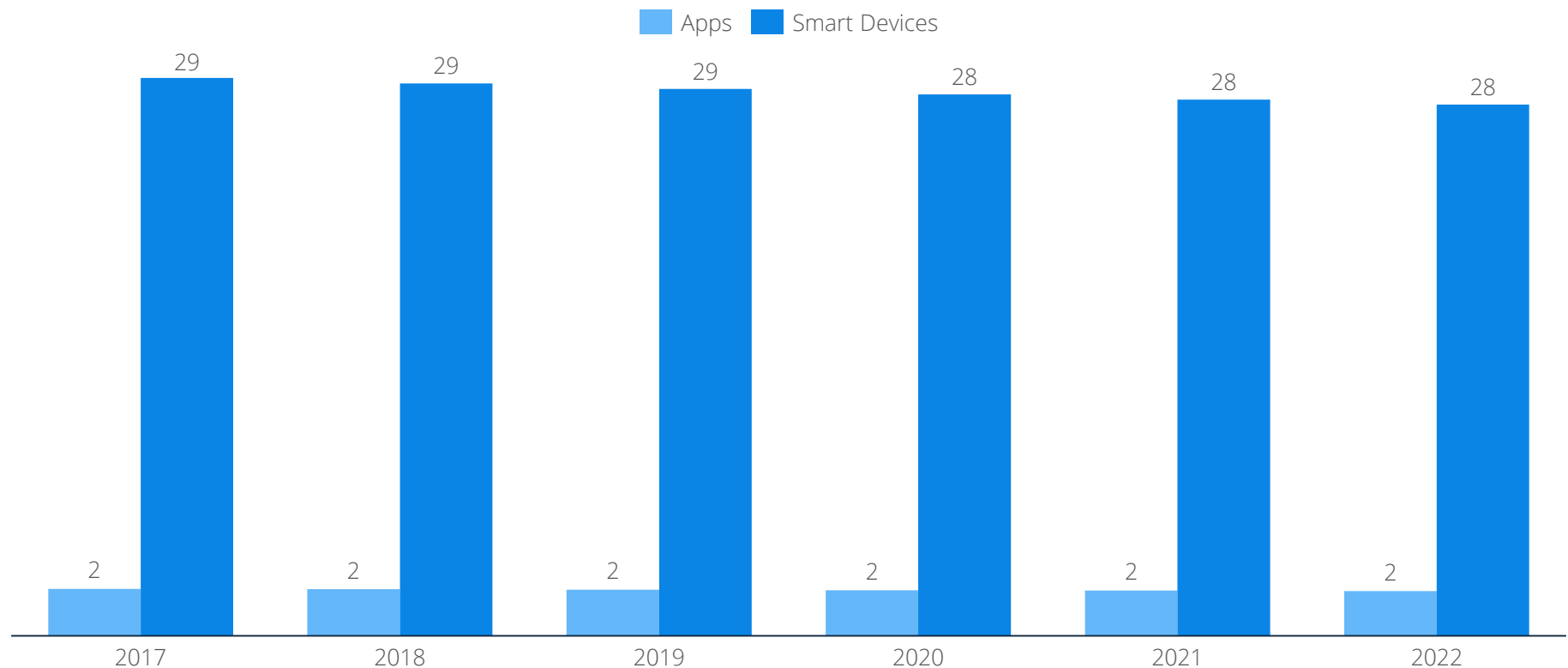
mHealth wearables offer constant monitoring for people with high blood pressure

Deep dive: mHealth

mHealth is an important subsegment of eHealth. It is the term to describe the usage of **wireless smart electronic devices** in the context of medical care. mHealth includes tablets and smartphones as well as all forms of wearables which work app-based. Due to the rise of both wearables and sensors, tracking of physical activities and health indicators is becoming **omnipresent**.

Since an increasing number of people use such devices, mHealth remains a driving force for the eHealth market. In terms of apps, the market offers fitness as well as **mobile medical apps**, which are mainly used to analyze, assess, store and transmit health data. As far as wearables are concerned, there is a wide range of potential applications, such as**: BP Monitoring**, Glucose Meters, Pulse Oximeters, Sleep Apnea Monitors and Neurological Monitors. There is even a patent for a diagnosis system on a wrist-mounted device which is capable of detecting cancer.

mHealth is also part of **teleHealth** since wearables and mobile home units are used for health and activity monitoring and to transfer health data to clinicians.

When it comes **to high blood pressure monitoring**, there are various mHealth wearables available. The **Nokia BPM+** or **Omron Evlolv** for example, are smart blood pressure monitors with Bluetooth connectivity that send the data to a corresponding app, which not only saves and evaluates the data but also lets users insert additional information. Furthermore, data can be shared with doctors.

With its upcoming device, **Omrom** is trying to take mobile blood pressure meters to the next level. The new **HeartGuide** is designed like a watch and promises to be the most **discreet** blood pressure device of the Omrom family while retaining high **accuracy**. The device is furthermore also able to track sleeping quality, daily activity and heart rate, to provide a holistic overview.
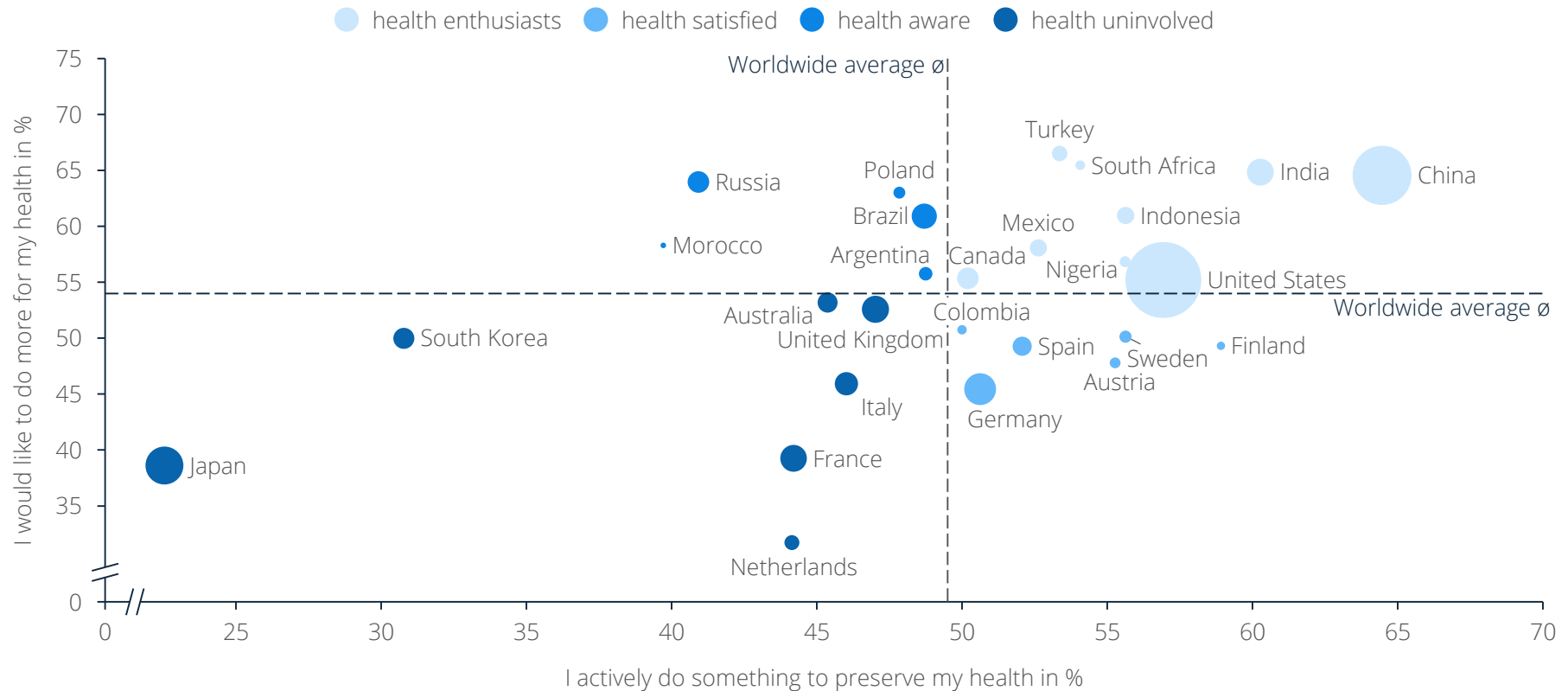
CONSUMER INSIGHTS

The Consumer Insights provide a broad overview and understanding of the country-specific consumer behavior in the context of eHealth.

In this chapter, results of consumer surveys regarding attitudes to and usage of eHealth-related products and services are presented. Also, an international overview of healthcare attitudes is given.

More than half of onliners around the globe wish to do (even) more for their health

Consumer attitudes: global consumer lifestyles (1/2)

Global comparison of attitudes towards personal health behavior

● health enthusiasts ● health satisfied ● health aware ● health uninvolved

Worldwide average ø

(Scatter plot. Y-axis: "I would like to do more for my health in %", from 0 to 75. X-axis: "I actively do something to preserve my health in %", from 0 to 70.)

Turkey, South Africa, India, China, Poland, Russia, Indonesia, Brazil, Mexico, Morocco, Nigeria, Argentina, Canada, United States, Colombia, Australia, United Kingdom, Spain, Sweden, Finland, Austria, South Korea, Germany, Italy, France, Japan, Netherlands
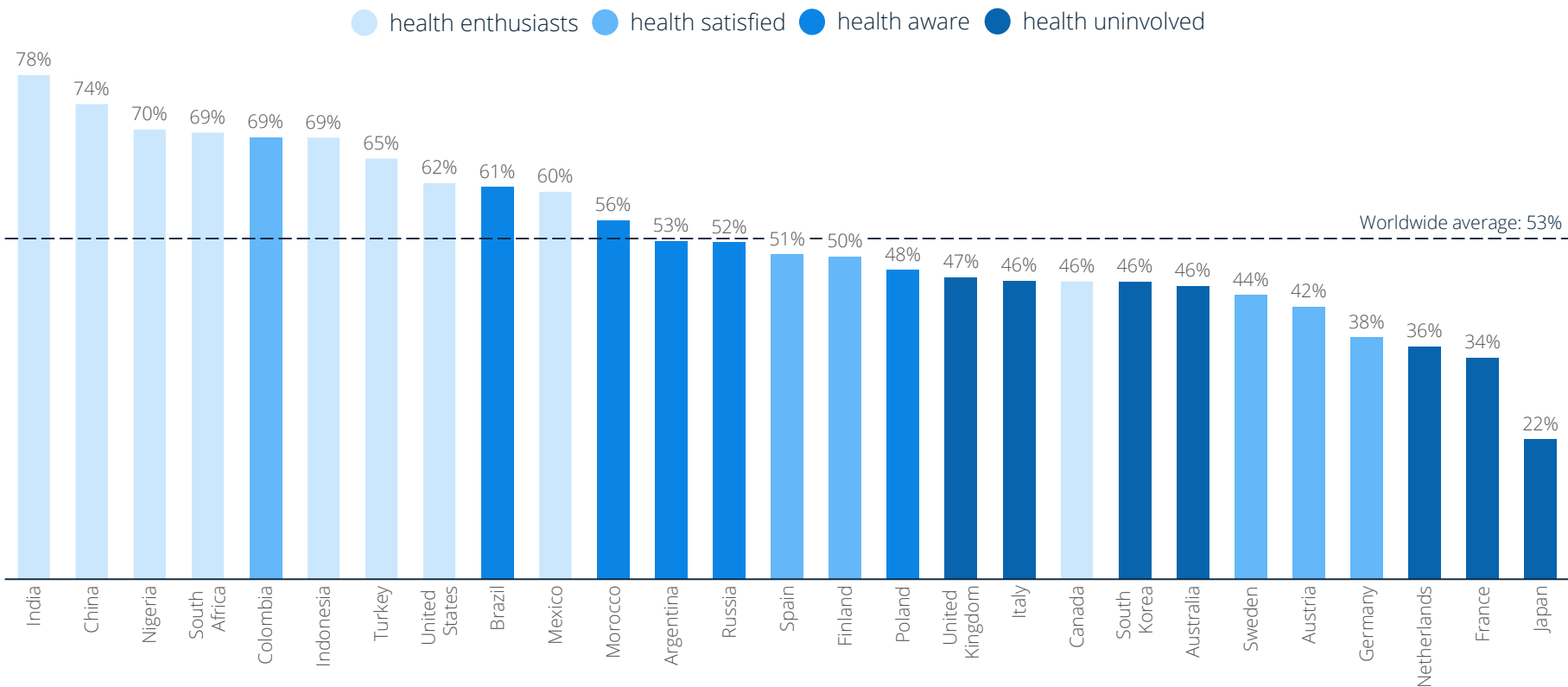
Worldwide average ø

Note: Dot size depicts GDP; "Which of these statements do you agree with?"; n=31,779
Source: Statista Global Consumer Survey, data from June 2018

eHealth is used mostly by those who wish to do (even) more for their personal health
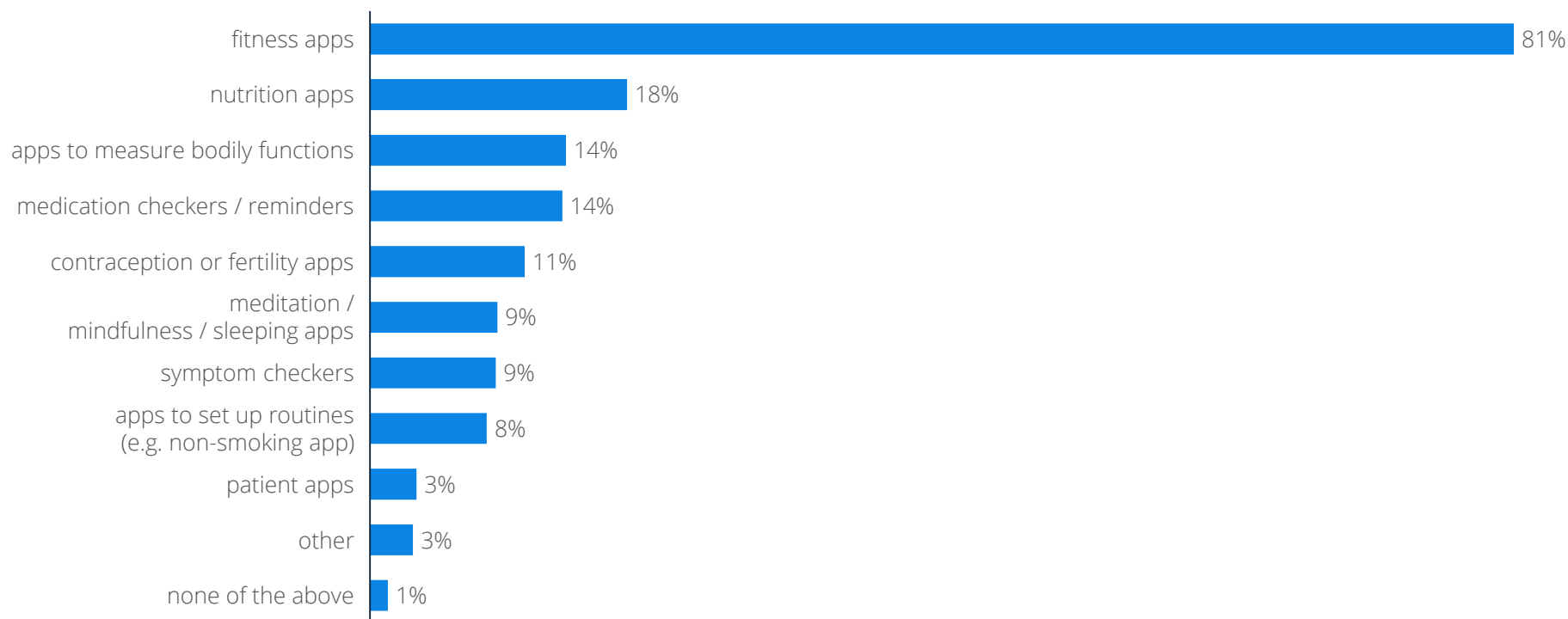
Consumer attitudes: global consumer lifestyles (2/2)

Share of respondents who use eHealth apps and/or devices

● health enthusiasts ● health satisfied ● health aware ● health uninvolved

India 78%
China 74%
Nigeria 70%
South Africa 69%
Colombia 69%
Indonesia 69%
Turkey 65%
United States 62%
Brazil 61%
Mexico 60%
Morocco 56%
Argentina 53%
Russia 52%
Spain 51%
Finland 50%
Poland 48%
United Kingdom 47%
Italy 46%
Canada 46%
South Korea 46%
Australia 46%
Sweden 44%
Austria 42%
Germany 38%
Netherlands 36%
France 34%
Japan 22%

Worldwide average: 53%

61

Fitness apps are the most popular eHealth apps in Italy

Usage of eHealth products: preferred services and devices (1/4)
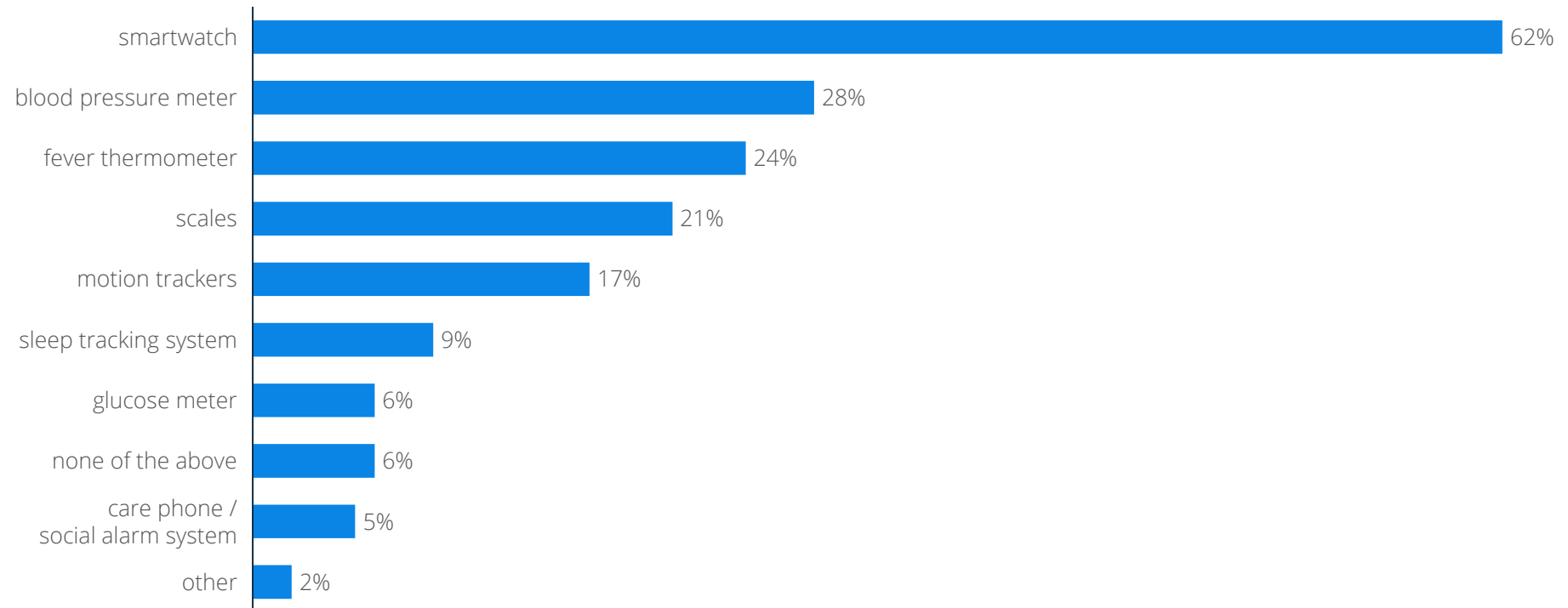
Use of eHealth apps in the past 12 months

App	Percentage
fitness apps	81%
nutrition apps	18%
apps to measure bodily functions	14%
medication checkers / reminders	14%
contraception or fertility apps	11%
meditation / mindfulness / sleeping apps	9%
symptom checkers	9%
apps to set up routines (e.g. non-smoking app)	8%
patient apps	3%
other	3%
none of the above	1%

Smartwatches are by far the most frequently used smart health devices in Italy

Usage of eHealth products: preferred services and devices (2/4)

Use of smart health devices in the past 12 months

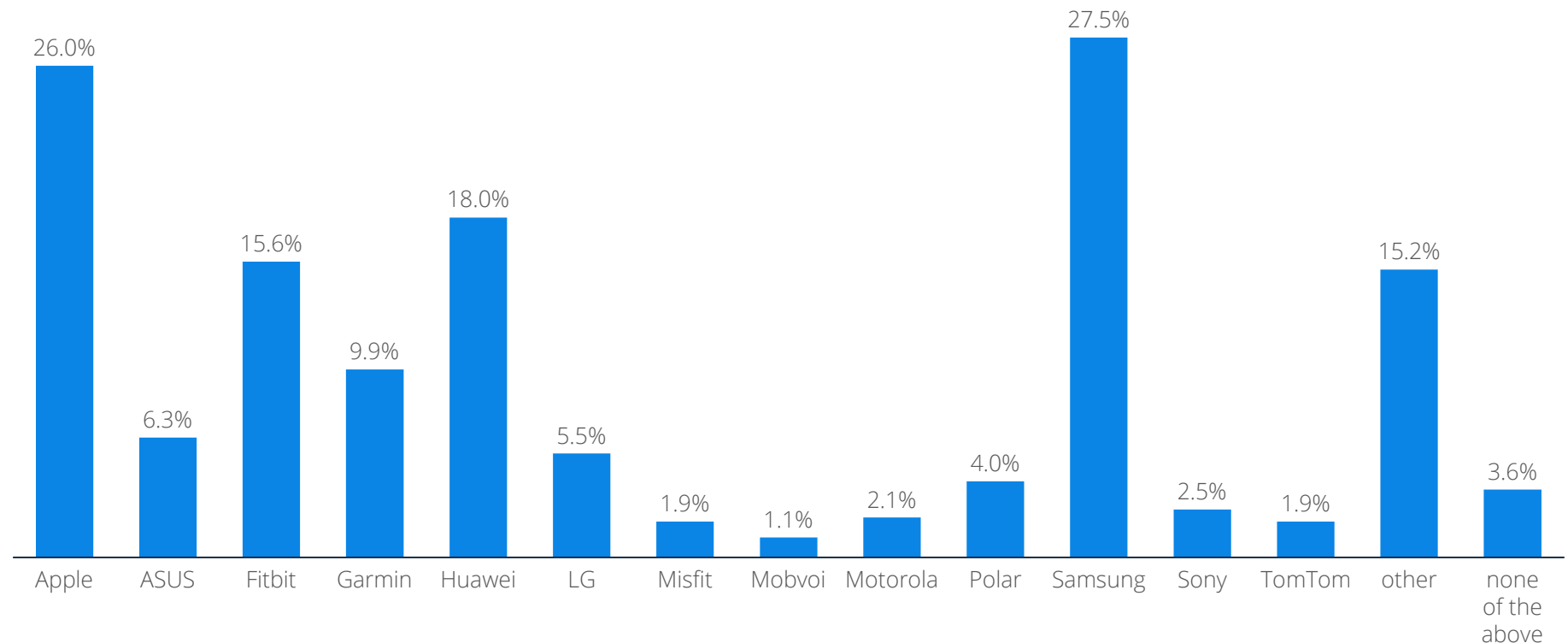| Device	Percentage
smartwatch	62%
blood pressure meter	28%
fever thermometer	24%
scales	21%
motion trackers	17%
sleep tracking system	9%
glucose meter	6%
none of the above	6%
care phone / social alarm system	5%
other	2%

"Which of these smart health devices have you used in the past 12 months?" Multiple response; n= 414, respondents who used connected health devices in the past 12 months
Source: Statista Global Consumer Survey, data from June 2018

Samsung and Apple smartwatches are most popular among Italians

Usage of eHealth products: preferred services and devices (3/4)

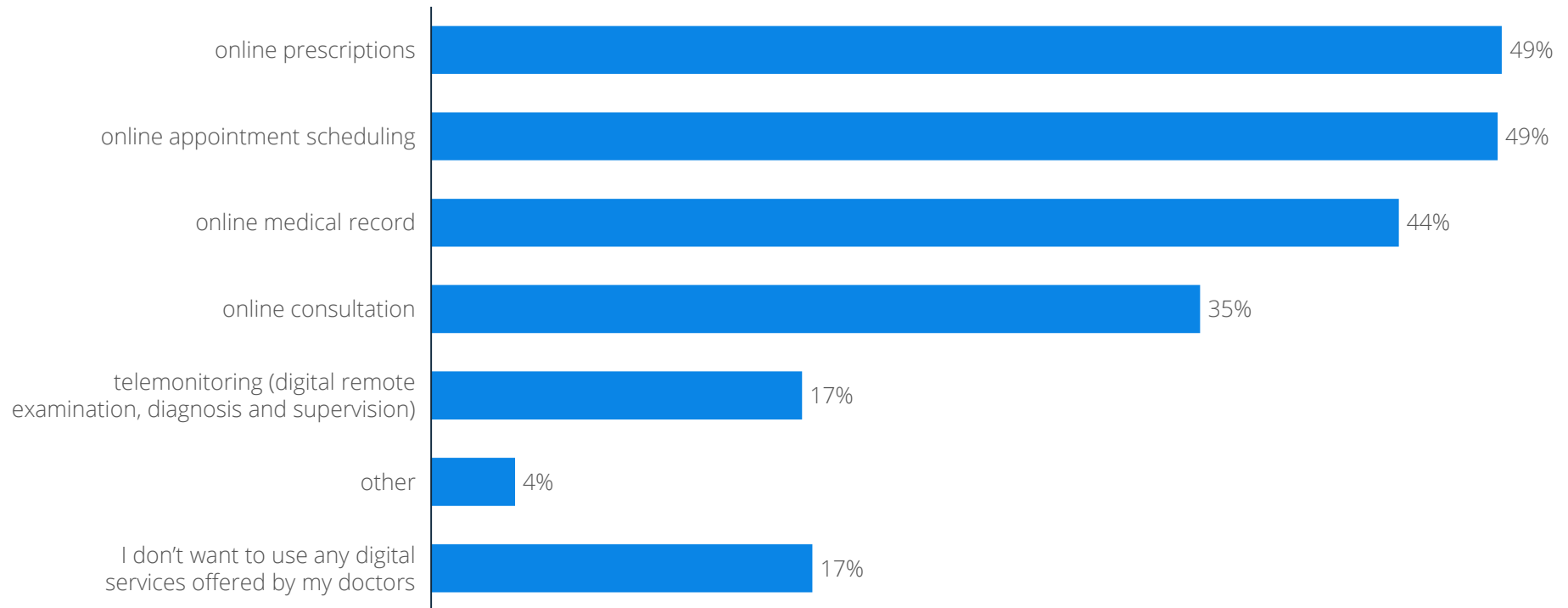**Ownership of eHealth trackers and smartwatches by brand**

Brand	Value
Apple	26.0%
ASUS	6.3%
Fitbit	15.6%
Garmin	9.9%
Huawei	18.0%
LG	5.5%
Misfit	1.9%
Mobvoi	1.1%
Motorola	2.1%
Polar	4.0%
Samsung	27.5%
Sony	2.5%
TomTom	1.9%
other	15.2%
none of the above	3.6%

Close to half of Italians would like to have online prescriptions offered by their doctor

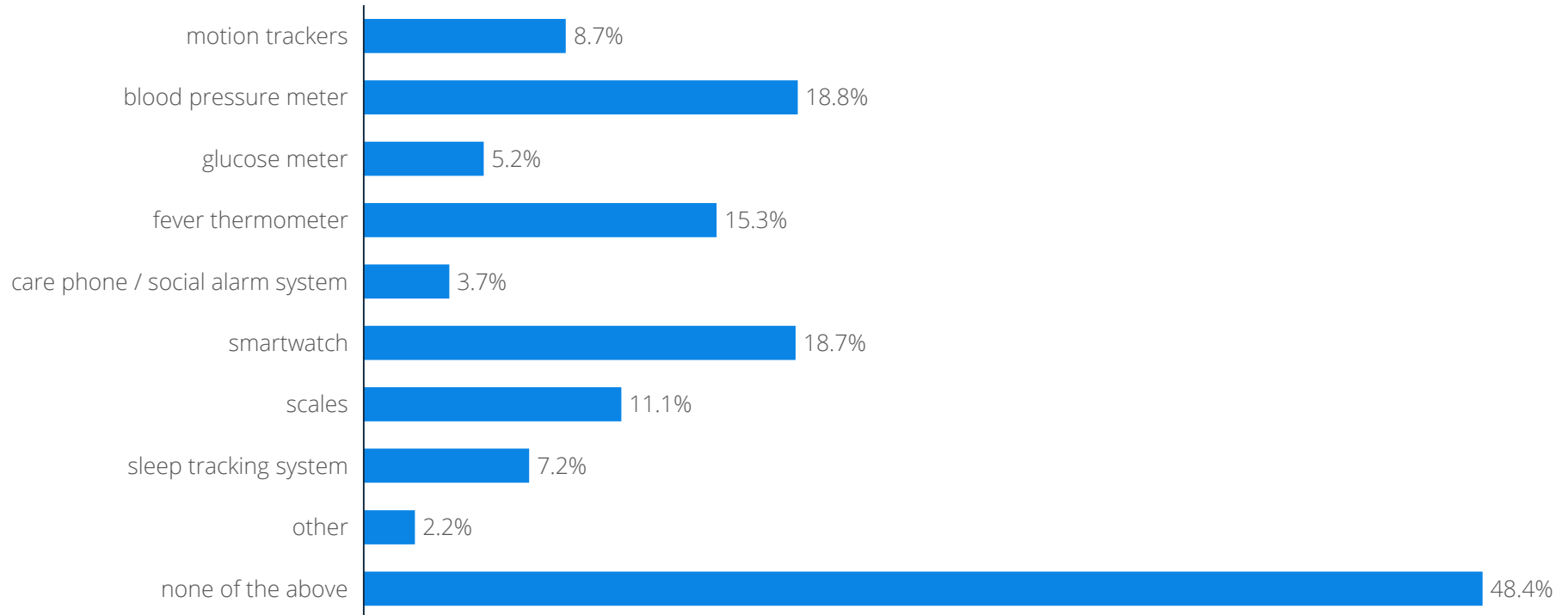Usage of eHealth products: preferred services and devices (4/4)

Use and willingness to use digital services offered by the doctor

Service	Percentage
online prescriptions	49%
online appointment scheduling	49%
online medical record	44%
online consultation	35%
telemonitoring (digital remote examination, diagnosis and supervision)	17%
other	4%
I don't want to use any digital services offered by my doctors	17%

"Which of these digital services offered by doctors would you like to use or do you already use regularly?"; Multiple response; n= 2085
Source: Statista Global Consumer Survey, data from June 2018

Around 50% of Italians are not planning on buying an eHealth tracker or smartwatch

Limitations of the eHealth market: consumer refusal (1/3)

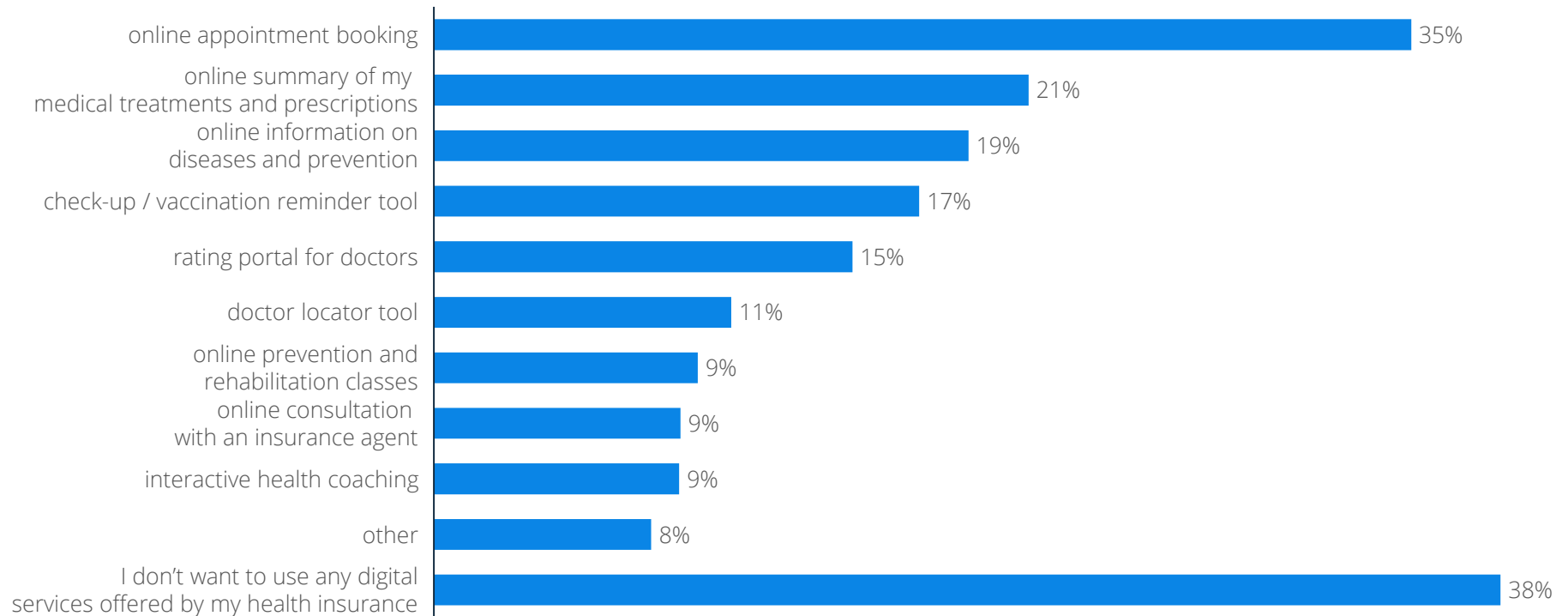**Intention of purchasing eHealth smart devices in the next 12 months**

Device	%
motion trackers	8.7%
blood pressure meter	18.8%
glucose meter	5.2%
fever thermometer	15.3%
care phone / social alarm system	3.7%
smartwatch	18.7%
scales	11.1%
sleep tracking system	7.2%
other	2.2%
none of the above	48.4%

"Which of these smart health devices (connected to the internet) do you plan to buy in the next 12 months?"; Multiple response; n= 2085
Source: Statista Global Consumer Survey, data from June 2018

38% of Italians do not want to use any digital services offered by their health insurance provider

Limitations of the eHealth market: consumer refusal (2/3)

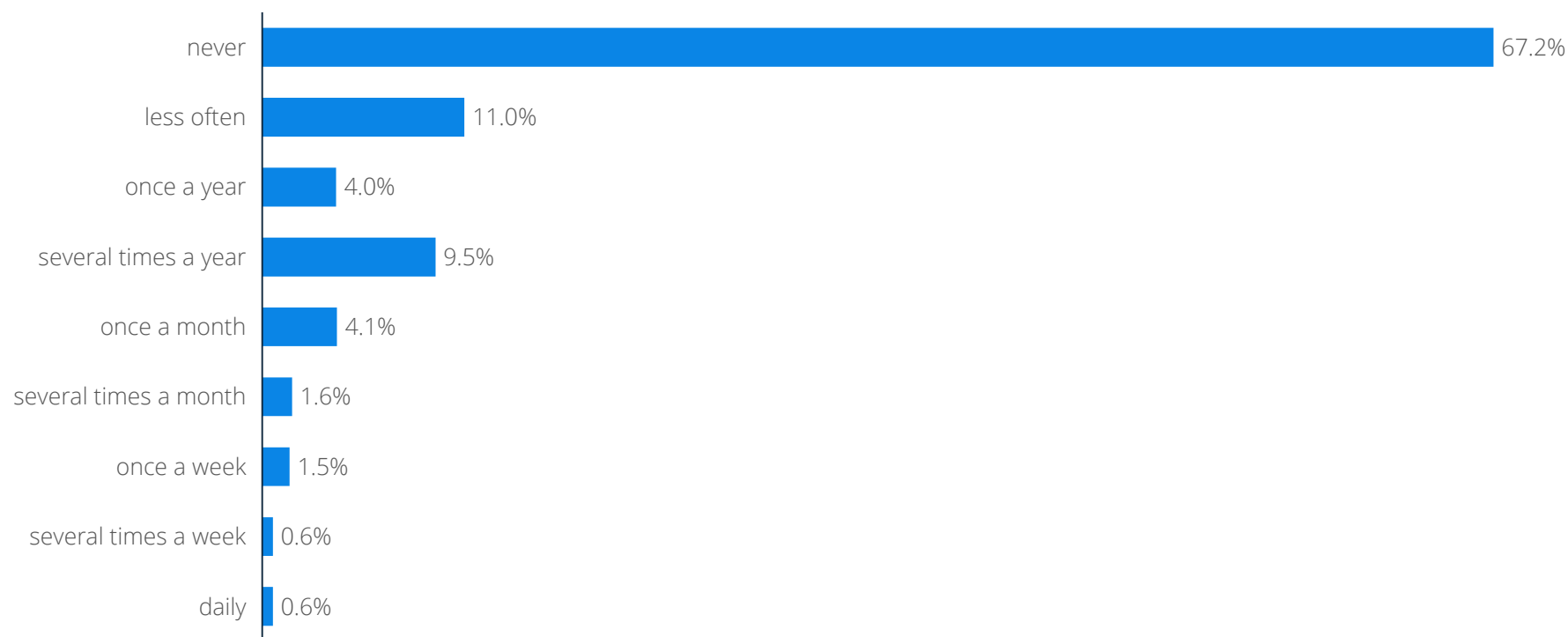**Use and willingness to use digital services offered by the health insurance provider**

Service	Percentage
online appointment booking	35%
online summary of my medical treatments and prescriptions	21%
online information on diseases and prevention	19%
check-up / vaccination reminder tool	17%
rating portal for doctors	15%
doctor locator tool	11%
online prevention and rehabilitation classes	9%
online consultation with an insurance agent	9%
interactive health coaching	9%
other	8%
I don't want to use any digital services offered by my health insurance	38%

"Which of these digital services offered by your health insurance provider would you like to use or do you already use regularly?"; Multiple response; n= 2085
Source: Statista Global Consumer Survey, data from June 2018

67% of Italians do not buy medication online

Limitations of the eHealth market: consumer refusal (2/3)

Shopping frequency in online pharmacies

Frequency	Percentage
never	67.2%
less often	11.0%
once a year	4.0%
several times a year	9.5%
once a month	4.1%
several times a month	1.6%
once a week	1.5%
several times a week	0.6%
daily	0.6%

About the Statista Digital Market Outlook

9 markets, 35 segments & 85 sub-segments

Digital Media
Video-on-Demand, Digital Music, Video Games, ePublishing

FinTech
Digital Payments, Alternative Financing, Alternative Lending, Personal Finance

eTravel
Online Travel Booking, Mobility Services

eServices
Event Tickets, Fitness, Dating Services, Food Delivery

eHealth
Fitness, AAL, ePharmacy, Heart Failure, Diabetes, Hypertension

Connected Car
Connected Hardware, Vehicle Services, Infotainment Services

Smart Home
Control and Connectivity, Comfort and Lighting, Security, Home Entertainment, Energy Management, Smart Appliances

eCommerce
Fashion, Electronics & Media, Food & Personal Care, Furniture & Appliances, Toys, Hobby & DIY

Digital Advertising
Banner Ads, Video Ads, Search Ads, Social Media Ads, Classifieds

Details

- 50+ countries & regions
- Direct access & downloads
- 7-Year coverage: 2016 – 2022
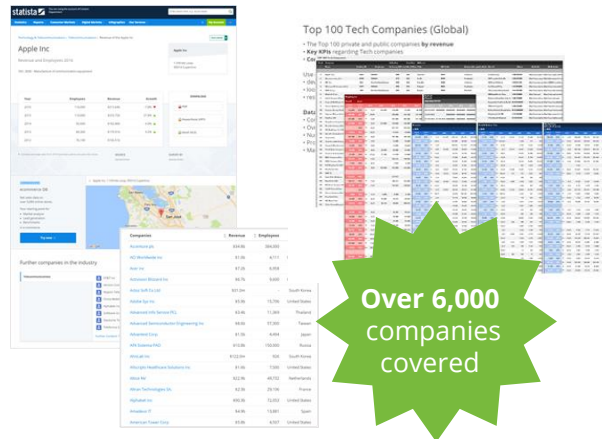- Revenue forecasts
- User count & penetration
- Comparable data

Exclusive part of the **Statista Corporate Account**
Access to more than **1,000,000 statistics** and **all digital markets**

more information

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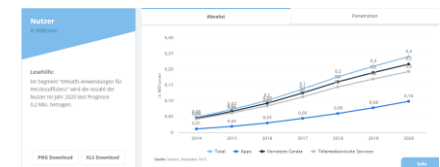
Statista Toplists and Company Database

Find information on top companies worldwide

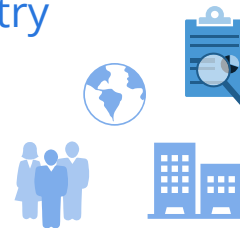**Over 6,000 companies covered**

... and thousands more!

Your starting point for further market assessment

- Quickly research basic data
- Gain insights into foreign markets
- Develop a lead list of major corporations

... in a given industry

- Tech
- Banking & Finance
- Construction
- Automotive
- ... and many more!

Most important company key figures

- Address information
- Revenue
- Growth rates
- Number of employees

... in a given region

- Global
- Germany
- U.S.
- Southeast Asia
- ... and many more!

Statista Toplists and Company Database are part of the Statista Corporate Account

more information

Author, Imprint, and Disclaimer

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He gained a comprehensive understanding of market structures and mechanisms in various economic research projects. At Statista he is responsible for the markets Connected Car and eHealth.

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