CORE MATTERS

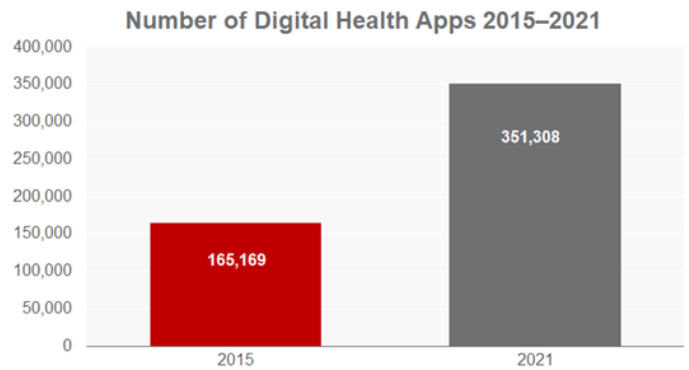## Digital Health and Insurance: is the opportunity real?

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### Our Core Matters series provides thematic research on macro, investment, and insurance topics

- The global [Digital Health (DH) market](#) size is valued between US$ 96.9 and 104 billion in 2020, with a CAGR estimated between 15.5% and 20% up to 2030.

- Digital health increases service **accessibility**, allowing for **lower health costs,** overcoming **physical distances, and reducing CO_2 emissions**. It also leads to **greater quality**, thanks to **higher accuracy** both in **diagnose** and **treatment, and to greater care personalisation.**

- Insurers can leverage on digital health revolution to improve their product offering: real-time (Big) data **reduces information asymmetries;** AI and Machine Learning (ML) techniques can help developing **predictive** and **prescriptive models**, generating clear insights for the business, all along

Number of Digital Health Apps 2015–2021

2015	165,169
2021	351,308

Source: IQVIA 2022

the **value chain, from underwriting to distribution and claim management. All this could translate in higher level of personalisation as well as efficiency gains:** according to McKinsey, insurers could save **up to 40% in claims and administrative costs** and increase **revenues by 30%** thanks to higher affordability and cross-selling practices.

- Despite the clear benefits, the power of digital health insurance is yet to be unleashed: the **digital divide** and low **digital education**, the **lack of digital standards**, **data privacy** and growing **cyber risk** are the main barriers **limiting adoption**. Insurers need to find costs of enabling technology and efficiency gains, avoiding **hyper-personalisation** and **client-selection** incentives.

- As long-term investors, insurers see the (digital) healthcare sector as a valuable **investment opportunity**: in the **listed space**, over the last 20 years, the sector posted **higher-than-market average returns** – even corrected for risk. Moreover, the social value of digital healthcare is appealing from an **ESG** perspective. In the **non-listed universe**, Private Equity and Private Debt are now important financing tools for non-listed digital health SMEs. The hedge against **inflation risk**, **attractive yields** and **low correlation** with other asset classes are driving up private investments in the portfolios of long-term oriented institutional investors. Project selection will become key, with DH start-ups to demonstrate both proof of concept and higher-than-market ROI potential.

Health insurance is a key business opportunity at the global level; in the last 4 years it has outpaced the overall industry in terms of Gross Written Premiums (GWP) growth (7% versus 4.4%, according to McKinsey estimates). The pandemic and the consequent uprise in the need of protection among individuals surely played a role, giving insurers the chance to pursue new areas of opportunities. This matters, if only because growth in the "traditional" insurance space has lagged. Indeed, life premiums have been growing at a slower pace than nominal GDP over the past 20 years: 2% vs 4% for both the US and the EU (McKinsey). In the P&C arena, some relevant businesses like motors will decline as technology and the sharing economy take their toll.

Global insurance written premiums (GWP, $bn)

Source: McKinsey, 2022
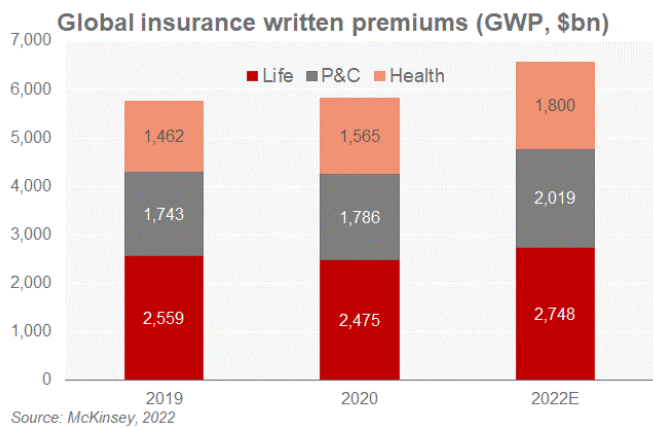
When it comes to pursuing new opportunities, insurers will need to focus on the coverage of emerging risks, but in some cases – climate, cyber etc. – information asymmetries are still high, and these make it harder to set up profitable and scalable insurance offerings.

Differently, Health is already a very relevant and promising line. First, ageing population is leading to a rising demand for care services; since national budget constraints limit public healthcare coverage, private insurance is the natural candidate to step in and close the protection gap. Second, digitalisation and technology applied to healthcare could be the real game changer and help insurance offerings moving

from "simple" risk coverage to a broader **service provision**. After an overview of the digital health ecosystem (ch.1), the report focuses on the main advantages of digital health (ch.2) and how insurers can successfully embed technology into the value chain (ch.3). The report concludes by looking at the main issues insurers need to address to fully unleash the power of digitalisation in healthcare insurance and really walk the opportunity talk.

1. The Digital Health Ecosystem - DHE

The **global Digital Health (DH) market** size is estimated **between US$ 96.9 and 104 billion in 2020**, with a **CAGR** growth rate ranging between **15.5%** and **20% up to 2030**.

Digital tools foster more accessible, more efficient, smarter healthcare by enhancing preventive medicine and providing better care through **eHealth** and **mobile (m)Health** products and services.

The digital health ecosystem can be split in three main categories: 1) apps; 2) wearables, diagnostics, and biomarkers; 3) digital therapeutics and care devices. The three groups are deeply intertwined and innovations in one category may lead to evolutions in the other two:

- **Apps**: at YE 2021, there were **350,000+ health apps downloadable worldwide** (+100% vs 2015). Attrition rates[1] have improved over time. **General wellness apps** are still predominant, but **health condition management apps**, like Medication reminders, **are growing** and now represent **40% of all apps**[2].

Number of Digital Health Apps 2015–2021

Source:IQVIA 2022
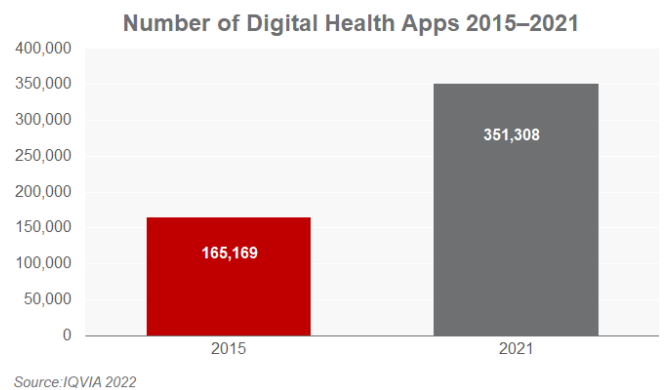
- **Wearables, diagnostics, and biomarkers**: wearable devices measure and collect health data through biosensors that monitor vital signs in real time. With over 500 sensors available today, this market has grown at a tremendous pace: +20% in 2021, with turnover projected at

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[1] The annual number of dismissed apps over the total new app launched.

[2] IQVIA, 2021

€150 bn by 2028. Born as a **detection and monitoring tool** used mainly in the **fitness & wellness** field, wearables have become a useful tool for:
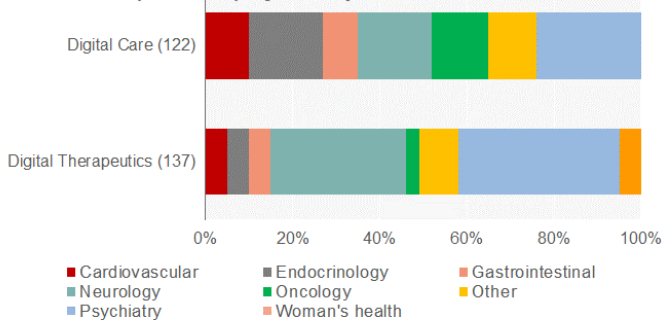
- **Specialized monitoring**: biosensors – incorporated with bioreceptors such as antibodies, enzymes, or cell receptors – are used to monitor specific target populations, like diabetic individuals, remotely.

- **Patient management**: new digital sensors are transforming "old" analog medical tools like asthma inhalers and injectable insulin pens into "smart" medical devices able to track usage and enhance patient adherence.

- **Disease management**: high-tech diagnostic tools enable **mHealth** applications to run analyses outside of clinical environment, without interfering with patients' schedule or limits. For example, the heart activity can be assessed at home with ECGs and smart digital stethoscopes during a wide range of everyday conditions.

- **Digital Therapeutics** (DTx) and **Digital Care** (DC) offer therapeutic interventions guided by high quality software. These programs are based on scientific evidence obtained through rigorous clinical trials with the aim of preventing, managing, or treating a broad spectrum of physical, mental, and behavioural conditions. DTx and DC require market authorization by a regulatory body. They can take the form of applications or apps, video games, websites, or wearable devices[3]. Globally, according to the IQVIA, 259 DTx and DC products were in any phase of development as of June 2021. Among these, 48 DTx and 99 DCs were available commercially.

DTx and DC products under development (June 21) by therapeutic focus

Legend:
- Cardiovascular
- Endocrinology
- Gastrointestinal
- Neurology
- Oncology
- Other
- Psychiatry
- Woman's health

Source: IQVIA, GIAM Research

2. Advantages of digital Health

Digital health increases service **accessibility**, allowing for **lower health costs** and overcoming **physical distances** fostering at the same time **decarbonisation**. Telemedicine and Home Care, for example, not only reduce of direct and indirect healthcare costs (number of days of hospitalization) and commuting costs, but also made medical consultations possible during the pandemic lockdowns. Even outside pandemic, however, ensuring remote medical support to patients suffering from chronic diseases and limited self-sufficiency is crucial, especially in the ageing Europe.

Digital technology applied to health services leads also to **greater quality**, thanks to **higher accuracy** both in **diagnose** and **treatment**:

- Wearables increase the **monitoring capacity** of patients, otherwise relegated only to medical examinations. **Larger amount of data** increases the chances to better understand patients' needs and **set bespoke treatments**. When coupled with **Artificial Intelligence (AI)** techniques, big (health) data are extremely useful also in **reducing diagnosis errors.**

- Remote medical consultations and information sharing between hospitals, independent clinics, health networks and home care services favour a **multidisciplinary approach in clinical case management** (if patients have given prior approval).

According to WHO (2022), in Europe "*the provision of health services using technological devices was found to significantly enhance patients' clinical outcomes, improve the long-term follow-up of patients by medical professionals, and offer logistical benefits for both patients and health workers*".

The mentioned digital solutions are **shifting the focus** of healthcare **from care to prevention**, while **making patients' role more active**, which are both key in enhancing diagnoses and personalise treatment. Other things equal, in the long-term, the potential of DH development should translate in higher quality of population health, lower inequality (superior and widespread access to medical care) while lowering pressures on public budgets. The latter would free new resources for financing scientific research, thus prompting a virtuous cycle.

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[3] Deprexis, the first digital therapy (2009) is a platform, offers a cognitive-behavioural intervention, which has proven to be effective in the treatment of depression. Today it is used in hospitals in Germany, where it was developed, and in Switzerland, where it is reimbursed by insurance.

Proving the effectiveness of digital health tools both in fostering healthy behaviour and improving clients' health conditions is key to assure a fruitful and long-lasting development of DH applications.

Despite non-negligible operational issues like the complexity of **evaluation techniques** or the very long time horizons to deal with, the attention to the topic is growing with more than 1,500 studies published in the last 5 years. **Evidence** supports positive results both in behavioural modification, like healthy eating and weight loss, as well as in the management of some chronic conditions like pain and infectious and parasitic diseases. **However, the persistence of positive behavioural impacts seems** to decrease **after 6 months**. Regarding effects on the health status, digital health tools seem effective for some cardiovascular applications - e.g., atrial fibrillation, cardiac arrhythmias, and hypertension - and for some disorders within the autism spectrum (ASD).

3. Opportunities for the Insurance industry

Digital health can be of great advantage for insurers. The huge amount of real-time disposable data **reduces information asymmetries** and, if coupled with AI and Machine Learning (ML) techniques, it can help developing **predictive** and **prescriptive models**, generating clear insights for the business, all along the **value chain**:

- as for underwriting, digital data lead to higher accuracy in individual health risk detection and to a reduction of adverse selection issues. ML techniques can also help insurers optimising their data needs, limiting the set of data necessary for risk profiling to the essential. This would **help to contain customer effort** while **improving engagement.**

- Regarding **claims**: first, **moral hazard would be reduced**. Contrary to the past, insurers can now monitor any change of behaviour leading to clients' risk-profile modifications after the contract is signed and adjust premiums accordingly (contributing also to better average behaviour of insured population). Second, the **shift towards preventive care,** combined with new **data analysis capabilities,** could **reduce claim frequency** and **frauds**.

According to McKinsey, the cost of a claims journey could be reduced up to 30%.

- As far as **operations** are concerned, insurers could experience **efficiency gains**, by using the new streams of information to **better calibrate agreements with healthcare suppliers** (lower medical costs up to 40%) to define **bespoke solutions for clients** and to **streamline administrative internal processes and procedures.** As an example, the app developed by **Hi.Health allows** users' health expenses submission in a digital format to nearly every private health insurance firm in Germany. Through AI-based character recognition technology, the app extracts data from receipts pictures, then fills and submits insurance claim forms. It also offers immediate reimbursement costs, eliminating clients' cash-flow gap between the private health service purchase and the insurance company refund.

Insurance companies' digital offerings focused initially on the use of electronic bracelets or other **wearable devices** to monitor the insured's **physical activity** and linking clients' healthy behaviours to premium cuts at renewal. Identical conditions were then applied with reference to **digital biomarkers**, tracking a wide range of vital parameters (blood pressure, heart rate, etc.) useful for monitoring the health condition of individuals.

With **Telemedicine and Home Care services** expansion, clinical parameters are now transmitted in real time to the insurance company's Operations Centre. A team of specialists can thus continuously monitor the patient's health, intervene promptly in case of clinical alerts, and offer patients virtual appointments, suggestions, and recommendations. Some insurers, like Oscar, make use of **geolocation tools** to **identify**, among the competent **doctors**, those **closest to the insured**, so to minimize time and costs of procurement. All these new "care models" underline a **changing role of the insurer**, who is not only called upon to manage risks over the long term, but also to **prevent health risks** by monitoring their progress throughout the duration of the insurance relationship.

- Looking at **distribution**, **according to Geneva Association,** "*Digital health had enabled insurers to improve their marketing and distribution capabilities, including efficient targeting of consumers*". The digital channel would lead to an **increase in direct sales**, and to a **client base expansion.** A second major opportunity would be the boost of **cross-selling health coverage** once a client purchases a specific medical

device. All in all, insurers could generate new streams of revenues up to +30% according to [McKinsey](#)).

All the cited impacts would ultimately **positively affect profitability** and increase **customer experience and retention** through **higher service quality** and **personalisation**. The most ambitious target would be ideally **health-lifecycle products**, with coverage adapting to clients' age and behaviour.
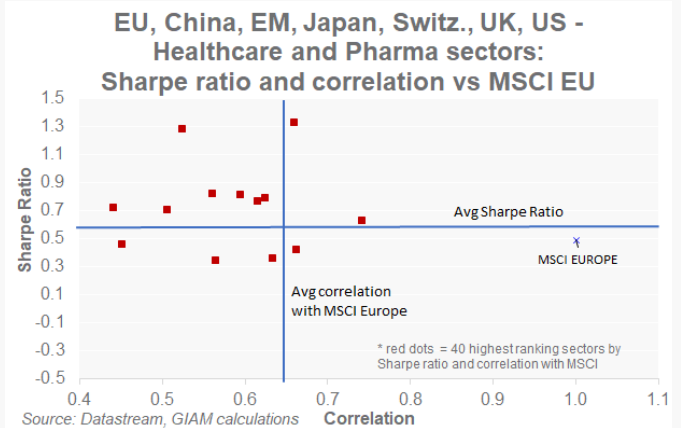
Evidence of positive outcomes for the digital revolution in the healthcare insurance space are scarce: the digitalisation process is still at an early stage albeit growing faster in recent years. [Insurance Europe](#) annual data shows that **health insurance penetration** across EU was broadly stable up to 2017 at c.0.8% of GDP. However, it has grown faster in recent years to reach 1% in 2020. In terms of **profitability**, the health benefits paid ratio (health claims over premiums) improved, declining from 82% in 2013 to 75% in 2020. Despite it is not easy to infer causality, especially because of the pandemic, digital innovation likely played a role according to some analysts.

The investment opportunity

The digital healthcare sector is a valuable investment opportunity: in the **listed space**, over the last 20 years, it marked higher average returns vs market, even corrected for risk.

as of 31/05/2023	5 years			20 years		
INDEX	Avg. Annual TR (A)	Volatility (B)	Sharpe Ratio (A/B)	Avg. Annual TR (A)	Volatility (B)	Sharpe Ratio (A/B)
USA (in €)						
MSCI USA	12.6%	21.7%	0.58	10.4%	19.8%	0.53
Health Care	12.9%	19.5%	0.66	10.6%	18.2%	0.58
Providers & Services	15.0%	25.8%	0.58	13.8%	22.7%	0.61
Equipment & Supplies	12.0%	23.0%	0.52	10.6%	19.8%	0.54
Biotechnology	10.9%	22.1%	0.49	12.4%	23.4%	0.53
Pharmaceuticals	14.4%	19.1%	0.76	8.9%	18.3%	0.49

as of 31/05/2023	5 years			20 years		
INDEX	Avg. Annual TR (%)	Volatility (B)	Sharpe Ratio (A/B)	Avg. Annual TR (%)	Volatility (B)	Sharpe Ratio (A/B)
EUROPE (in €)						
MSCI EUROPE	6.5%	17.4%	0.37	7.5%	17.8%	0.42
Health Care	11.3%	15.7%	0.72	9.4%	15.5%	0.61
Providers & Services	-16.9%	25.4%	-0.67	5.5%	20.7%	0.27
Equipment & Supplies	4.8%	20.9%	0.23	10.2%	17.2%	0.60
Biotechnology	12.5%	25.0%	0.50	13.8%	24.1%	0.57
Pharmaceuticals	13.5%	16.3%	0.83	9.6%	16.0%	0.60

Our proprietary study on equity sectors highlights that most of the healthcare and pharmaceutical sectors at the global level not only offers higher-than-average Sharpe ratios, but also lower-than-average correlation with MSCI Europe.

EU, China, EM, Japan, Switz., UK, US - Healthcare and Pharma sectors: Sharpe ratio and correlation vs MSCI EU

Avg Sharpe Ratio

MSCI EUROPE

Avg correlation with MSCI Europe

* red dots = 40 highest ranking sectors by Sharpe ratio and correlation with MSCI

Source: Datastream, GIAM calculations

One example of healthcare company with a clear digital health strategy is [SIEMENS HEALTHINEERS,](#) leader in imaging equipment. Its high growth and profitability allow it to benefit from scale effects, to invest more than competitors, and to be at the forefront of issues such as **diagnostics supported by artificial intelligence.**

Companies active in the DH spectrum are appealing also from an ESG perspective, thanks to the social value of their innovations. Improving healthcare accessibility and personalisation of treatment, in fact, implies high and positive social and environmental externalities. On the other hand, DH companies must communicate investors how they will tackle **Cybersecurity** and **Digital Rights** as potential risks.

In the **non-listed universe**, Private Equity and Private Debt are important financing and support engines for non-listed SMEs in Bio and Digital-tech sectors. In Europe, **45% of the Eur 138bn total PE investments in 2021** were channeled towards **Digital/Biotech/Healthcare companies**. Large AMs are expanding their product offerings to these illiquid markets. Their weight is increasing in the portfolios of long-term oriented institutional investors looking for an exposure to private real assets, given their relevant positive characteristics. We refer to the hedge against **inflation**, **attractive absolute total returns**, and **low correlation** with other asset classes.

Given that the number of new comers is increasing fast, the ability to select valuable and profitable projects will become key: digital health startups need to demonstrate not only their proof of concept but also [Return on Investment](#) potential. That said, a well-diversified portfolio of young DH private firms is highly recommended to optimise risk-return profile.

4. Barriers limiting digital health potential

First, the digital infrastructure still lacks an appropriate coverage: The digital revolution in healthcare, as underlined by the [European Economic and Social Committee (EESC)](#), must guarantee an even geographical coverage. The European **digital infrastructure** is quite developed, but selected areas are scarcely covered due to the limited broadband access. In terms of high-speed internet connection coverage, there are differences both between and within countries, with most of low settled areas[4] being penalised (see Figure below).

High speed internet coverage by type of area
(% households by country, 2021)
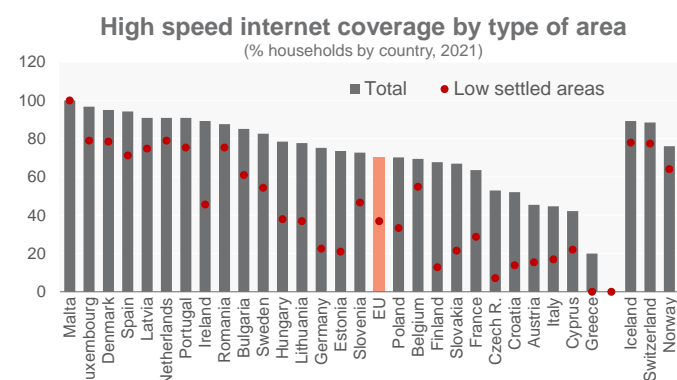
Source: ec.europa.eu/eurostat

A second barrier lies in the **digital divide of users**, **healthcare professionals** and **insurance companies**. As for **users**, results from the [second Health Literacy Survey Germany](#) (2021) found that over the past seven years, despite a slight upwards bump during the pandemic, **digital health literacy[5] has actually declined**. One key aspect emerging from the study is that "*Three-quarter of the respondents have a low level of digital health literacy and thus have great difficulties in dealing with digital information. The appraisal of the **trustworthiness** and **neutrality of digital information** is considered [especially difficult](#)*".

Healthcare professionals also need to widen their skillset towards **digital competences**, to keep pace with a fast-changing technology environment, ensure high quality, patient-centric care, and foster patient participation (Ahonen et al., 2015; Mattson, 2016). Professionals should also evaluate how to best use digital solutions, including from an [ethical standpoint](#).

Lastly, **insurance companies** themselves need to evolve towards digital health technologies. This is an **increasing**

concern, as traditional insurance players face new competition from:

- **Insurtech companies,** that raised a record **$15.4 billion in funding in 2021**, nearly double 2020's levels according to [CB Insights](#). 2022 figures seem not so encouraging, with inflation, war and market volatility hitting funding inflows. This situation could be an advantage for insurance incumbents, both in terms of consolidation and partnership strategies, as tools to increase digital expertise.

- Big-tech giants entering in the healthcare and insurance businesses. Amazon, in July 2022, announced the $3.9 billion acquisition of One Medical, a company born in San Francisco and active since 2007. Its subscription offer allows customers access to virtual assistance 24/7. With proprietary virtual medical record software, it allows subscribers to access "same-day" doctor visits, SMS contact with the attending physician and online booking of appointments on a vast network of clinics and small nursing homes.

  In the same month, Apple made its approach to healthcare markets public. The company focuses on Apple Watch as a medical device, able to warn and nudge users toward better health. Main features go from alerts of heart irregularities to fall detection and automatic emergency contacting. More than 150 types of health data and medical information can be stored on iPhones and encryption ensures data accessibility to users only.

- **Consumers seem more inclined to change insurance provider at their best convenience, according to a recent survey by [EY (2022)](#).**

The third obstacle to digital health adoption is the lack of [interoperability](#) **(technical, semantic, and syntactic):** fragmented databases, incompatible systems, proprietary software, and different standards limit data exchange, analysis and, ultimately, the potential of digital health revolution.

The fourth barrier is data privacy: unlike in the US where healthcare providers gain the property right of possession of data, in the EU healthcare data still belong to the people (512 million individuals). Patients need to know who is using their personal information, how long data are stored, and whether data are used by third parties for secondary purposes (research). The European Commission has recently
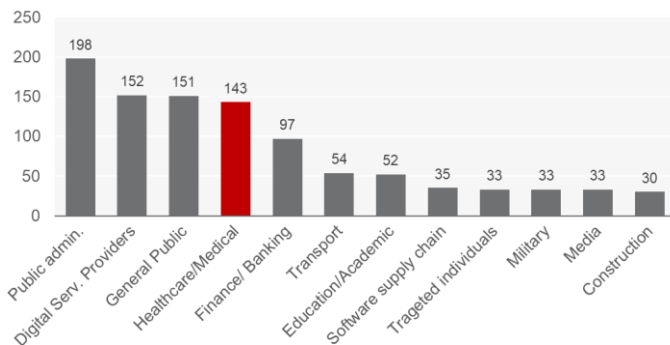
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[4] Low settled areas: places with fewer than 100 people per km2

[5] Digital literacy skills range from basic, such as being able to find a website or send an e-mail, to more advanced, such as being able to navigate multiple interfaces and share data between platforms.

announced the European Health Data Space (EHDS): it's an ecosystem of rules, common standards, practices, and infrastructures for sharing health data at European level, giving citizens greater control over their health data and tackling interoperability issues at the same time. In principle, thanks to EHDS, **clients will be able to easily share their data with their own health insurer**, given that in the health insurance contract field, they must disclose relevant health data and provide evidence. However, as stated by **Insurance Europe**, the EC proposal, **"*at article 35 lays a specific prohibition in data secondary use related to premium setting in insurance*"**. If not amended, **it will impede insurers to use fresh and standardised health data in the risk assessment process**, limiting the benefit of digitalisation in reducing IA. Linked to data privacy, the **Cyber Risk could also be material in limiting DH diffusion**: In the US, between 2009 and 2021, around 4,500 healthcare data breaches of 500+ medical records have been reported to the HHS' Office for Civil Rights. The frequency of attacks is increasing, moving from 1 per day in 2018 to an average of 1.95 in 2021. The same trend holds in Europe, where according to the European Union's Cybersecurity Agency (Enisa), Cyber-attacks on hospitals and healthcare networks rose by 47% between 2020 and 2021, becoming the 4th most targeted sector[6].

Targeted sectors per number of incidents. Apr 20-Jul 21

Source:Enisa, 2021

Cyber threat is material also for medical devices: as stated in September by the FBI recommendations, cyber-attacks can threaten health care operations, patient safety, other than and data privacy and integrity.

Lastly, there are relevant DH barriers belonging to the specific insurance sphere. First, the **cost of technology can undermine affordability**: acquisition costs of increasingly sophisticated data processing and analysis tools can neutralise the potential advantages deriving from better risk

pricing. Second, the higher level of **personalization carries several risks for insurers**: customers may not be willing to accept the "Big Brother rule" when it comes to personal health data: especially in countries where health insurance is voluntary, clients' reaction may lead to under-penetration. Moreover, when customers accept to disclose personal health and behavioural data, an increase in **premiums volatility** is to be expected, with price adapting to changes in risk profile. Policyholders searching for stable and predictable premium stream could find digital policies less attractive and more **difficult to compare** to market alternatives. Third, big (health) data can foster the so-called **Cream Skimming:** insurers could discriminate against those most exposed to risk by refusing to cover high-risk individuals or setting unaffordable premiums. The very principle of mutualisation, at the core of private insurance, would be at risk.

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[6] ENISA organised in June 2022 a cybersecurity exercise to test the response to attacks on EU healthcare infrastructures and services. Results should be published in December.

Imprint

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