SIEMENS Healthineers

NOVA SCHOOL OF BUSINESS & ECONOMICS

We pioneer breakthroughs in healthcare.

For everyone. Everywhere. Sustainably.

NovaSBE

Carlos Parente
March 13, 2025

We pioneer breakthroughs in healthcare.

For everyone.
Everywhere.
Sustainably.

About Siemens Healthineers

Our long story of success


Röntgen


Von Behring

1901
Nobel prize winners
(Physics and Medicine)

1896

First industrially manufactured medical X-ray unit

1909

The fastest X-ray device of its time

1933

Our first rotating anode X-ray tube

1953

First device for echocardiography

1956

First ever dry chemistry testing for glucose in urine

1957

First fully automated discrete chemistry analyzer for whole blood or serum

1958

First nuclear medicine scanner from Siemens

1964

First glass electrode for blood-gas analysis

1967

World's first real-time ultrasound scanner

1975

Our first CT scanner

1983

First Siemens MRI scanner

1990

World's first spiral CT scanner

1991

First point-of-care HbA1c analyzer

1998

Our first track-based laboratory automation system

1999

First intuitive medical IT platform from Siemens

2001

Our first PET/CT system

2005

World's first Dual Source CT scanner

2008

Robotic-assisted angiography system

2009

Multi-modality 3D imaging software

2011

First integrated, simultaneous whole-body MRI and PET

2012

Wireless transducers for ultrasound

2014

"Free breathing" CT scanning with dual X-ray sources and detectors


Cloud-based network: teamplay

2015

Wide-angle image Acquisition breast tomosynthesis

2015

The first research 7T MRI: MAGNETOM 7T


First Twin Robotic X-ray for better patient care and productivity

2016

Liquid biopsy


Cinematic rendering for 3D medical imaging

2017

Lab diagnostics solution for immunoassay & clinical chemistry: Atellica® Solution


A whole new world of precision: Biograph Vision


MRI technology adapting to human nature: BioMatrix


FAST 3D Camera – automated precise patient positioning

2017

Blood gas testing available at the patient's side

2018

More than 40 AI-enriched offerings


AI-Rad Companion Chest CT to mark and measure potential abnormalities


Software for remote scanning assistance: *syngo*.Virtual Cockpit[1]


Innovision: Planned to redefine the MRI experience[2]

2018

epoc system: first handheld blood gas analyzer powered by Android

2019

AI-enabled user guidance system: myExam Companion


MR Fingerprinting[3]: Leverage quantitative data to understand more precisely a patient's condition


ARTIS icono enables a wide procedure mix and multi-disciplinary usage

2019

Multi-modality imaging decision support with AI Rad Companion[4]


AIDAN Artificial Intelligence for Molecular Imaging

2020

Breaking barriers to expand the reach of MRI: MAGNETOM Free.Max


Syngo Carbon[5]: New software environment for enterprise imaging and reporting


In-vitro diagnostic assays[6,7] for SARS-CoV-2 detection

2020

Biograph Vision Quadra™ 106 cm axial PET field of view for simultaneous whole-body imaging

2021

NAEOTOM Alpha®: The world´s first photon-counting CT


8-minute finger-stick test for high-sensitivity troponin I[8]


Addition of an integrated portfolio for fighting cancer through joining forces with Varian


Partners in cancer care: Value Partnerships| Oncology

2021

Disruptively simple approach to MRI: MAGNETOM Free.Star

2022

MAGNETOM Cima.X & MAGNETOM Terra.X


MAGNETOM Viato.Mobile


Halcyon® and Ethos™ radiotherapy system featuring HyperSight™ imaging solution

2023

Self-driving mobile 3D C-arm: CIARTIC Move

2023

SOMATOM Pro.Pulse: Unlock Dual Source technology. Everywhere.


ARIA CORE oncology management solution

2024

The NAEOTOM® Alpha class, three photon-counting CT systems for many clinical scenarios[9]


SOMATOM On.site bringing critical care imaging to patients


IntelliBlate RapidArc Dynamic


MAMMOMAT B.brilliant Because women deserve fewer maybes

We pioneer breakthroughs in healthcare.
For everyone.
Everywhere.
Sustainably.

Innovating **personalized care**

Achieving **operational excellence**

Transforming **the system of care**

Future

The products/features (mentioned herein) are not commercially available in all countries. Due to regulatory reasons, their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details. | **1** *syngo*.Virtual Cockpit is not commercially available in all countries. Due to regulatory reasons its future availability cannot be guaranteed. Precondition: Expert-i enabled modality from Siemens Healthineers. | **2** Innovision is still under development and not commercially available yet. It is not for sale in the US. Its future availability cannot be ensured. | **3** The product / feature is not for sale in the U.S. Its future availability cannot be guaranteed. | **4** Several devices of AI-Rad Companion are planned and under development, not commercially available in all countries, and their future availability cannot be ensured. | **5** Syngo Carbon consists of several products which are (medical) devices in their own right. Some products are under development and not commercially available. Future availability cannot be ensured. | **6** These SARS-CoV-2 molecular and serology tests have not been FDA cleared or approved. These tests have been authorized by FDA under an EUA for use by authorized laboratories. The molecular test has been authorized only for the detection of nucleic acid from SARS-CoV-2, not for any other viruses or pathogens. The serology test has been authorized only for detecting the presence of antibodies against SARS-CoV-2, not for any other viruses or pathogens. These tests are only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of in vitro diagnostics for detection and/or diagnosis of COVID-19 under Section 564(b)(1) of the Act, 21 U.S.C. § 360bbb-3(b)(1), unless the authorization is terminated or revoked sooner. | **7** The Siemens Healthineers lab and POC antigen assays are not available for sale in the U.S. Product availability may vary by country and is subject to regulatory requirements. | **8** The product / feature is not for sale in the U.S. Its future availability cannot be guaranteed. | **9** NAEOTOM Alpha.Prime, NAEOTOM Alpha.Pro and NAEOTOM Alpha.Peak are pending 510(k) clearance and are not yet commercially available in the United States and other regions.

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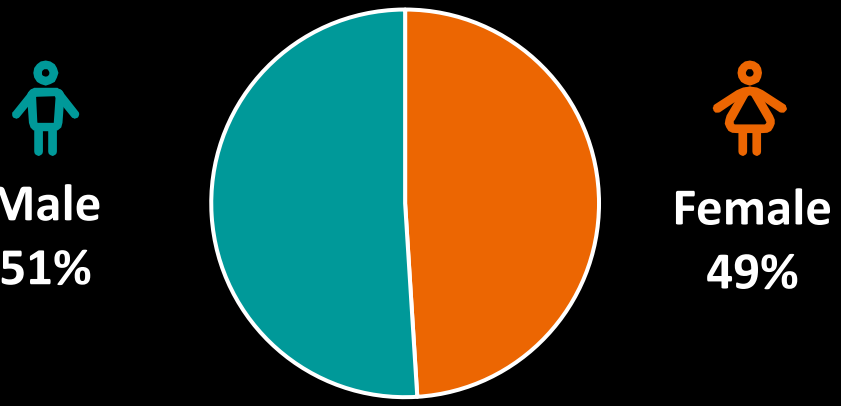
PORTUGAL

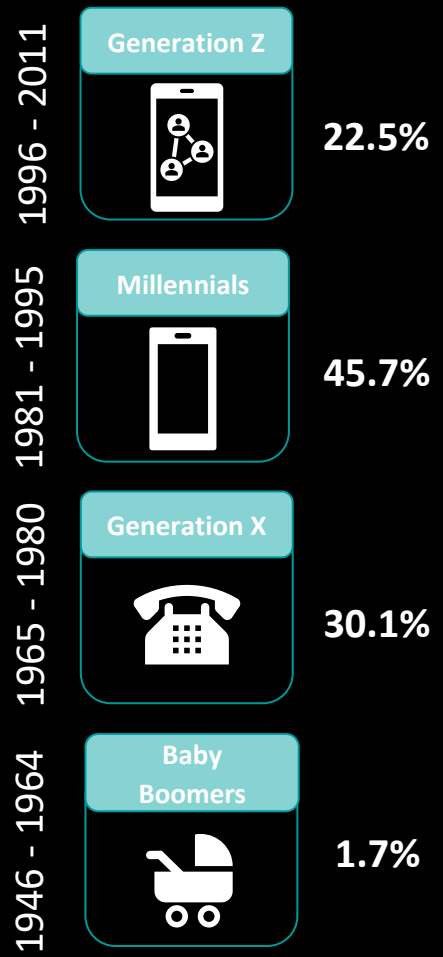
Siemens Healthineers Portugal

Gender distribution:



Average Age:

39 years



405 Employees

20 Nationalities

Angola
Brazil
Cabo Verde
Democratic Republic of the Congo
Costa Rica
Czechia
Finland
Germany
Greece
India
Ireland
Luxembourg
Mexico
Moldova
Nepal
Netherlands
Portugal
Russian Federation
Spain
Switzerland

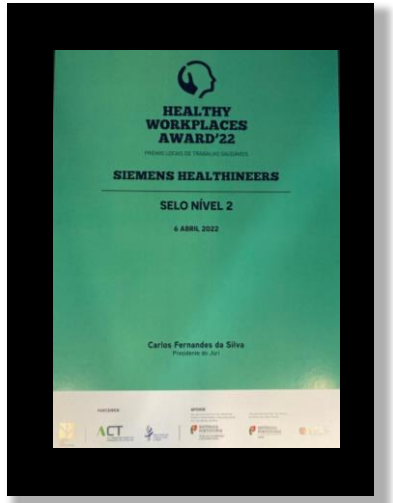
Awards

2018

2019

2021

2021



2022

2022

2023

A continuous recognition that makes us proud

Siemens Healthineers Portugal

Top 10 Customers

SIEMENS Healthineers

LUZ SAÚDE

SÃO JOÃO HOSPITAL

Unilabs

CHUC CENTRO HOSPITALAR E UNIVERSITÁRIO DE COIMBRA

Trofa Saúde

JOAQUIM CHAVES SAÚDE

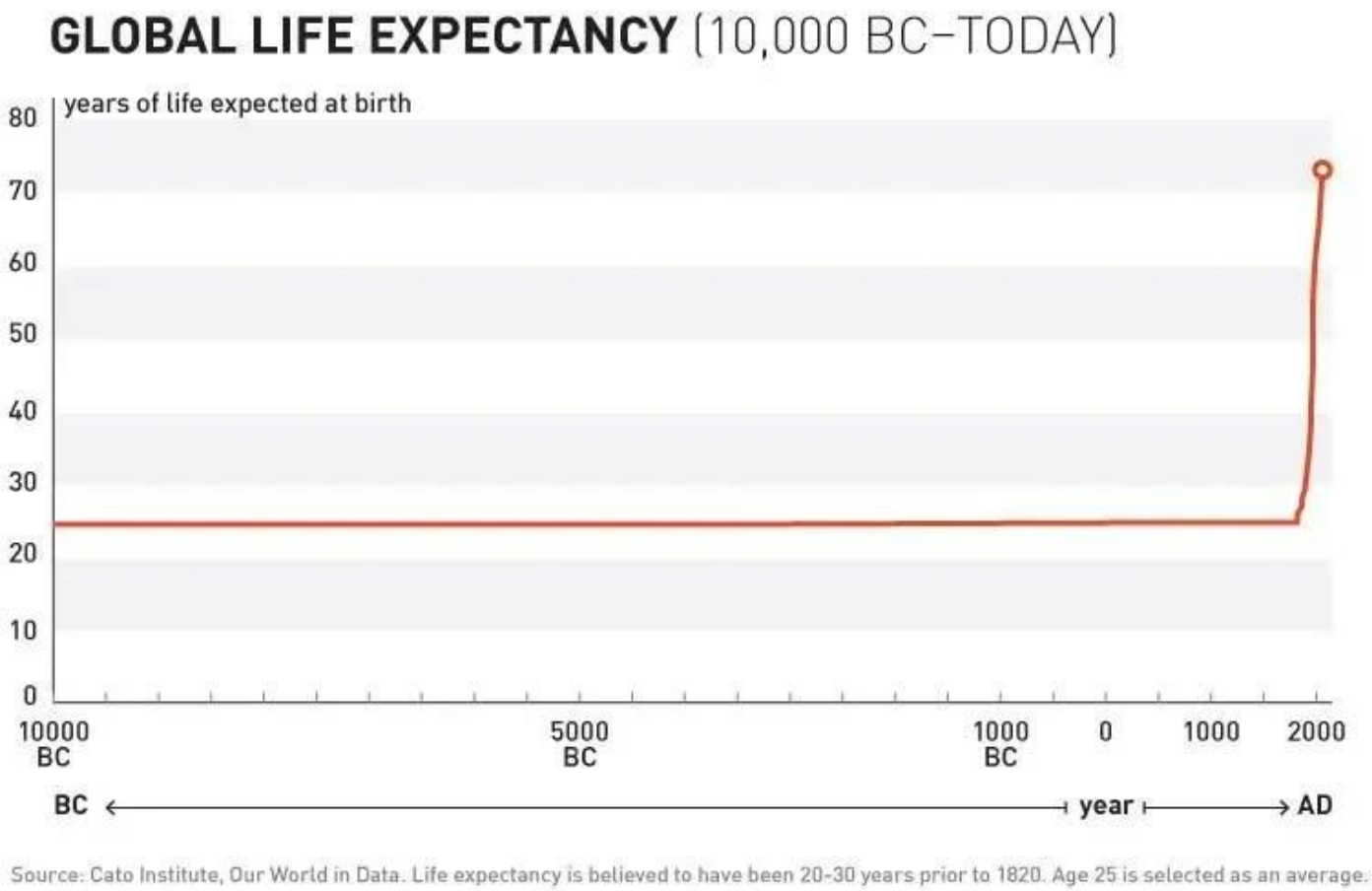
GERMANO DE SOUSA CENTRO DE MEDICINA LABORATORIAL

JOSÉ DE MELLO · SAÚDE

CENTRO HOSPITALAR DE LISBOA CENTRAL, EPE

affidea

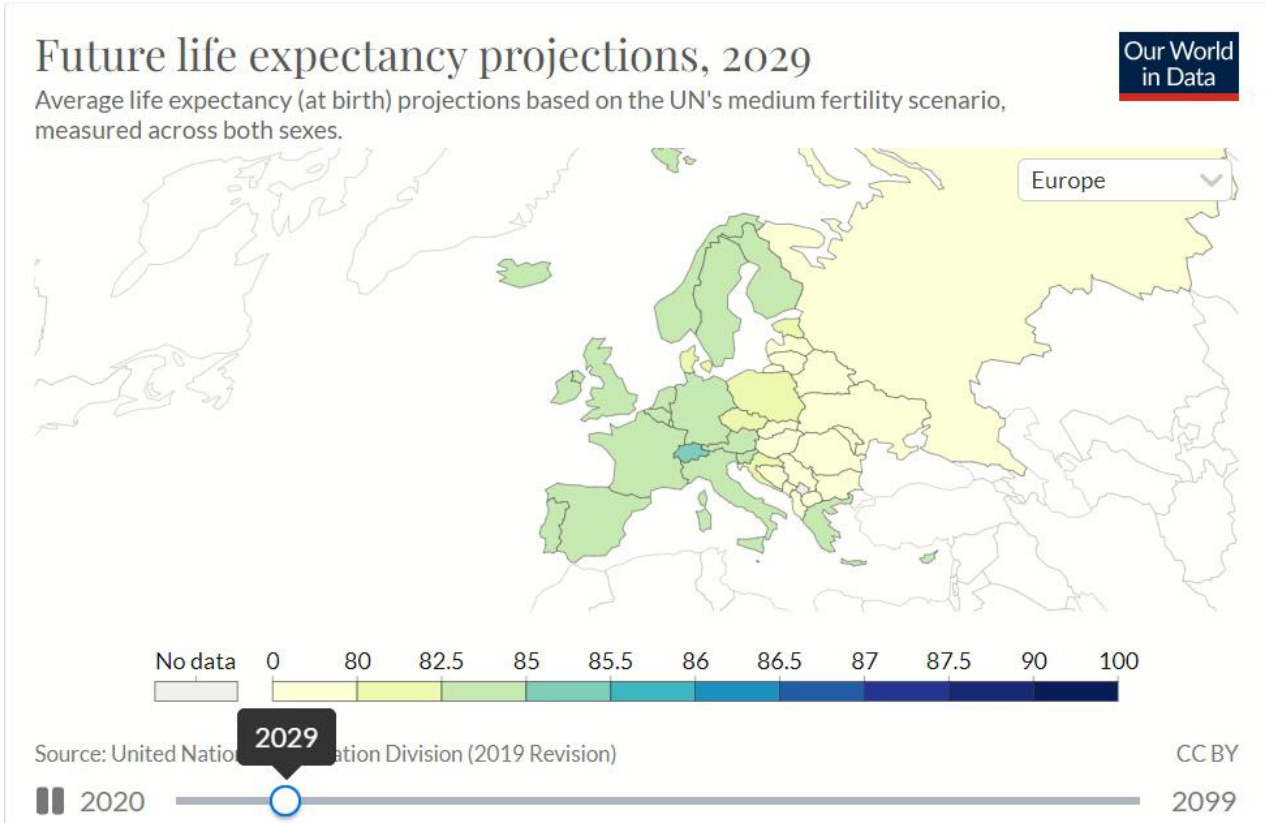
About innovation

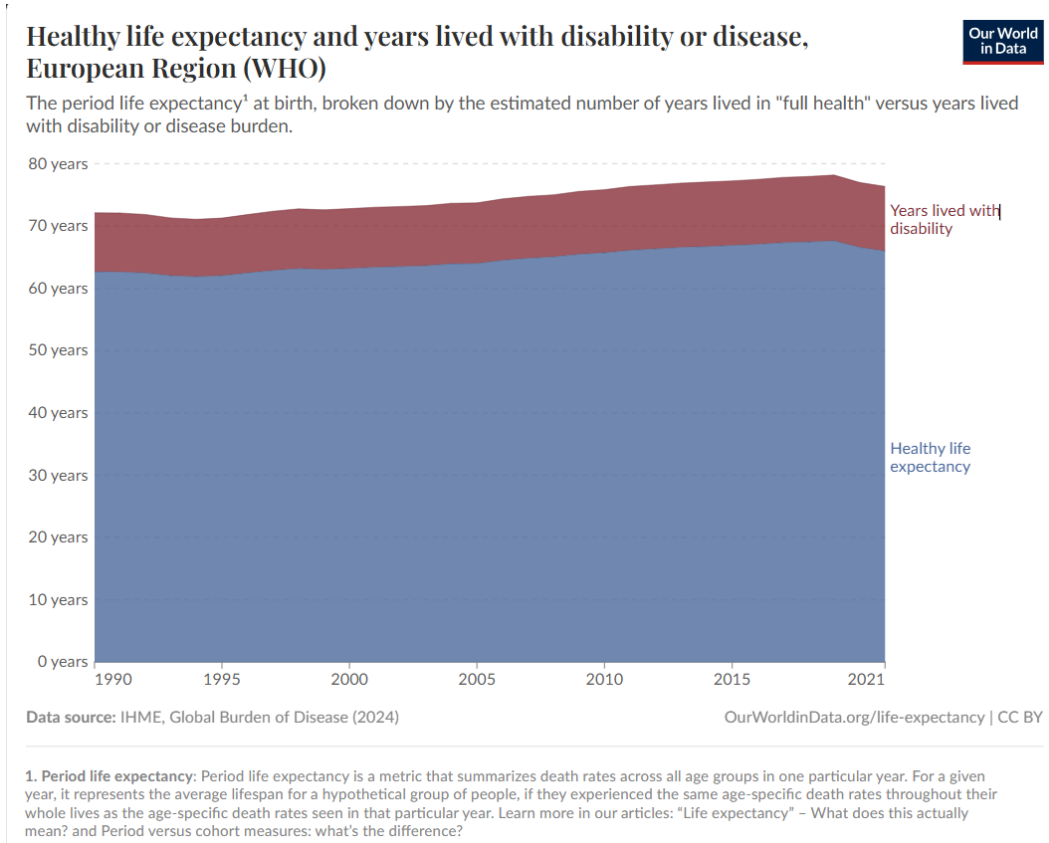


Source: Cato Institute, Our World in Data. Life expectancy is believed to have been 20-30 years prior to 1820. Age 25 is selected as an average.

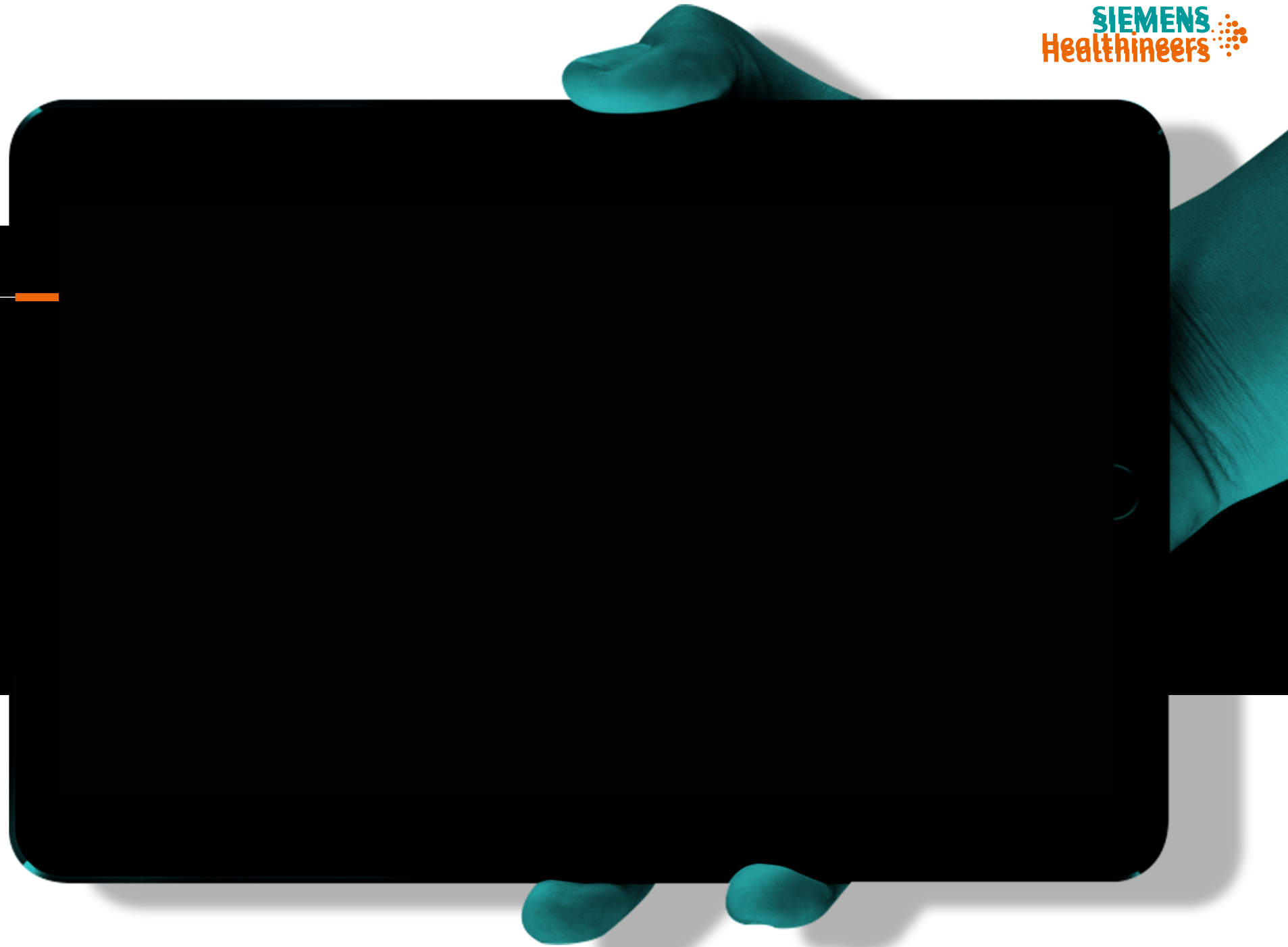
Life expectancy was 20-30 years prior to 1820

About innovation





The future of healthcare



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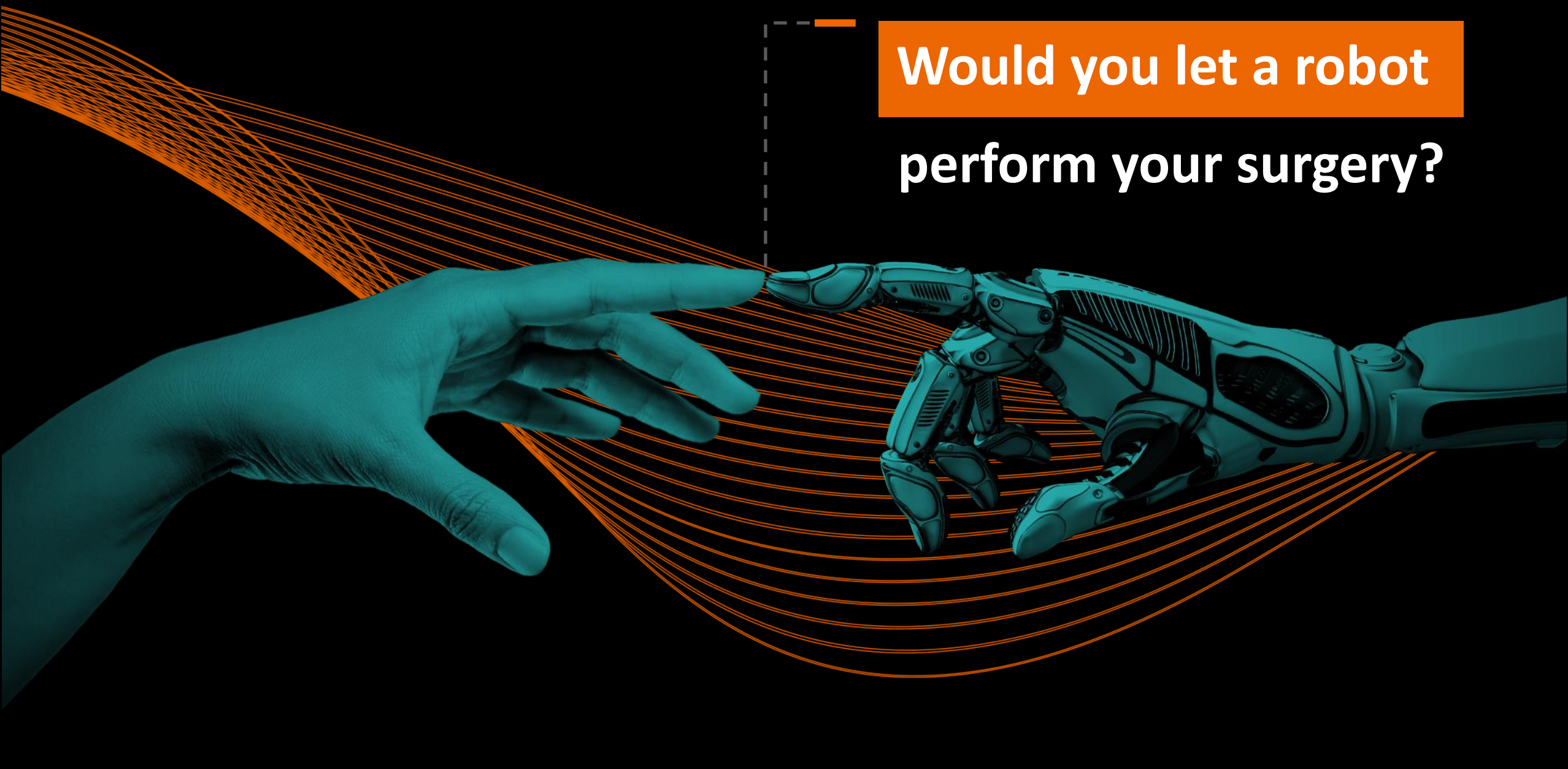
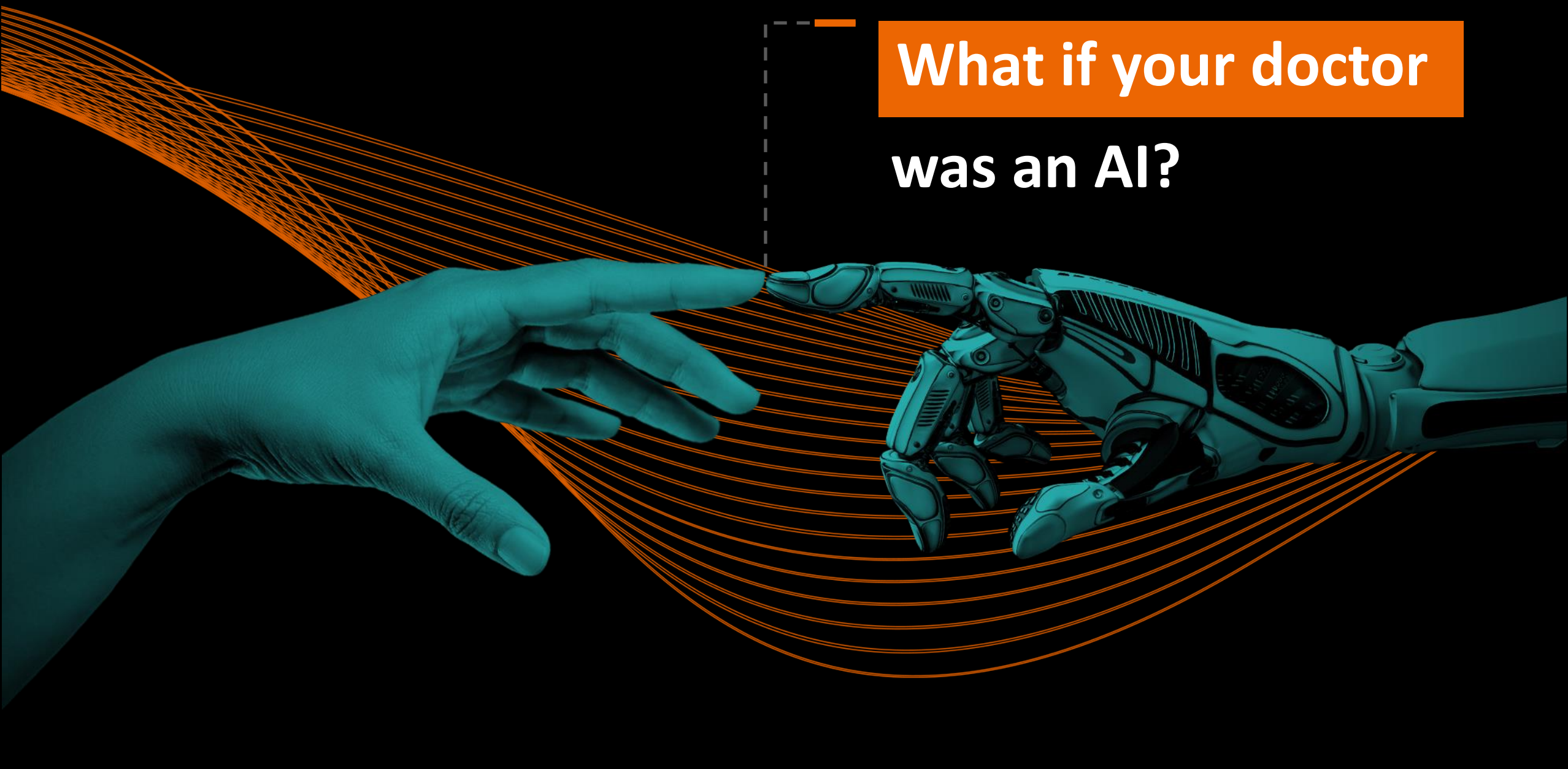
Would you let a robot perform your surgery?



SIEMENS Healthineers

What if your doctor was an AI?



Who we are

Market leader in majority of businesses

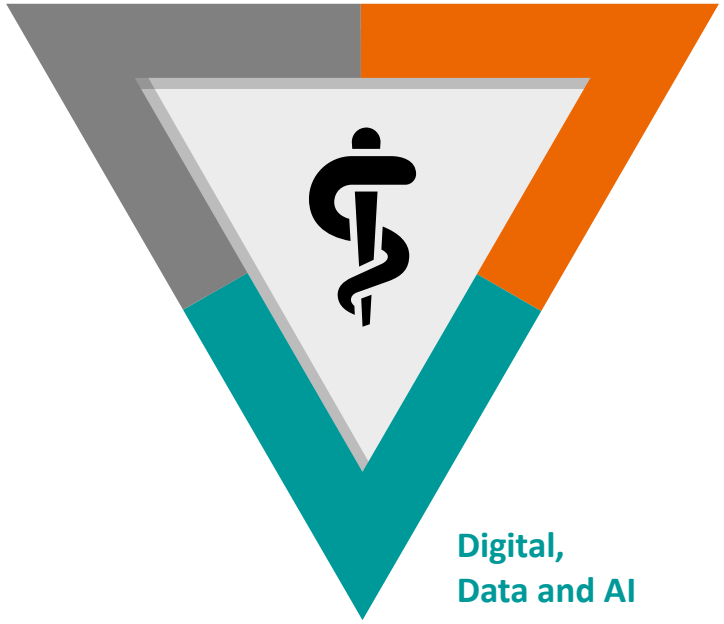
>90% of leading hospitals collaborate with us[4]

~73,000
highly skilled employees

>70
countries with direct presence

€22.36 bn
revenue FY2024[1]

25,000 technical IPRs,
thereof 16,000 granted patents[3]



>100
AI-enabled products

2.6 bn
patient touchpoints worldwide[5]

>70% of critical clinical decisions are influenced by the type of technology we provide[6]

>700,000
installed base

1 Revenue FY2024 Siemens Healthineers | **2** Patient Twinning is currently under development. It is not for sale. Its future availability cannot be guaranteed.
3 The reported figure from FY 2020 covers granted patents and registered utility models. As of FY 2021, only granted patents are reported.
4 Based on hospital rankings in the U.S., China, and Germany | **5** FY2024 Sustainability Report | **6** AdvaMedDX 'A Policy Primer on Diagnostics'

Our innovation commitment to improve patient touchpoints globally

Strong focus on research & development

9%
ratio of R&D expenses to revenue*

+€1.8 bn
R&D spending*

>13,000
R&D employees*

Established global ecosystem SHIFT for open innovation

Connecting **PEOPLE** inside and outside our company to drive innovation.

Offering **PLACES** to come together and make fast idea validation possible.

Providing **PLATFORM**s, communities and methodologies to enable innovators to make the most of their ideas.

Three interconnected key technology areas based on our capabilities

Sensing
- Imaging modalities
- In-vitro biomarkers
- Optical perception
- Vital sign sensors
- Wearables

Robotics
- Lab assistance
- Robotic catheters
- Radiation beam application
- Patient handling
- Robotic imaging devices
- Smart actuators

Artificial Intelligence
- Data access and integration
- Data analysis and interpretation
- Decision making
- Smart robotic control

* Annual Report 2023

Our unique capabilities
Reflected in our broad and deep portfolio

Patient Twinning[1]

Imaging
A market leader in diagnostic imaging with systems for

- Computed Tomography
- Magnetic Resonance
- Molecular Imaging
- Ultrasound
- X-Ray/Fluoroscopy
- Mammography Systems
- Digital Health Solutions
- Imaging Software and IT

Key clinical specialties
- Radiology
- Nuclear Medicine

Diagnostics
Accurate and timely test results plus, workflow excellence for lab and point-of-care settings

- Reagents, consumables and analytical instruments for testing
- Automation and IT systems
- Consulting and project management

Key clinical specialties
Laboratory, molecular, and point-of-care diagnostic tests for nearly every disease and every healthcare setting

Precision Therapy

Varian
Cancer treatment ecosystem for streamlined, comprehensive patient-centric care
- Radiosurgery
- Radiotherapy
- Proton Therapy
- Brachytherapy
- Adaptive Therapy
- Oncology Services
- Interventional Solutions
- Software
- Veterinary Oncology

Key clinical specialties
- Radiation Oncology
- Interventional Oncology
- Radiosurgery

Advanced Therapies
Empowering advanced therapy concepts

- Angio Suites
- Cath Labs
- Hybrid ORs
- Mobile C-arms
- Multi-modality imaging solutions

Key clinical specialties
- Interventional Radiology
- Cardiology
- Surgery

Digital, Data and AI

Customer Services
Digitally enabled and available in customizable service plans

- UpTime Services
- UpSpeed Services
- UpSkill Services
- UpLift Services
- UpTeam Services
- UpScale Services

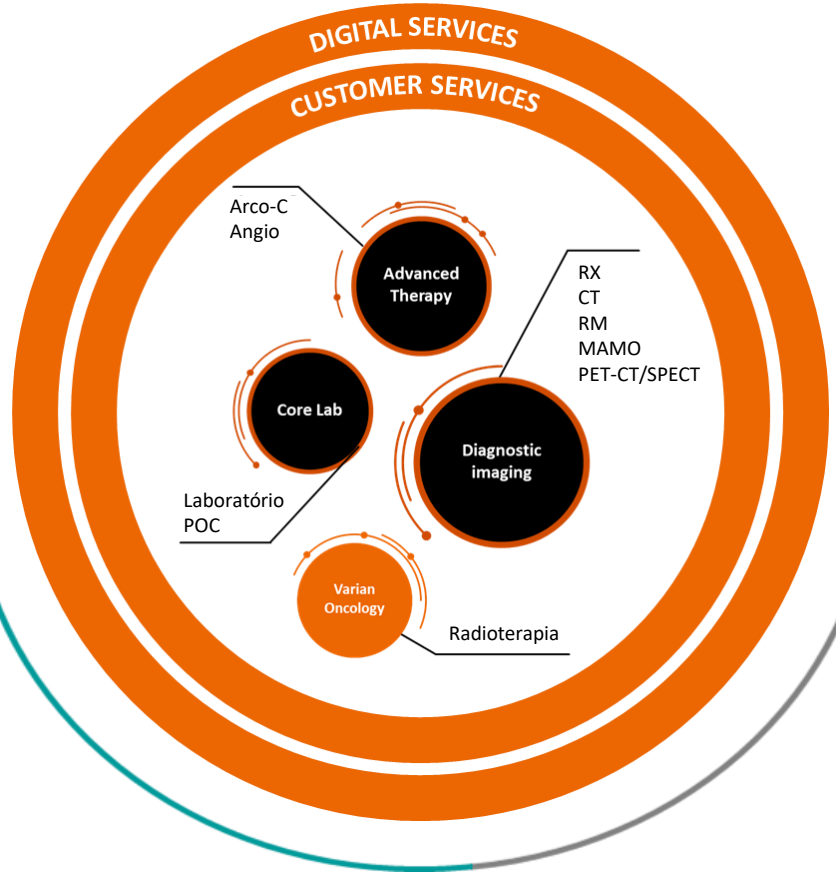
Value Partnerships
Long-term, performance-oriented, collaborative commitments, focusing on

- Technology
- Operations
- Workforce
- Facility
- Strategic Transformation
- Digital Innovation

Note: The products mentioned above are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details. | **1** Patient Twinning is currently under development. It is not for sale. Its future availability cannot be guaranteed.

Explore what a Value Partnership can do for your hospital

Where Siemens Healthineers adds value



Pre-Sales Support

We assist customers who wish to open a specialty, clinic, or hospital.

Innovation

Identify innovative ways to add value to the customer

Operations

Analyze data to enhance productivity and performance focusing on efficiency, patient experience, and staff satisfaction.

Provide **integrated services** with the acquisition of medical equipment, ensuring a comprehensive and synergistic approach to meet the specific needs of each project.

Who is who?

SIEMENS Healthineers

We believe …

… personalization will dramatically improve patient outcomes
Diagnoses will be more nuanced. Treatments will be more precise.

… operational excellence will amplify professional impact
Care teams will be more empowered. Healthcare will be more sustainable.

… smart care systems will increase health equity and access for all
Care will be more localized. Patients will be better served.

Global market dynamics
Climate change

Up to 5.5%

increased mortality risk
with **every 1 °C** rise in global temperature[1]

The healthcare sector is one of the biggest contributors to climate change.

Healthcare sector fifth-largest emitter worldwide if it were a country[2]

Net CO_2 Emissions

- **29%** China
- **14%** United States
- **7%** India
- **4.7%** Russia
- **4.4%** Healthcare sector

Employer attractiveness

Two out of three job seekers are more willing to apply at **environmentally friendly** companies[3]

Legal requirements

The **EU's Corporate Sustainability Reporting Directive** is effective since January 2023.

It requires EU businesses to **report on the environmental and social impact** of their activities.

Consequence: Environmental protection initiatives are gaining importance in decision-making.

1 aboutDigitalHealth, "Net Zero Healthcare": https://aboutdigitalhealth.com/2022/09/20/net-zero-healthcare-pharma, viewed October 25, 2023. | **2** Karliner J, Slotterback S, Boyd R, Ashby B, Steele K, Wang J. Health Care's climate footprint: The Health Sector Contribution and opportunities for action. European Journal of Public Health. 2020;30 (Supplement_5) | **3** IBM Survey "IBM Global Consumer Study: Sustainability Actions Can Speak Louder Than Intent", viewed April 2022.

Global market dynamics
Staff shortage

The world is projected to be short of

10 million

healthcare workers by 2030[1]

Growing world population

Staff **retiring**

Internal and international **migration**

Staff **leaving** for better paid jobs

Not enough young people enter profession/being adequately trained

1.7

practicing doctors per 1,000 population globally[2]

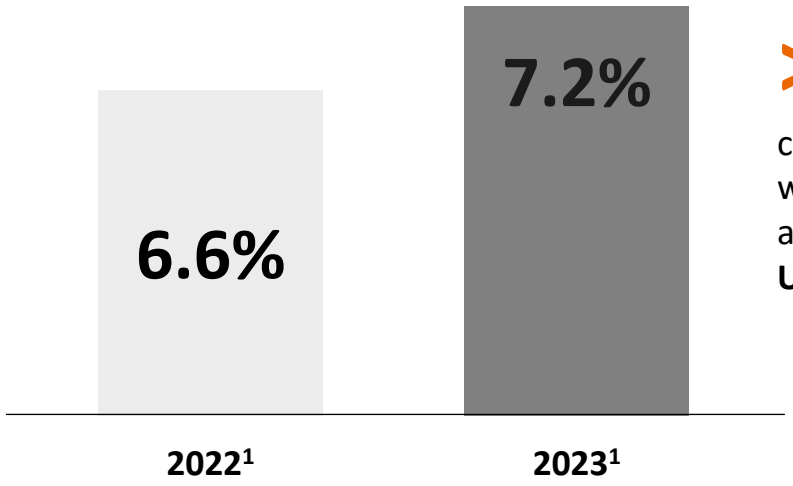
Consequence: Sourcing, attracting, and retaining experienced employees are among the top challenges globally. From a healthcare provider perspective, there are two ways to address these topics: With concepts to increase labor efficiency and by improving the attractiveness as employers, e.g., through education programs.

1 WHO: https://www.who.int/health-topics/health-workforce#tab=tab_1 viewed January 3rd, 2025
2 WHO: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/medical-doctors-(per-10-000-population) viewed January 3rd, 2025

Global market dynamics
Consumerism

SIEMENS Healthineers

Average annual growth of out-of-pocket-expenditure in the U.S.[1]



>21 m

cross-border patients worldwide spending an average of **US$3,510** per visit[3]

94%

of patients that previously used virtual health services are **willing to do so again**[2]

around **one in four** patients are **willing to switch doctors** to access virtual care[2]

Consequence: Patients nowadays are better informed and more involved in their own healthcare decisions than ever, they are also setting the terms by which they seek and receive healthcare services. Therefore, the way healthcare providers need to market themselves is changing dramatically – a good reputation is key to be top of mind.

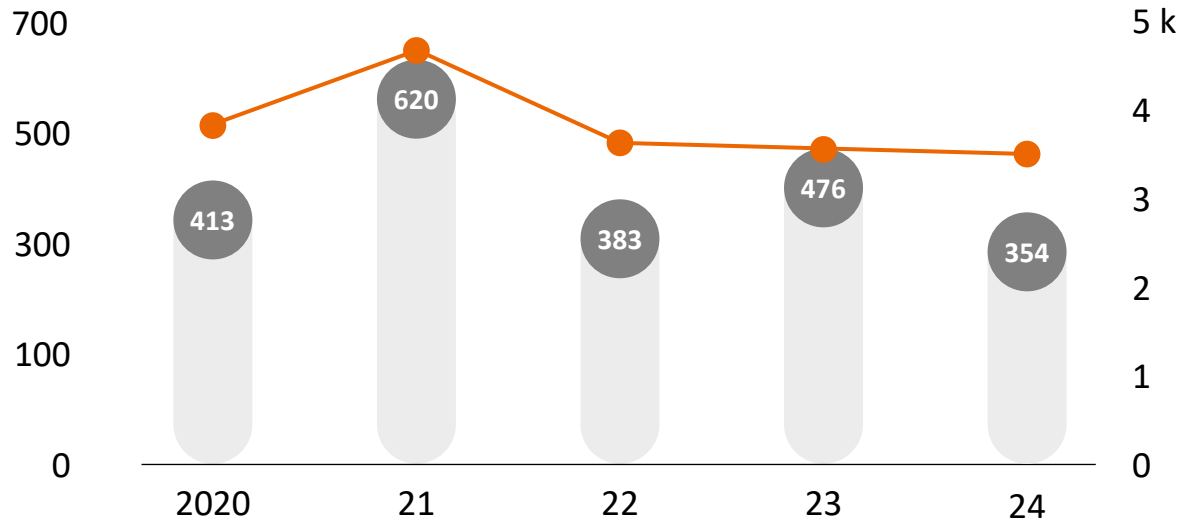
1 CMS: https://www.cms.gov/files/document/nhe-projections-forecast-summary.pdf, viewed January 3rd, 2025
2 Deloitte : https://www2.deloitte.com/us/en/insights/industry/health-care/virtual-health-consumer-demand-and-availability.html , viewed January 22nd 2025
3 Patients Beyond Borders: https://www.patientsbeyondborders.com/media, viewed January 15th, 2025

Global market dynamics
Consolidation: Building the critical mass

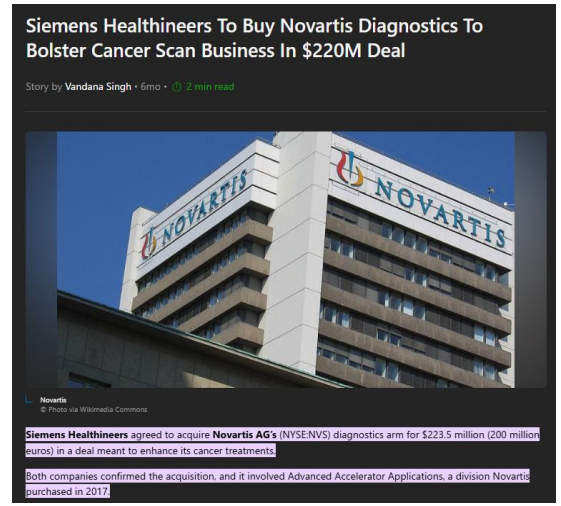
Healthcare M&A[1]

Global healthcare M&A deal value, US$ bn

Global healthcare M&A deal count



National and multi-national healthcare chains diversifying their business **vertically** as well as **horizontally**



HOSPITAL DE CASCAIS

Vivalto Santé estrena la compra de Ribera Salud con un contrato de 800 M en Portugal

La concesionaria valenciana firma el concurso para la gestión durante ocho años del hospital de Cascais, que convocaba el Gobierno de António Costa

El Hospital de Cascais.

Healthcare M&A reached US$354 bn in announced deal value in 2024.

1 White & Case, M&A Explorer: https://mergers.whitecase.com , viewed January 15th, 2025

Global market dynamics
Shift towards virtual care | physical + digital = phygital

Shift towards virtual care
Significant increase in investments and usage of virtual care

8 out of 10

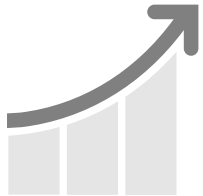
global hospital CEOs stated that **investments in digital** tools and systems have **changed significantly** as a result of the pandemic.[2]

Increase of telehealth in the U.S.[1]
Share of patients using telehealth

… and **76%** are interested in using it.

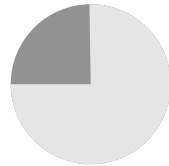
Increase in health monitoring

Trend among consumers to use technology to monitor their health[3]



Virtual care delivery by 2040e

Expected



At least **25%** of all outpatient care, preventive care, long-term care, and well-being services will move to **virtual delivery** by **2040**.[4]

Consequence: Significant acceleration of digitalization in healthcare

1 United Nations: https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/wpp2022_summary_of_results.pdf, viewed January 12, 2024
2 United Nations, United Nations Statistics Division: https://data.un.org/Data.aspx?d=PopDiv&f=variableID%3A68, viewed January 12, 2024
3 United Nations: https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd_2022_wpp_key-messages.pdf, viewed January 12, 2024
4 Deloitte: The future of virtual health: https://www2.deloitte.com/us/en/insights/industry/health-care/future-of-virtual-health.html, viewed January 18th, 2023

Mobile Stroke Units

About data…

2017

2022

Wearable technology is transforming health care. Do not delay the revolution.

"Wearables and artificial intelligence look poised to reshape healthcare in three big ways: early diagnosis, personalized treatment, and chronic disease management."

"Continuous monitoring shifts the balance of care from **what doctors can do in the occasional brief office visit to what patients can do for themselves**, day in and day out."

"Patients' data need to be entered into HER's, which are often inadequate. Practitioners need treatment protocols on how to use new technologies. **Professionals must be trained and reimbursed for offering digital treatments and reviewing data.**

Governments and insurers must figure out how to make the technology available in subsidized health systems **so busy putting out fires that they struggle to invest in prevention.**

Innovating personalized care

Enable you *to promote health for each patient by digitally connecting precise diagnoses with precise treatments*

Organize care around the patient's medical condition

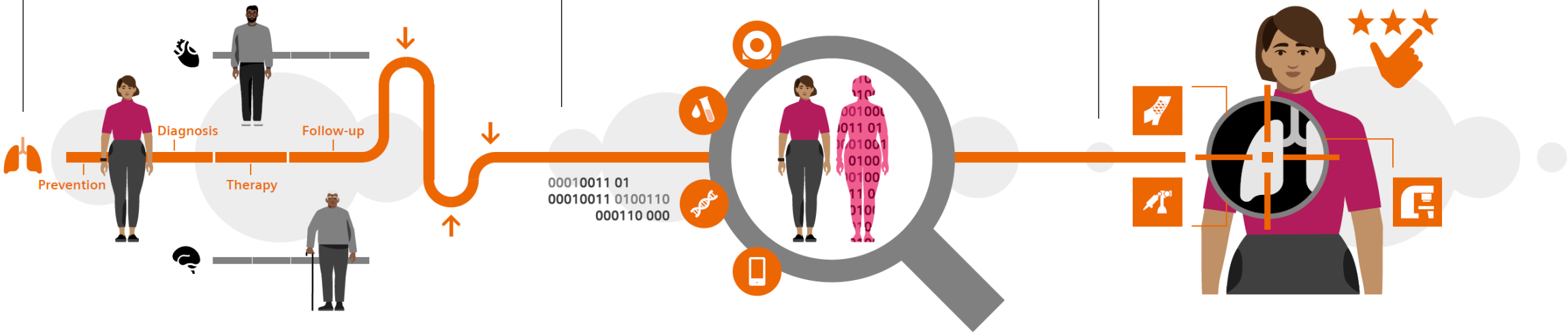
Implement innovative best-practice standards **to organize care along the patient's clinical pathway,** enabling you to reduce unwarranted variations as a precondition for personalizing care.

Provide precise diagnosis for actionable decisions

Integrate **precise diagnostic data,** enabling you to **build a digital twin** of the patient that provides a holistic understanding and **actionable insights** at the point of decision.

Deliver therapy outcomes that matter to patients

Combine **highly precise image guidance** with **minimally invasive, robot-assisted, and intelligent therapies,** enabling you to deliver better patient outcomes with improved, lasting therapy results.



SIEMENS Healthineers

Empowering communities, transforming lives.

Alentejo in Portugal has the oldest population in the country. Heart disease is the leading health risk. To improve cardiovascular care, we helped Évora Hospital to double their capacity and build a world-class cardiovascular center. Today, it treats patients both far and near – including Francisco Antonio Rosa who now receives the care he needs.*

Because every patient matters, we create new possibilities in a world of limited resources.

We pioneer breakthroughs in healthcare.
For everyone. Everywhere. Sustainably.

* The statements by customers of Siemens Healthineers described herein are based on results that were achieved in the customer's unique setting. Because there is no “typical” hospital or laboratory and many variables exist (e.g., hospital size, samples mix, case mix, level of IT and/or automation adoption) there can be no guarantee that other customers will achieve the same results.

Achieving operational excellence

Enable your *care teams to focus on value creation by augmenting their capabilities and simplifying their work, sustainably.*

Empower caregivers to focus on what matters most

Automate everyday tasks and **augment** care teams with decision support enabling you to **free up your caregivers' time** while reducing the workforce burden.

Embrace and utilize new models of work

Create more **flexible and attractive workplaces** that encourage elevating your workforce, sharing skills and adapting capacity enabling you to **deploy resources and expertise when and where needed.**

Ensure technological and operational sustainability

Embrace quality, streamline operations, and proactively **manage medical technology** enabling you to **maximize system-wide performance** while reducing resource consumption.

SIEMENS Healthineers

How can we partner to provide more care per kilowatt?

And our capabilities enable you in …

… innovating **personalized care**

Enable you to promote health for each patient, by digitally connecting precise diagnoses with precise treatments.

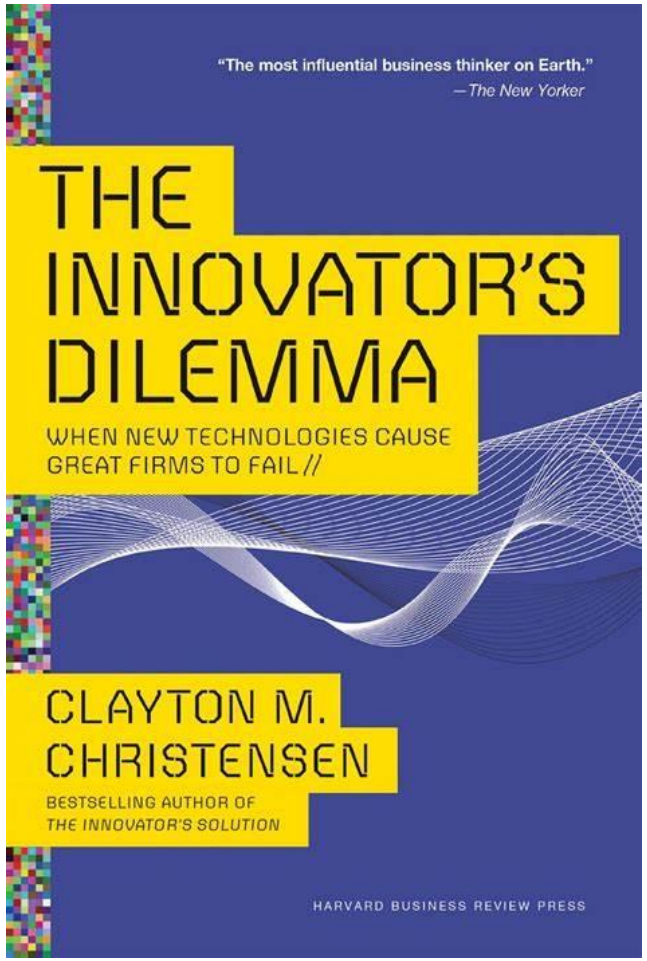
… achieving **operational excellence**

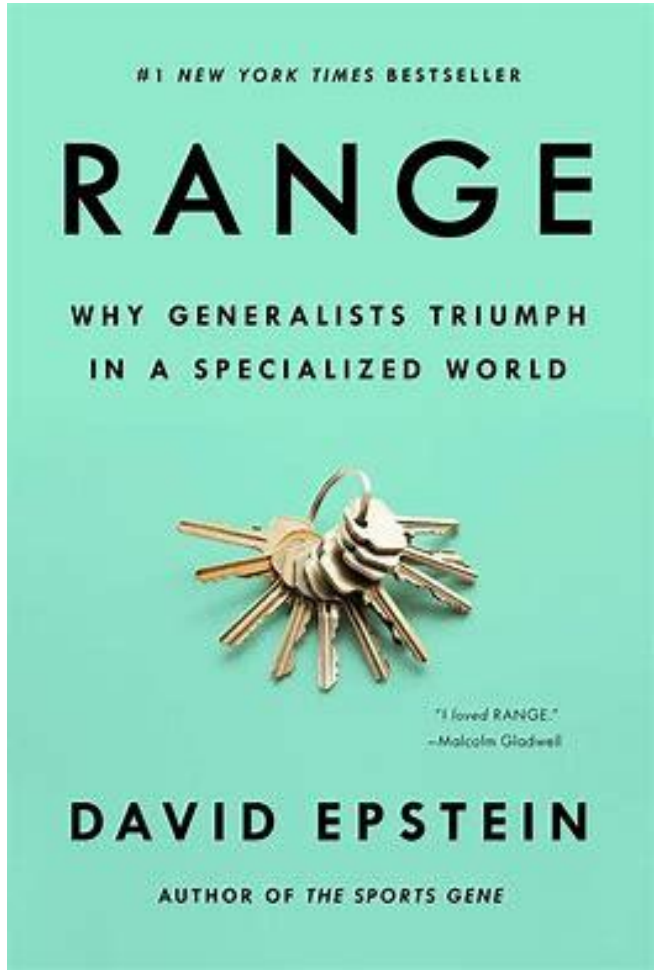
Enable your care teams to focus on value creation by augmenting their capabilities and simplifying their work, sustainably.

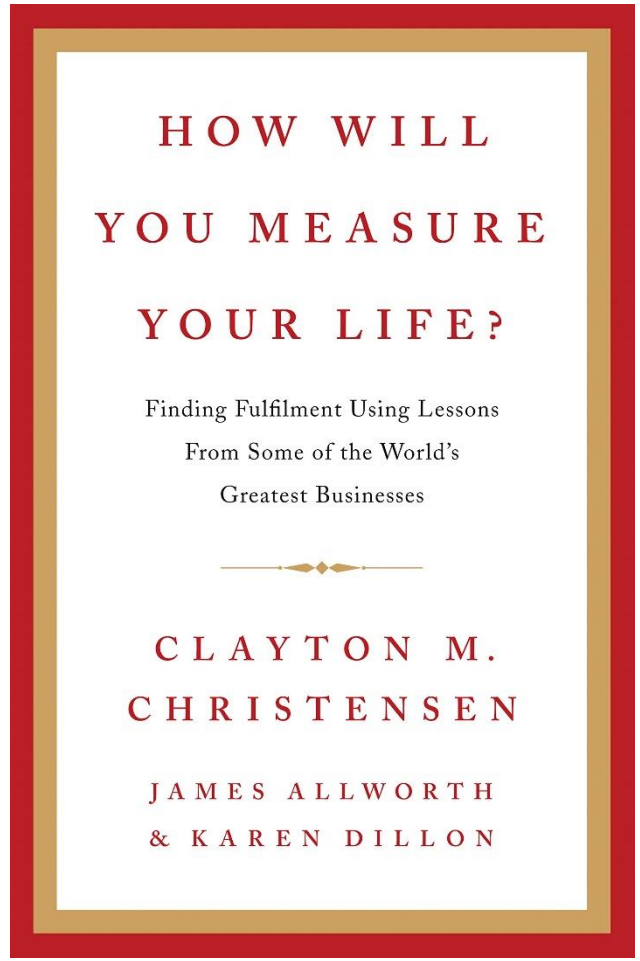
… transforming **the system of care**

Enable you to build a smart care delivery model that provides equitable access to care, no matter where patients are.

We can´t predict the future, but we can build it







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