

How digital is enabling transformation in healthcare

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EY

Building a better
working world

A glimpse into the future today...Erasmus MC Smart Hospital Video

https://www.ey.com/en_us/health/as-technology-become-smarter-is-your-hospital-keeping-up



In November 2019, surgical tech expert, Professor Giorgio Palazzini, **virtually supervised a live laparoscopic procedure, using VR and a 5G network**

A VR headset in Rome
“teleported” the surgeon
to the operating theatre in
Santa Maria Hospital,
Terni



- ▶ The OT had three simulcasting cameras and high-definition devices
- ▶ The surgeon could view and zoom in on live images of the patient
- ▶ Real-time communication made possible by 5G's low latency

This unprecedented event was watched live via multi-streaming by over 30 thousand surgeons around the world.

Ireland's first 5G network - Assert Centre and Vodafone Collaboration for medical training and patient care

[Vodafone](#) and the Assert Centre at [University College Cork](#) partnered to change the future of healthcare training

Assert is the first 5G-connected telemedicine and medical robotics training centre in the world

Three initial focus areas:

- ▶ Real-time monitoring
- ▶ Telemedicine
- ▶ Robotic surgery, integrated with wearable IoMT based devices



Prof Barry O'Reilly, director of Assert at University College Cork, and Anne O'Leary, chief executive of Vodafone Ireland



The 5G mobile networks will enable healthcare systems to harvest this digital ecosystem to provide:

- ▶ Personalised
- ▶ Precise
- ▶ Predictive
- ▶ Participatory
- ▶ Timely healthcare

Four irrefutable facts are impacting the industry

1

Socio-economic forces

Chronic non-communicable diseases will cost the world **US\$30 trillion** by 2030 - *WEF*

Global population aged 60 or older: 1 billion by 2020; **2 billion by 2050** - *WEF*

2

Technology forces

Over 60% of physicians believe digital technologies will enable care teams to remotely coordinate complex care over the next decade - *EY survey*

76% of HCPs are using digital health records. Of these, **69%** say the care they provide has improved - *Philips*

3

Customer centricity

47% of consumers are open to emerging technologies such as chatbot or intelligent health assistants - *EY survey*

36% of consumers are already using the internet to research health issues and healthcare products - *Journal of mHealth*

4

Required capital efficiency

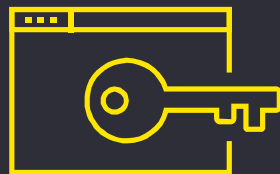
Improving operational efficiency was on high priority for **95%** of US health executives in 2019 - *J&J Survey*

Over **one-third** of healthcare spending in the United States is wasted - *HBR*

The traditional model of health is changing rapidly, primarily enabled by 'digital'



Point of care



Data ownership



Reference point



Physician's role



Data analysis

Today

Hospitals

Institutions

Population

Authority

Separated



Future

Home

Care delivered in the home via telehealth and IoT-enabled devices

Consumers

Consumers own their health data, accessing it through secure platforms

Individual

Treatment is personalized to drive adherence to care plans

Guide

Physicians guide individuals, who use data to take control of their health

Integrated

Big data give insights to consumers and care teams to drive behavior change

Health organisations are in the midst of 'duality of growth' challenge: optimizing the organization of today while innovating for tomorrow

CONTINUE TO OPTIMIZE THE BUSINESS OF TODAY

Focus is on the supply side of the health paradigm - buildings, beds, doctors, nurses as examples

DUALITY OF GROWTH

INNOVATE AND GROW THE BUSINESS OF TOMORROW

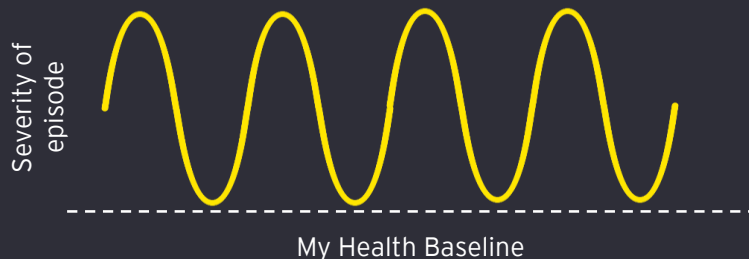
Iteratively introduce innovations to build a data-driven, highly reliable, experience oriented, 24x7 and highly interconnected ecosystem

TRADITIONAL MODEL OF HEALTH Reactive Model

Examples

Quick escalations to high cost solutions

Significant number of emergencies (non-elective)

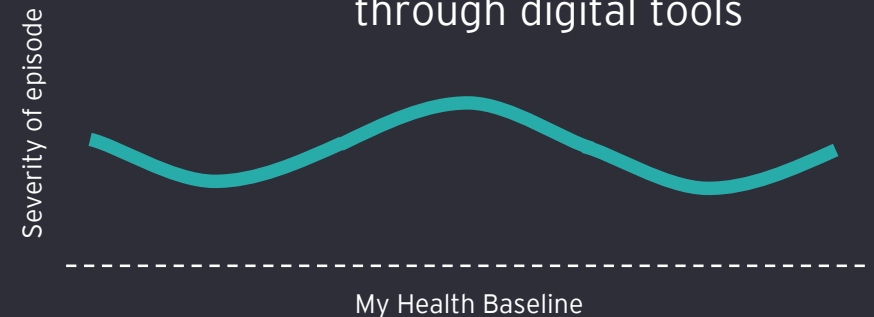


FUTURE MODEL OF HEALTH Proactive, 'Always On' Model

Examples

Reduced number of unnecessary contacts

Self-management enabled through digital tools



Digital transformation will be a big enabler for health organisations to solve the “**duality of growth**” problem

Digital health technologies are the enablers to change how things are done in health care

Three shifts made possible by digital transformation are moving the health field toward a highly personalized, participatory anywhere and anytime system.

Shift 1

Convenient care anywhere, anytime

Shift 2

Manage social determinants, not just clinical care

Shift 3

Moving from digital to smart

Shift 1 | Convenient care anywhere, anytime |

Convenience and personalisation are the core features of the emerging model of anytime, anywhere care

Key stakeholders



Patient goes to the doctor for any health care need

Hospital

Providers



Doctor comes near the patient

Clinics, urgent care centers

Providers
Payers
Consumer
Technology

Retail-ization

Virtualisation



Doctor comes to the patient, virtually

Home / everywhere

Providers
Payers
Technology

Virtualisation



Patient is the doctor

Body (sensors), Apps

Providers
Payers
Technology

Prevention; wellness

Management of complex diseases

Earlier diagnosis

48%

Consumers

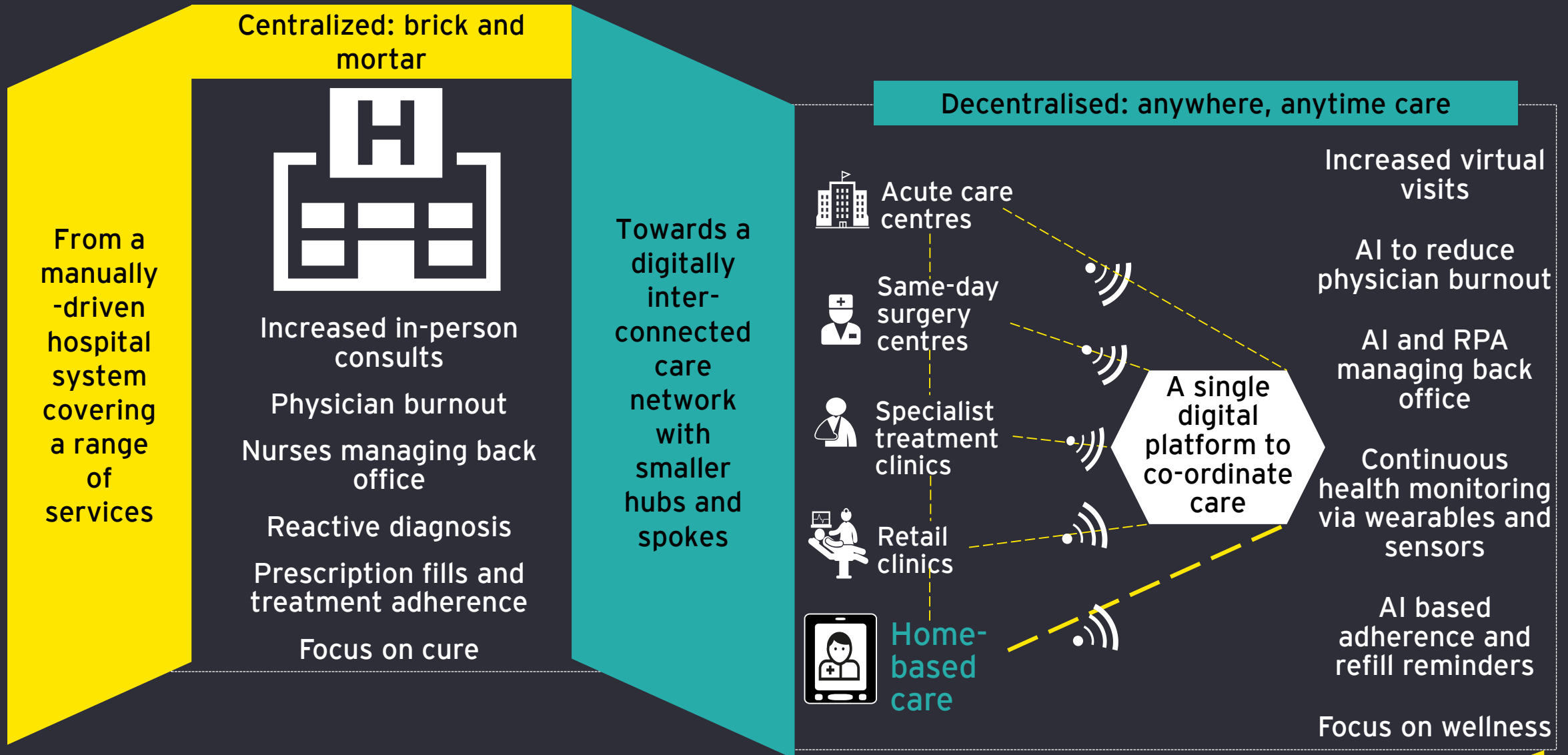
55%

Physicians



... believe smartphones will become the primary interface in the health care system in the next decade - EY survey

A patient-centric and decentralised health system connected through a common platform

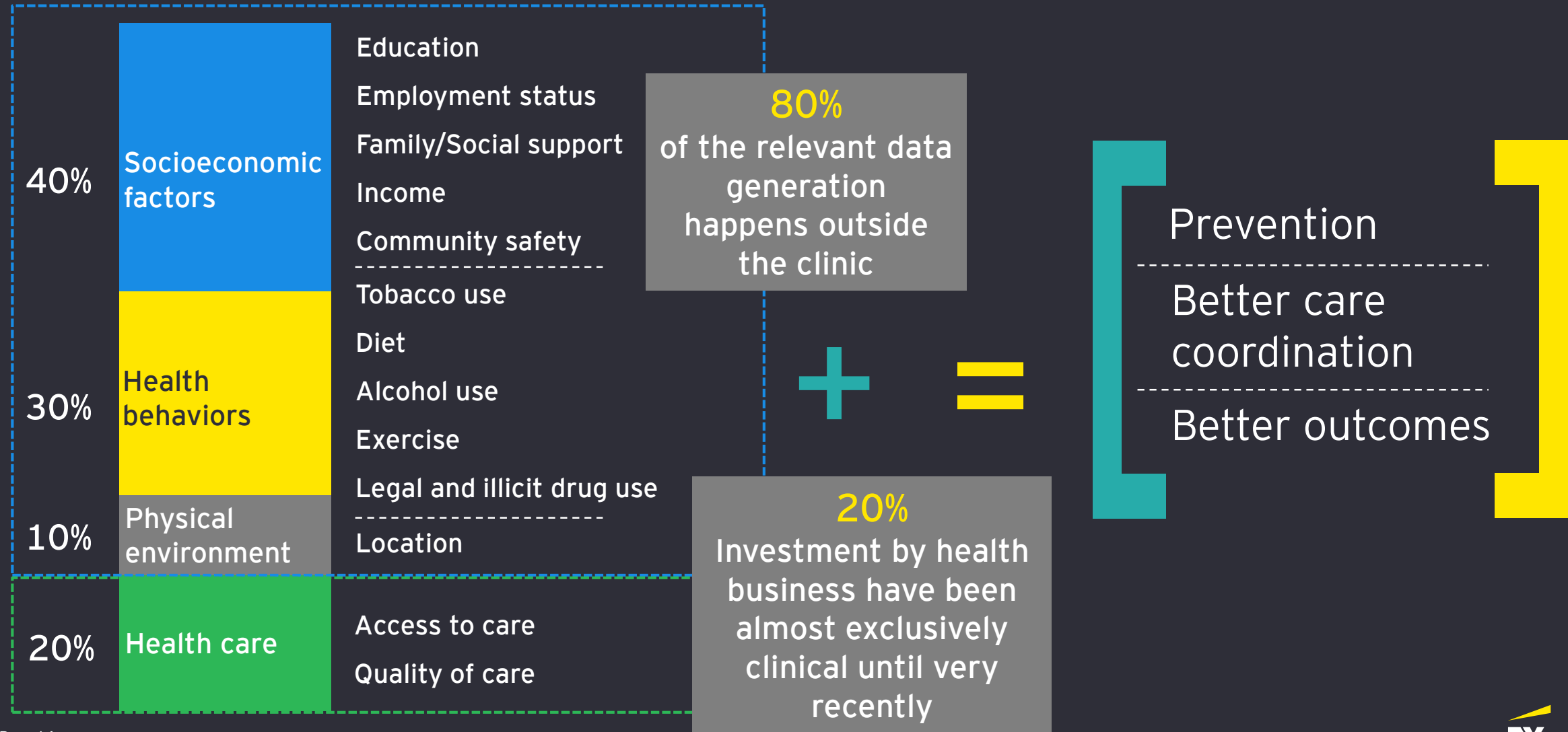


Shift 2

Manage social determinants, not
just clinical care

Regulatory and value-based reimbursement systems seek to shape hospitals and health systems to take a lead in preventive services

Clinical data and social determinants of health data



What we need is a systemically designed data ecosystem built around the permissioned inclusion of health and social information

While there will be an abundance of data, the challenge is to
make the data useful and
“liquid enough”
to move across the system.

As the model of care changes, new streams of personal data including behavioural, environmental and social arise and will need to be integrated with clinical data.

Shift 3 | Moving from digital to smart |

Future of the hospital is 'smart'

Key characteristics of a smart hospital



Patient experience is the starting point



Automation; resources optimally utilized



Medical errors are eradicated



Care delivery is precise

...enabled by



AI and Intelligent Automation



IoT and Smart Sensors



Platforms



Robots and Drones



Virtual care (5G enabled)

**Becoming
future ready**

Operational shifts to reap
the benefits of digital
transformation

How do we start a smart hospital journey?



1

Develop a **shared vision**, purpose and strategic objectives for the future



3

Understand your **digital maturity** - what are your strengths and weaknesses relative to taking advantage of new technology and data*



5

Drive an innovation and **digital 1st agenda** - relentlessly iterate!



2

Discover what your patients, care givers, employees and community partners are experiencing when they interact with your health system and what their most **critical pain points** are as well as suggestions



4

Develop a **prioritized strategic roadmap** and path to success

*Take SPECIAL NOTE of how you negotiate contracts with technology vendors to demand hassle-free interoperability and non-proprietary data models to ensure data you capture can flow and be leveraged with ease.

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