

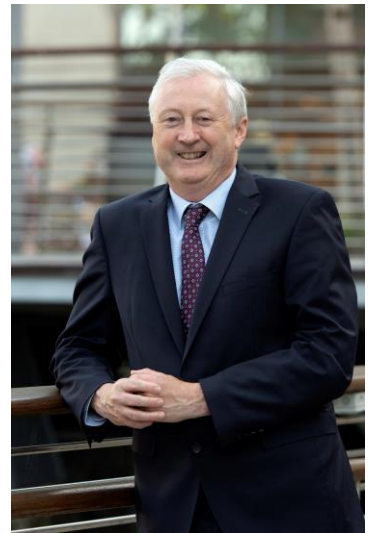
Leapfrog from Health SYSTEM Mediocrity

Prof. Martin Curley

Co-Founder Innovation Value Institute, Maynooth University

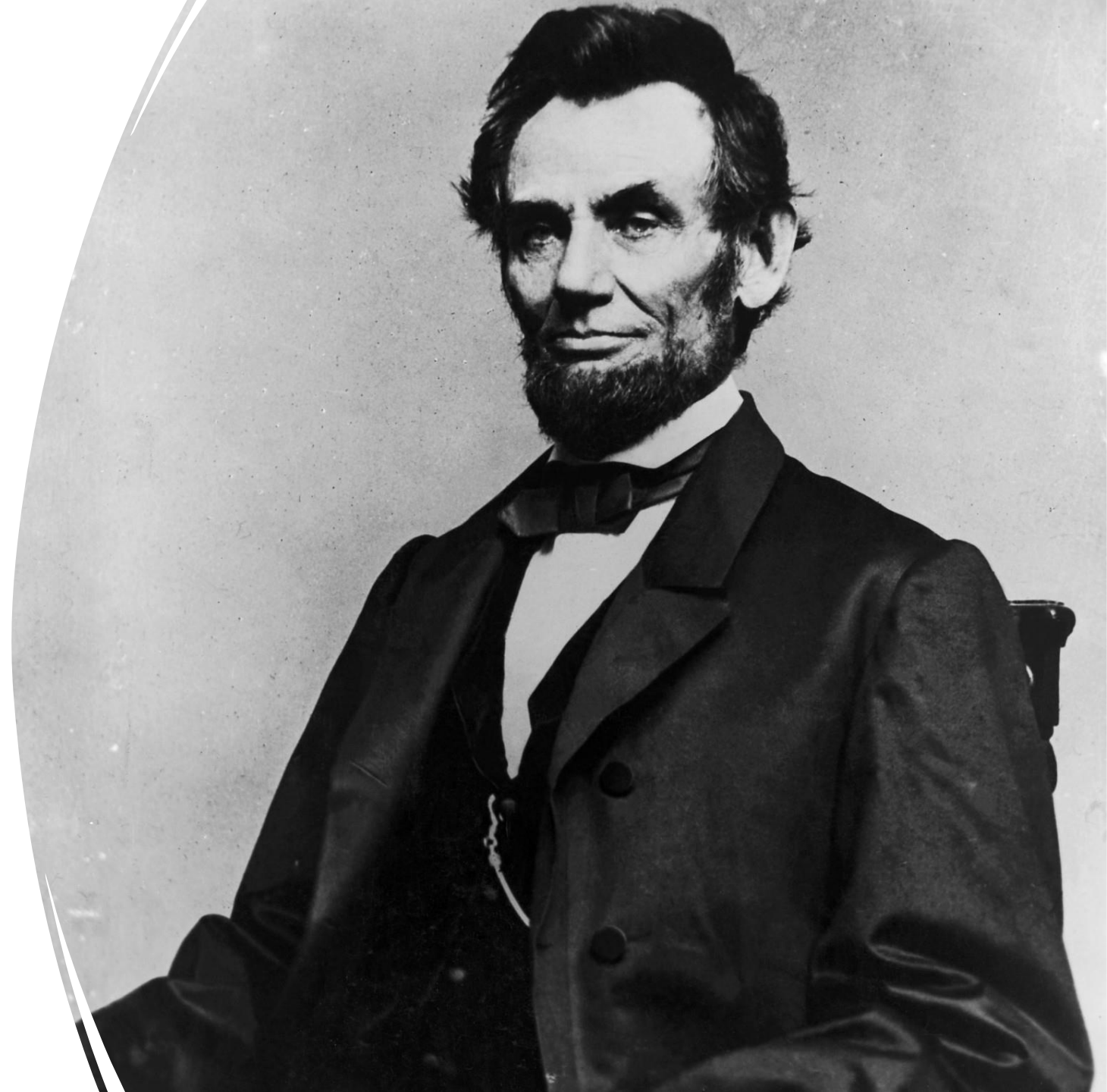
Chair, UNGA Digital Health Symposium

Visiting Professor, University of Bath



Thanks!

The Dogma's of quiet past
are inadequate for the
stormy present (1862)



The Impact of Digital Transformation

COMPANY	MARKET VALUE 2006	MARKET VALUE 2016	% CHANGE
sears	\$27.8B	\$1.1B	↘ 96%
JCPenney	\$18.1B	\$2.6B	↘ 86%
NORDSTROM	\$12.4B	\$8.3B	↘ 33%
KOHL'S	\$24.2B	\$8.8B	↘ 64%
★macy's	\$24.2B	\$11.0B	↘ 55%
 BEST BUY	\$28.4B	\$13.2B	↘ 54%
 TARGET	\$51.3B	\$40.6B	↘ 21%
Walmart 	\$214.0B	\$212.4B	↘ 1%
 amazon	\$17.5B	\$355.9B	↗ 1,934%



- Market Cap of Major US Retailers 2006 – 2016

- Coming to the Healthcare Industry very soon

A new Lexicon and Arithmetic for Health

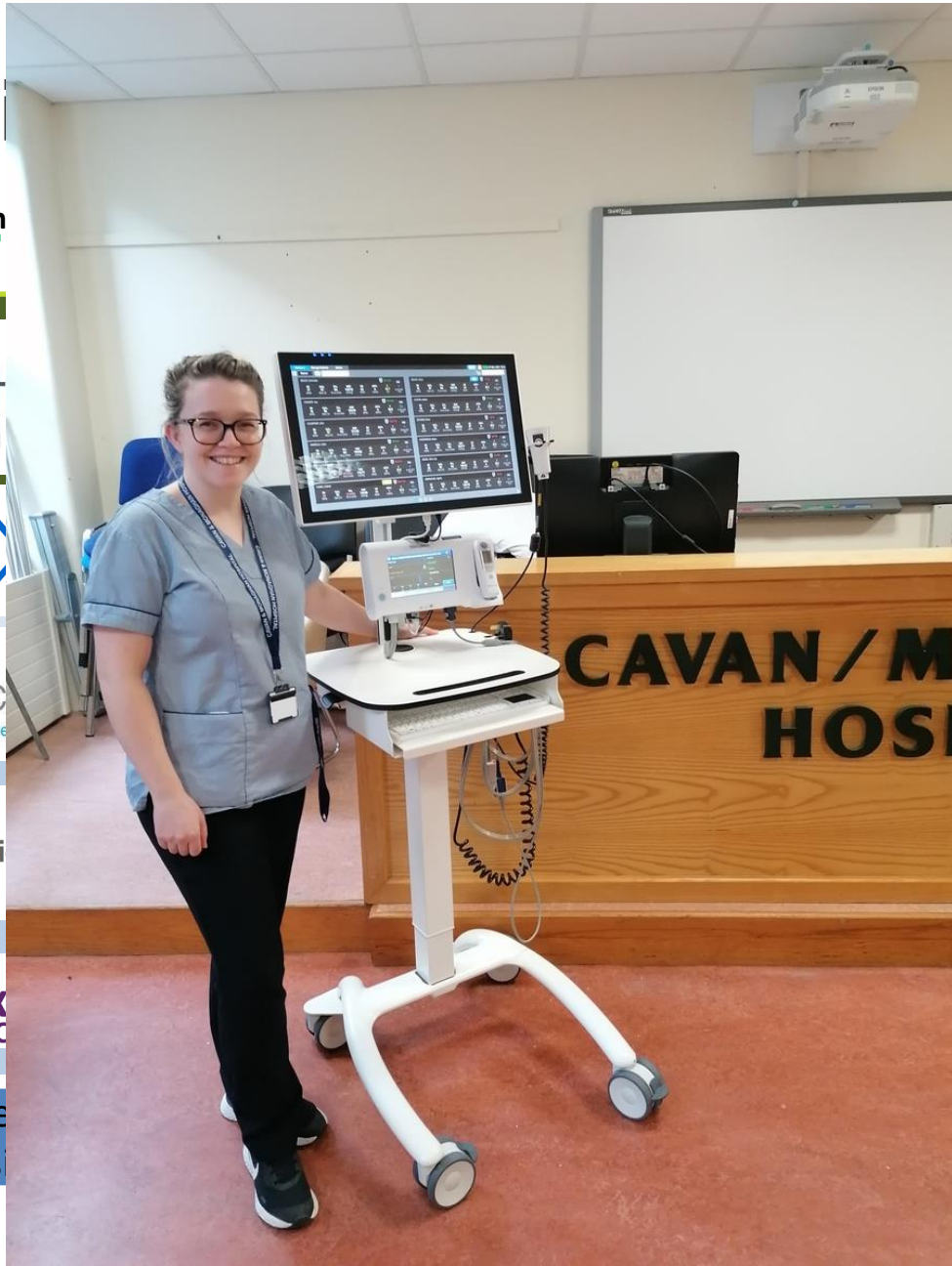
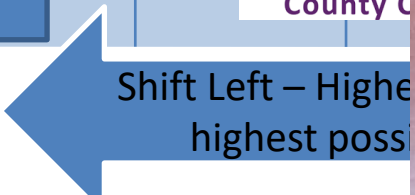
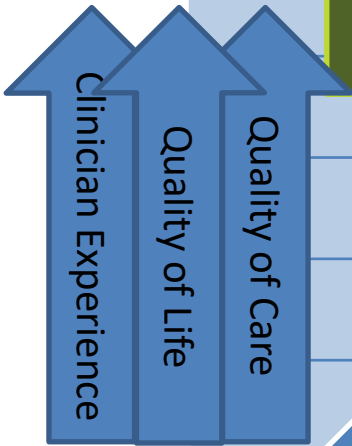
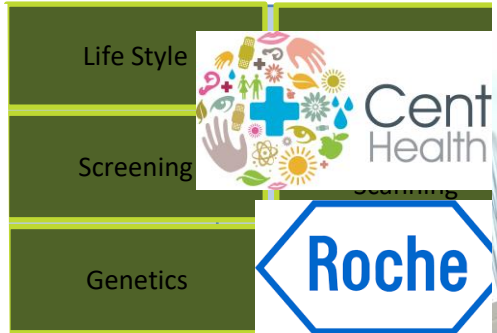


Digital Health Roadmap - Ireland

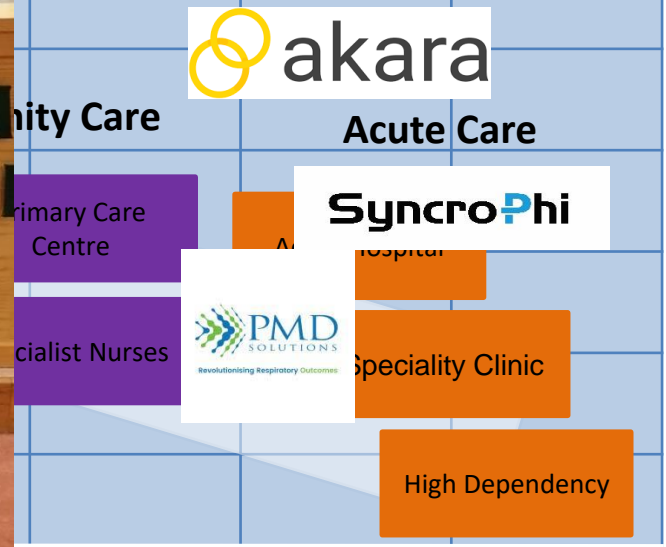
Maturity Levels	Digital Health Macro Capabilities				Timeline
	<u>Digital Budget</u>	<u>Digital Capability</u>	<u>Digital Value</u>	<u>Digital Business Model</u>	
5. Optimizing	Sustainable Economic Model	World Class	Optimized Value	Value Centre	2030 
4. Advanced	Funding Amplification	European Leader	Managed Yield and Portfolio	Investment Centre	2026 
3. Intermediate	Managed Spending	Average	Value Measurement	Service Centre	
2. Basic	Low Spending	Mediocre	Establish Benchmark	Cost Centre	
1. Initial	Min. Budget	← Beginning →			2019

Slá

Preventative/Proactive Health



Identify Left



Cost of Care

How bad/good is the Irish Healthcare System?

Deeply Committed and Excellent Clinicians

Tired, Fatigued, Despondent

Healthcare is Hard

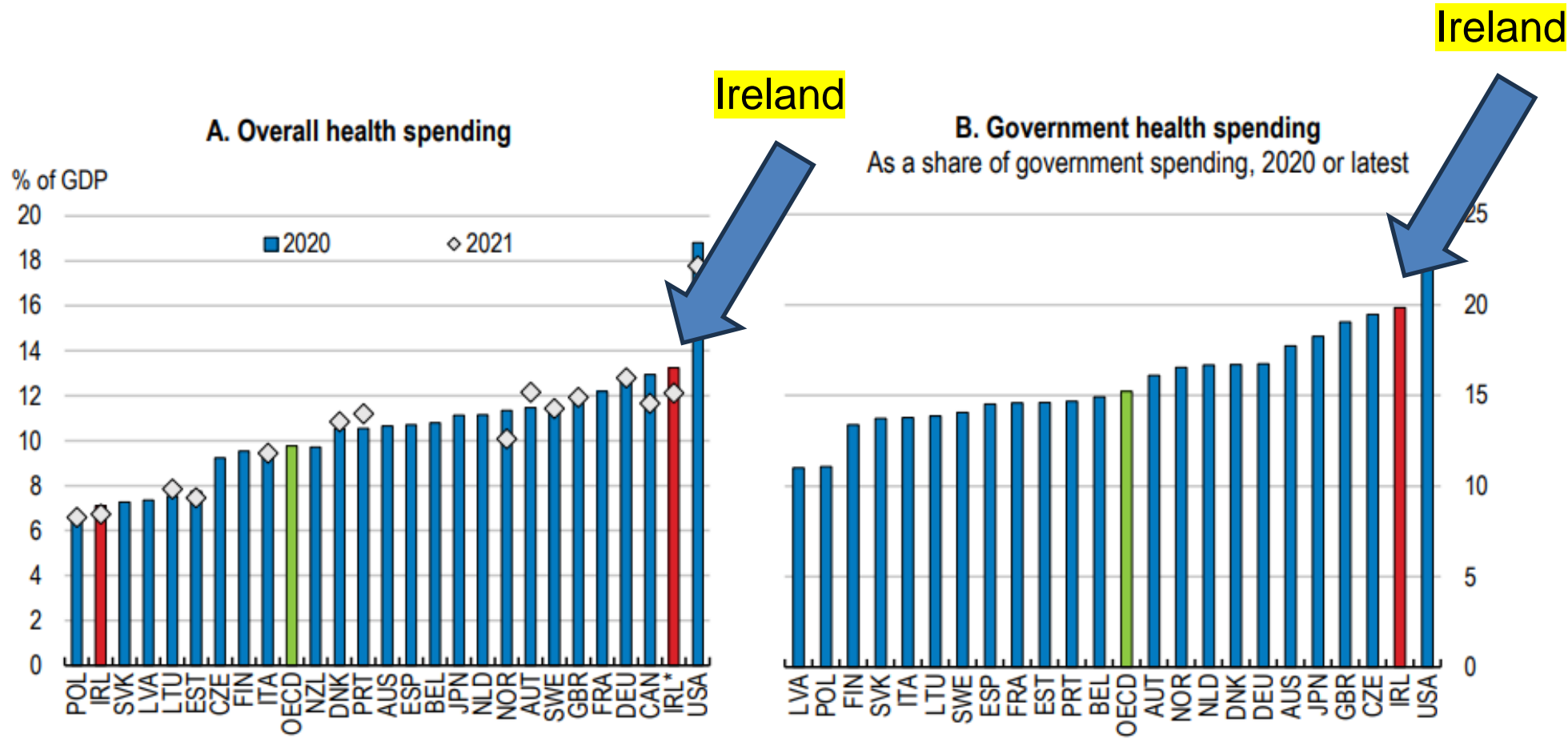
(under the current paradigm)

Quality of Care in Ireland is rated as Good but we are last in Europe for Accessibility

Source: European Health Consumer Index 2018

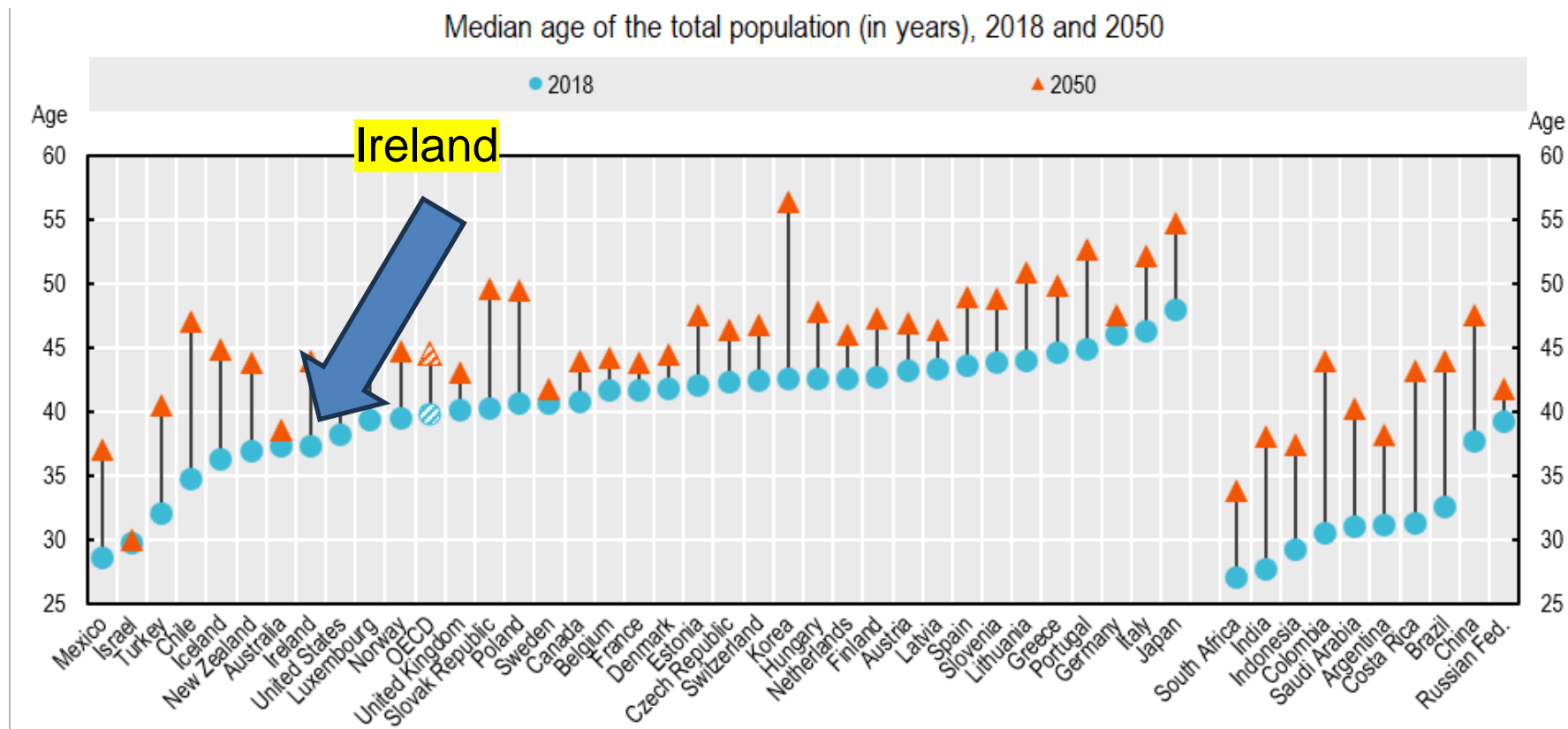
Hey Big Spender?

No 2 highest spender in the OECD



Note: IRL* denotes health spending for Ireland as a share of modified gross national income (GNI*).
 Source: OECD, Health Expenditure and Financing database; and OECD, National Accounts database.

Youngest Population in Europe



Source: Eurostat estimates and projections for European countries; United Nations (2019), *World Population Prospects: The 2019 Revision* for Argentina, Colombia, China, India, Indonesia, the Russian Federation, Saudi Arabia and South Africa; and national estimates and projections for the other countries.

Ireland's really big problem (RBP)

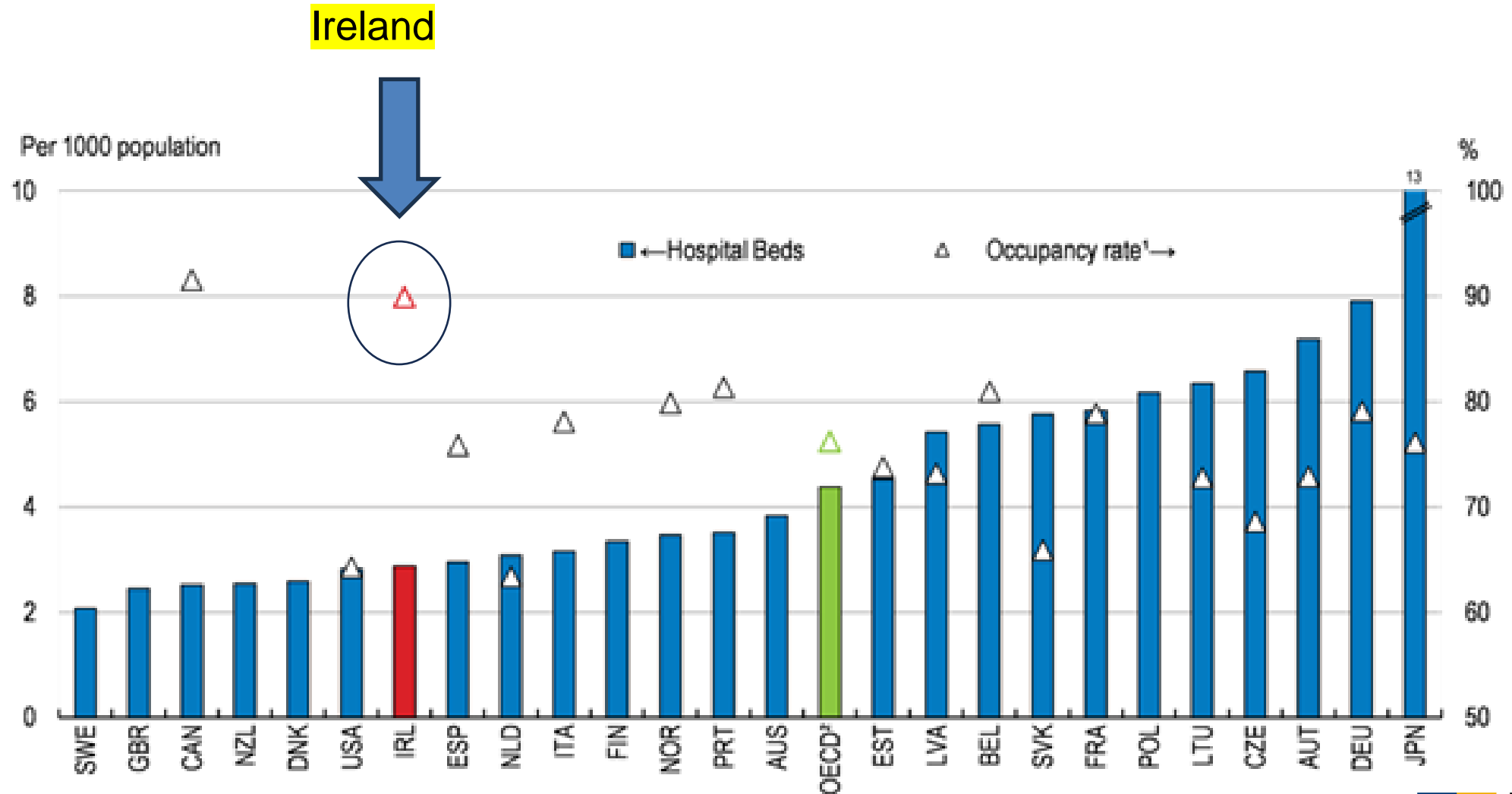
Country	LPI 2020 Ranking ▲	LPI 2019 Ranking	CEO World Rankin								
				70	Kenya	35.16	69.92	16.86	53.1	51.23	89.62
Denmark	1	2	3	71	Kuwait	35.09	89.14	15.32	70.55	89.2	88.98
Norway	2	1	15	72	Dominican Republic	34.97	66.12	21.08	51.05	62.85	92.5
Switzerland	3	3	18	73	Nigeria	34.78	96.34	16	66.82	82.83	89.38
Sweden	4	4	28	74	Albania	34.78	67.9	36.44	51.87	63.47	97.2
Finland	5	5	12	75	Burkina Faso	34.63	70.82	12.91	53.3	59.3	60.88
Netherlands	6	6	11		Ireland						
New Zealand	7	Ireland	16	76	Cyprus	34.61	72.31	13.46	54.06	58.37	85.01
Germany	8	8	17	77	Serbia	34.37	69.88	16.19	52.7	66.16	89.42
Luxembourg	9	9		78		34.28	73.69	14.92	54.62	59.64	88.71
Austria	10	12	4	79	Georgia	33.84	70.73	22.76	52.88	64.43	93.9
Iceland	11	14	41	80	Ireland	33.65	75.32	13.87	55.16	58.24	87.74
Ireland	12	11	80	81	Ukraine	33.38	68.87	14.33	51.69	53.55	87.97

Health Care Index (Overall)	Infrastructure	Professionals	Cost	Medicine Availability	Government Readiness
------------------------------------	-----------------------	----------------------	-------------	------------------------------	-----------------------------

Numbeo Health Systems Index

70	Bulgaria	56.7	100.6
71	Romania	56.5	99.7
72	Peru	55.9	97.8
73	Dominican Republic	55.5	97.3
74	North Macedonia	55.3	98.7
75	Ukraine	55.2	96.8
76	Bosnia And Herzegovina	54.9	98.0
77	Georgia	54.8	95.5
78	Cyprus	54.7	95.3
79	Hungary Ireland	54.4	97.6
80	Algeria	53.6	97.1
81	Trinidad And Tobago	53.4	98.5
82	Iran	52.3	91.0
83	Serbia	52.2	93.6
84	Ireland	51.8	94.2
85	Albania	49.6	86.3
86	Nigeria	48.5	83.7
87	Egypt	47.6	81.8
88	Belarus	47.1	83.0

Acute Hospital Occupancy – Highest in Europe



Public patients waiting up to 18 months for heart test - study

Updated / Wednesday, 14 Sep 2022 09:52



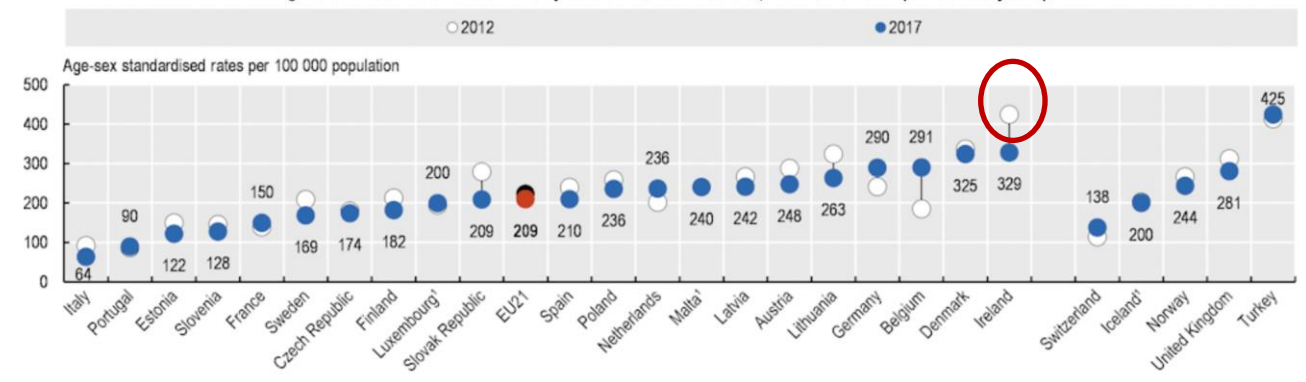
Queues of shoppers line up to get their hearts checked in Galway

By **Teresa Mannion**
Regional Reporter

New research published by the heart and stroke charity, Croi, shows that public patients can be waiting up to 18 months for an echocardiogram compared to one month for private patients.

The Galway-based charity cites an "acute" shortfall in one time. Older tab closed.

Figure 6.9. Asthma and COPD hospital admission in adults, 2012 and 2017 (or nearest years)



HEALTH

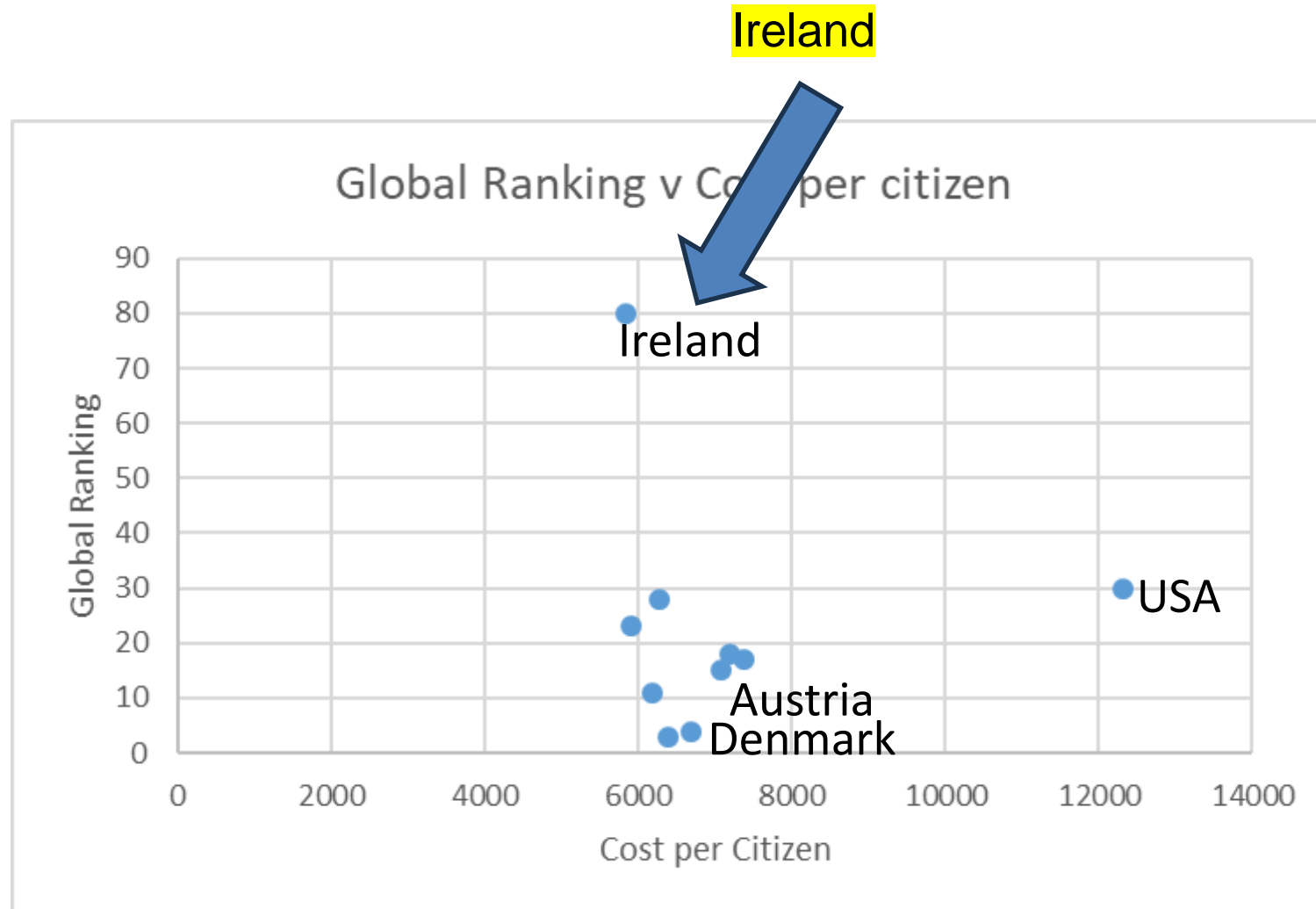
'Dear Stephen': McGrath told Donnelly health overspend was 'of great concern'

Letters from the Minister for Public Expenditure show his frustration as he sought clarity from the Minister for Health about a potential deficit of €2 billion, despite 'the largest health budget in the history of the state'

DANIEL MURRAY and AARON ROGAN | SEPTEMBER 10, 2022



Seriously 'Bad' Outlier – Ireland is the 'bad' poster child of a global health crisis

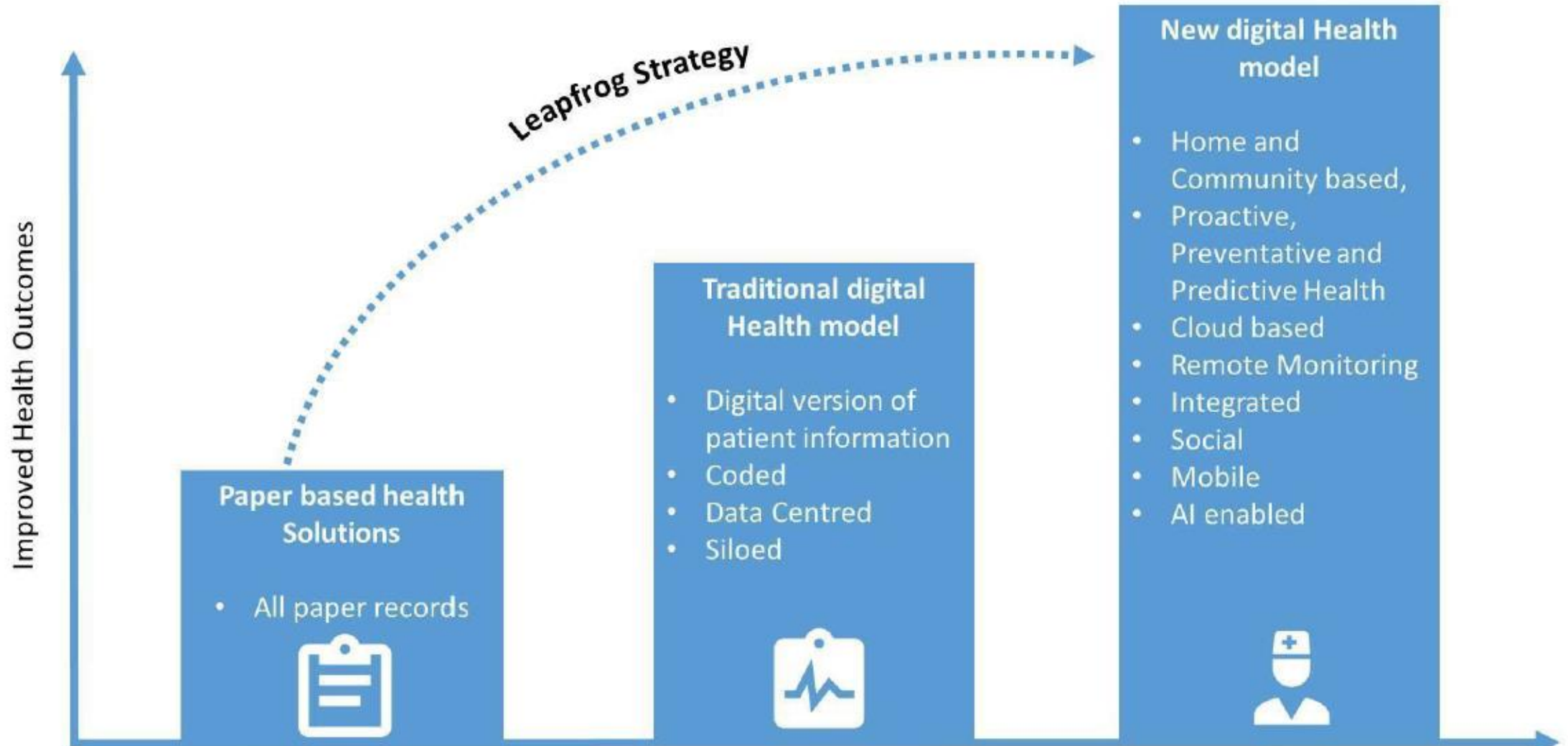


What can and should we do
to fix our Healthcare System?

Leapfrog

Leapfrogging allows a country or system to skip an entire cycle of investment and Implementation –

Dr Matt Mullarkey, USF, UNGA 78 Digital Health Symposium



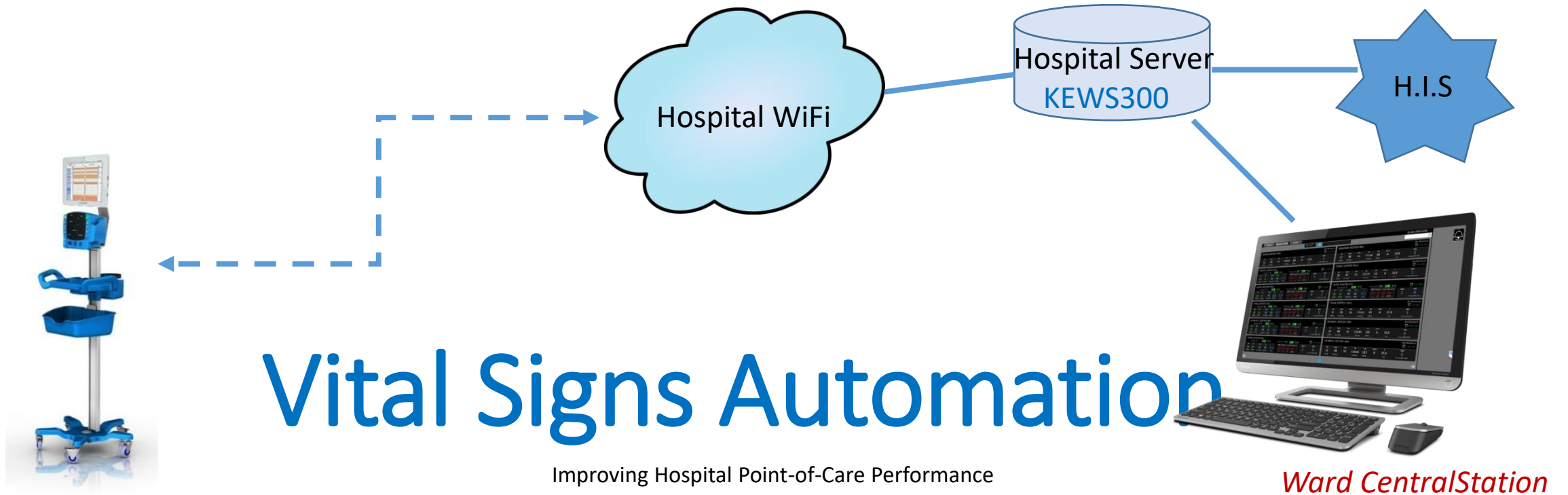
Moonshot 1. Vital Signs Automation



“We propose a healthcare system that is mainly home and community-based, is proactive, predictive, mobile and cloud-enabled, as well as open-source where possible”

MARTIN CURLEY
DIRECTOR OF THE DIGITAL ACADEMY
AND OPEN INNOVATION,
HEALTH SERVICE EXECUTIVE





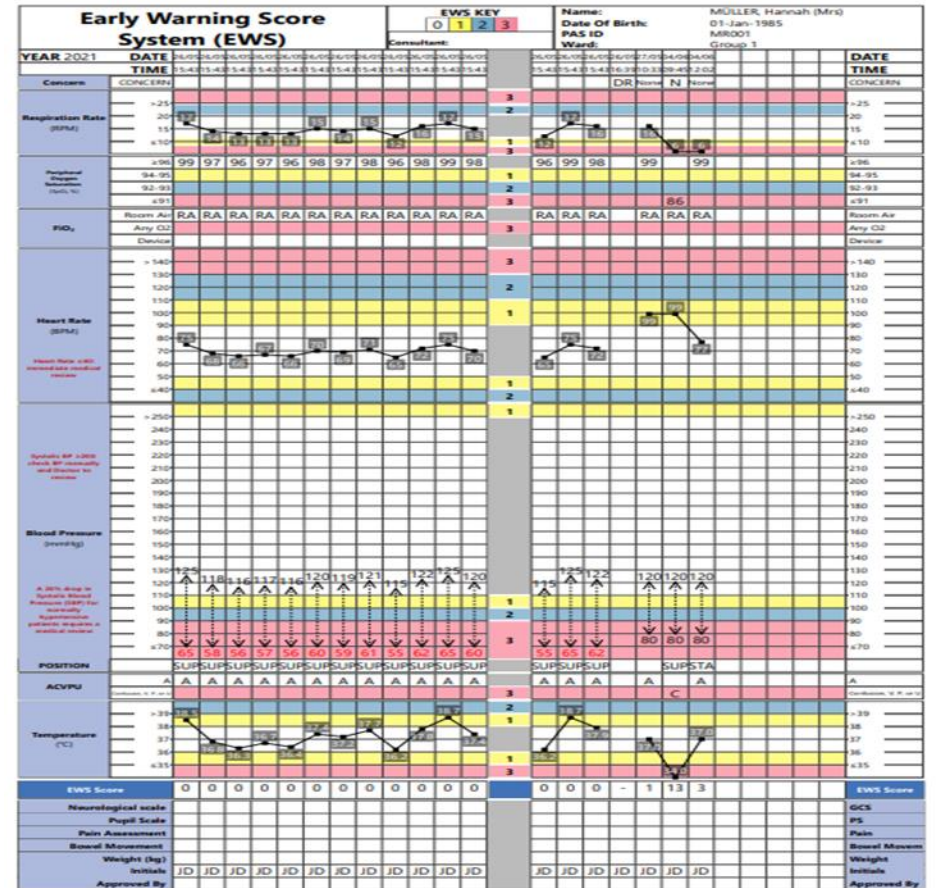
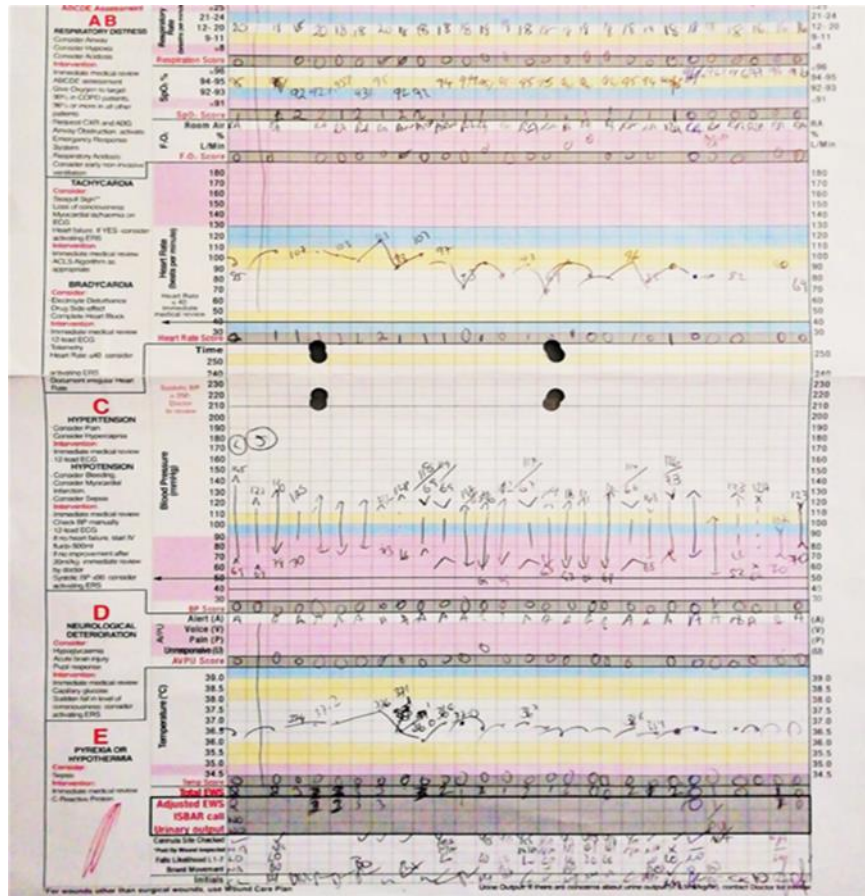
Hospital Ward

Ward Central Station

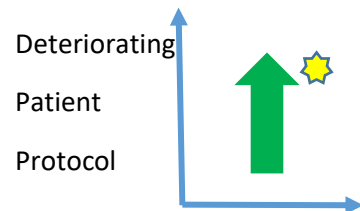
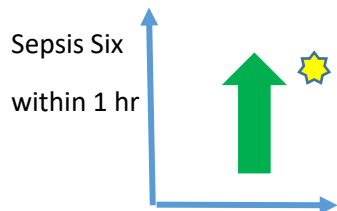
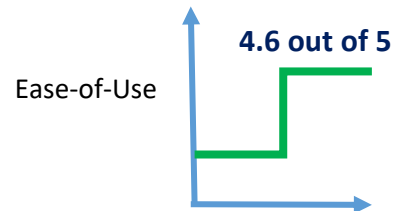
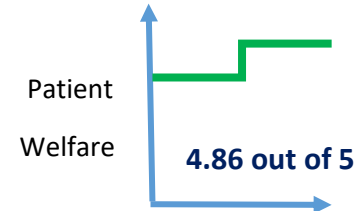
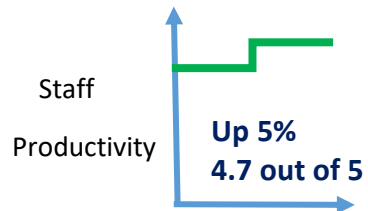
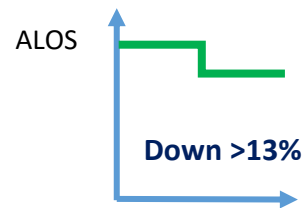
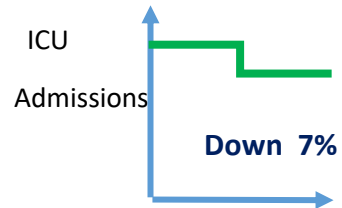
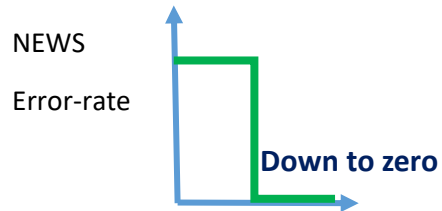
Vital Signs Automation (VSA) is the automation of the collection of patients vital signs in the Patient Observation process and the automated computation of the National Early Warning Score and monitoring and alerting on patient vital sign trends.

- Detect Deteriorating Patients Earlier
- Shorter Average Length-of-Stay
- Higher standard of care
- More productive and happier staff
- Elimination of charting and scoring errors

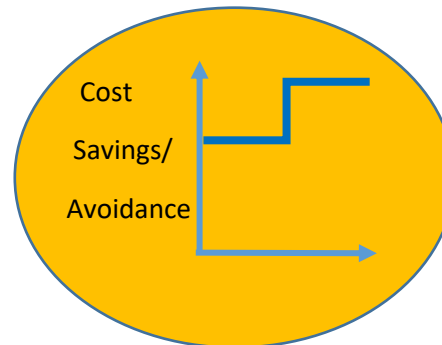
From Analog (Paper) to Digital



Value Dial Results using KEWS 300



★ To be confirmed when sufficient data gathered.



New Acute Capacity can be added at 1/100th of
The Cost of New Capacity Build

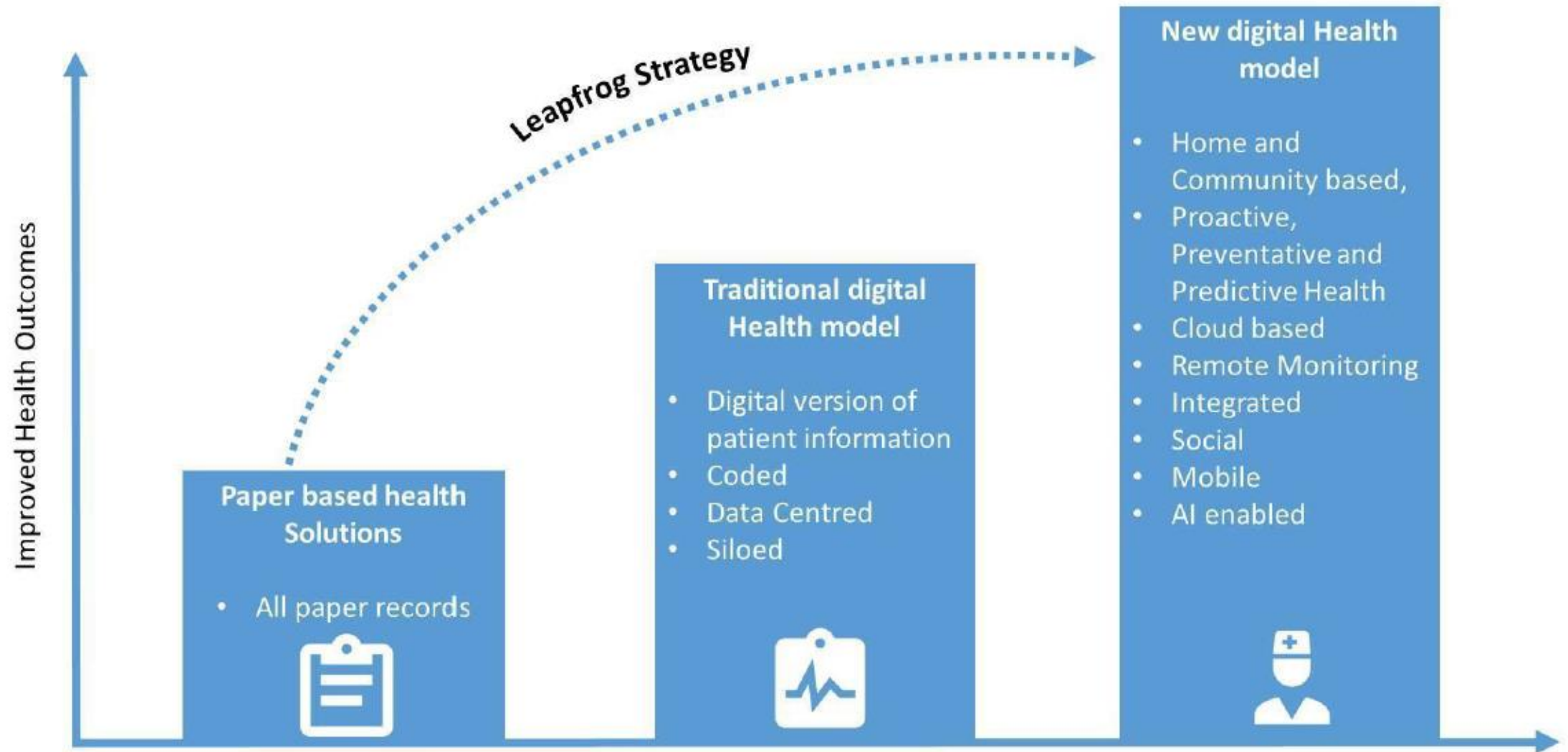
Using data from St Luke's Hospital Kilkenny, Golden
Jubilee National Hospital Scotlan^d
Galway Clinic Galway,

SyncroPhi

Leapfrog

Leapfrogging allows a country or system to skip an entire cycle of investment and Implementation –

Dr Matt Mullarkey, USF, UNGA 78 Digital Health Symposium





Option 1: Rapidly Adopt Galway Clinic EHR



United States EMR Adoption Model SM	
Stage	Cumulative Capabilities
Stage 7	Complete EMR; CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS
Stage 5	Closed loop medication administration
Stage 4	CPOE, Clinical Decision Support (clinical protocols)
Stage 3	Nursing/clinical documentation (flow sheets); CDSS (error checking); PACS available outside Radiology
Stage 2	CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable
Stage 1	Ancillaries - Lab, Rad, Pharmacy - All installed
Stage 0	All Three Ancillaries Not installed

Options 2: Replicate SJH and MNC EHR



Option 3: Leap Frog to World Leading







From Solvay to Solutions



UNGA77 Science Summit Digital Health Symposium

**UN Stay Left, Shift Left, 10x
Digital Health Manhattan Manifesto**

February 2023

Health

CHAMPIONING A NEW ERA OF DIGITAL HEALTH THROUGH COLLABORATION,
COOPERATION AND CHANGE



Stay Left, Shift Left 10x Manhattan Manifesto

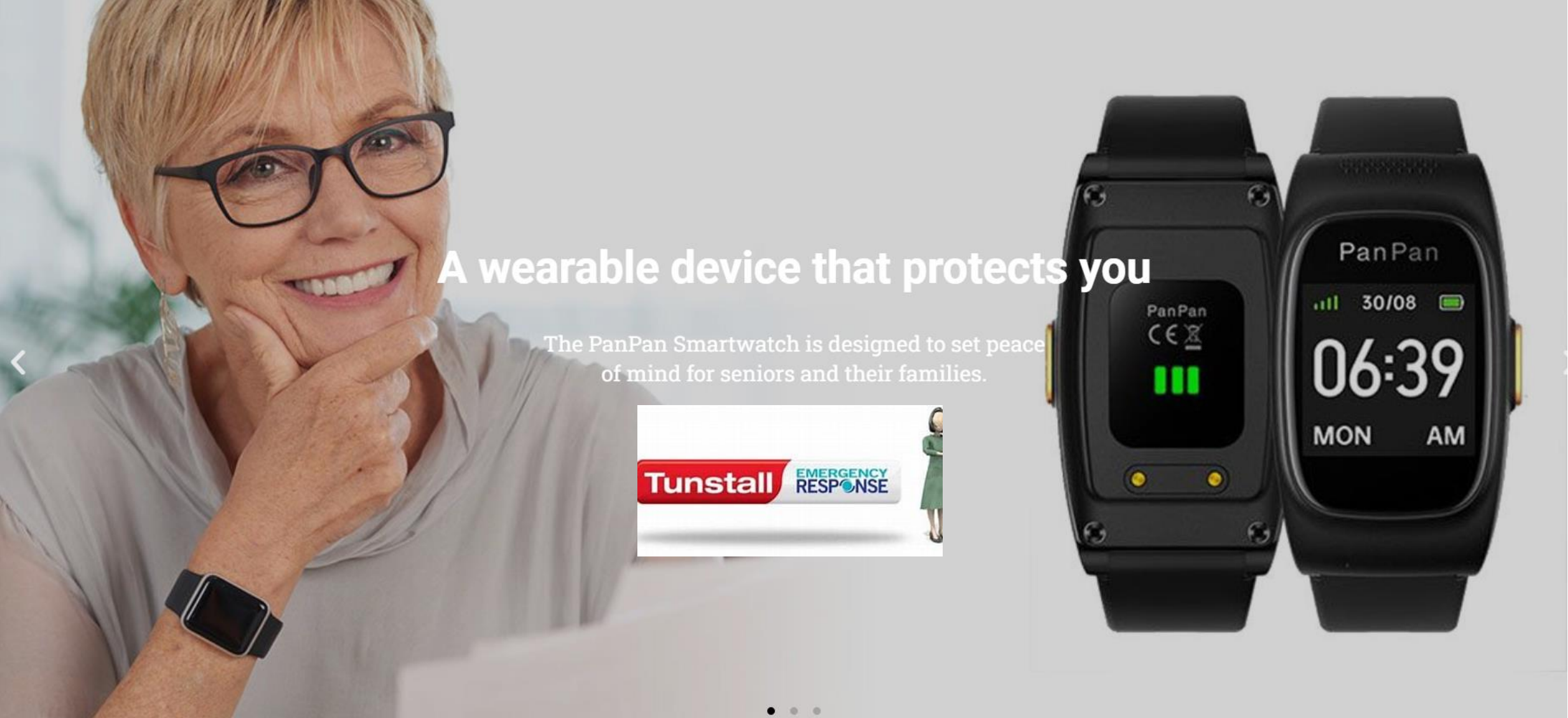


Hospital at Home

- Opportunity to increase Hospital Capacity by 10X using Hospital at Home model





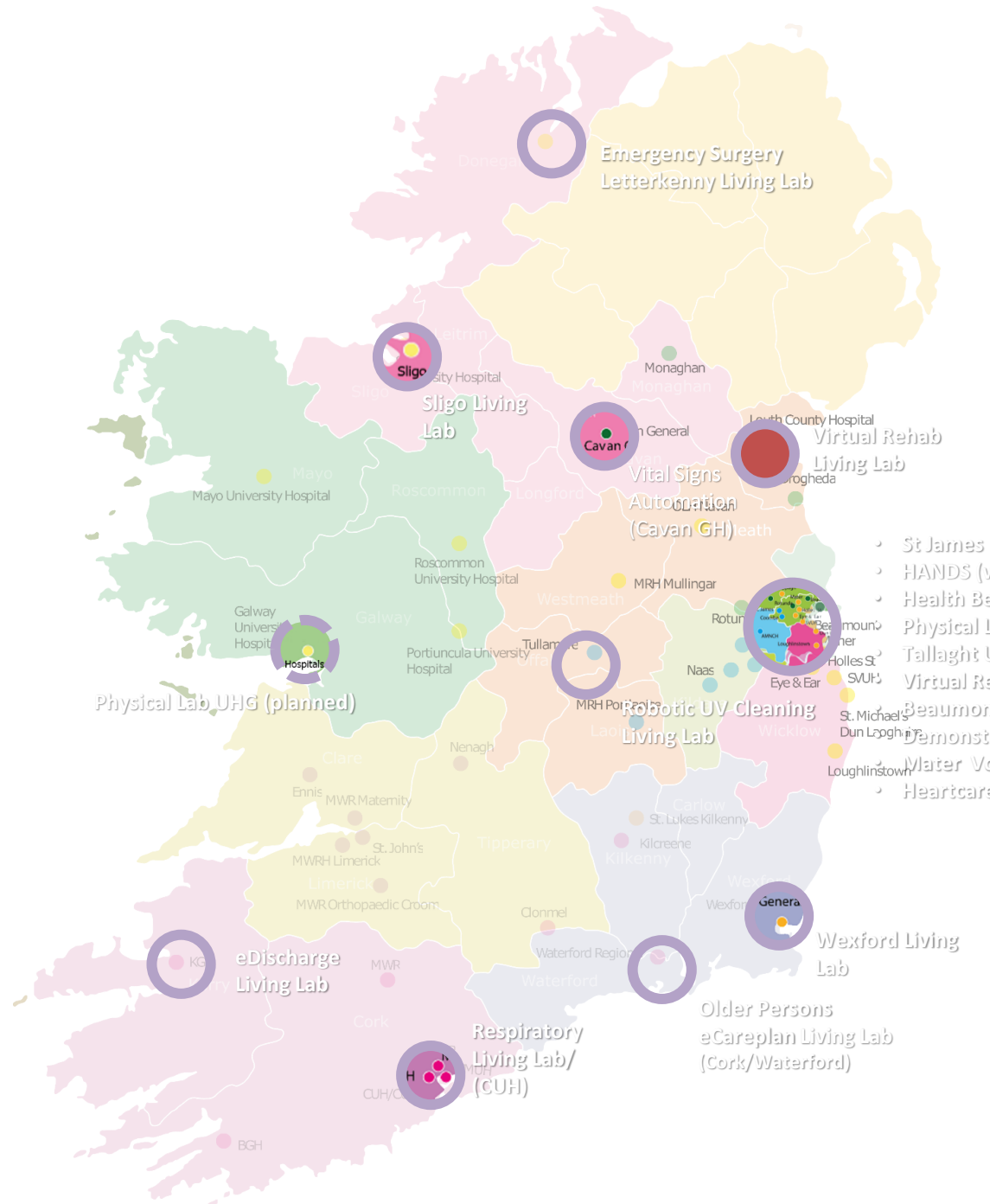
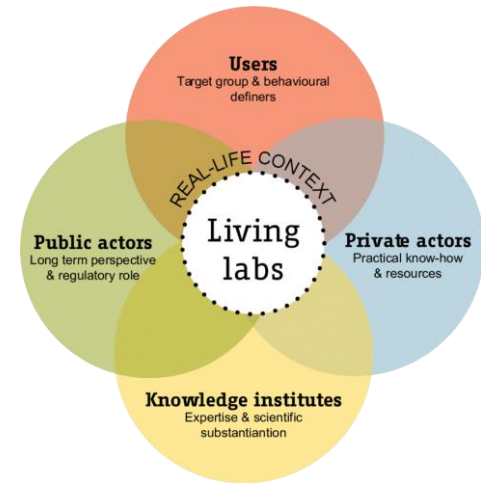
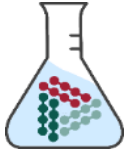
Episodic to Continuous Care



A wearable device that protects you

The PanPan Smartwatch is designed to set peace of mind for seniors and their families.





SCRUM PRINCIPLES



Empirical Process Control

Scrum prescribes making decisions based on observation and experimentation rather than detailed upfront planning.



Self-organization

Scrum believes that today's workers have much more knowledge to offer than just their technical expertise and that they deliver greater value when self-organized.



Collaboration

In Scrum, product development is a shared value-creation process that needs all the stakeholders working and interacting together to deliver the greatest value.



Value-based Prioritization

Delivering the greatest value in the shortest amount of time requires prioritization and selection of what could be done from what should be done.



Time-boxing

Time is treated as a limiting constraint and time-boxing is used as the rhythm to which all stakeholders work and contribute.



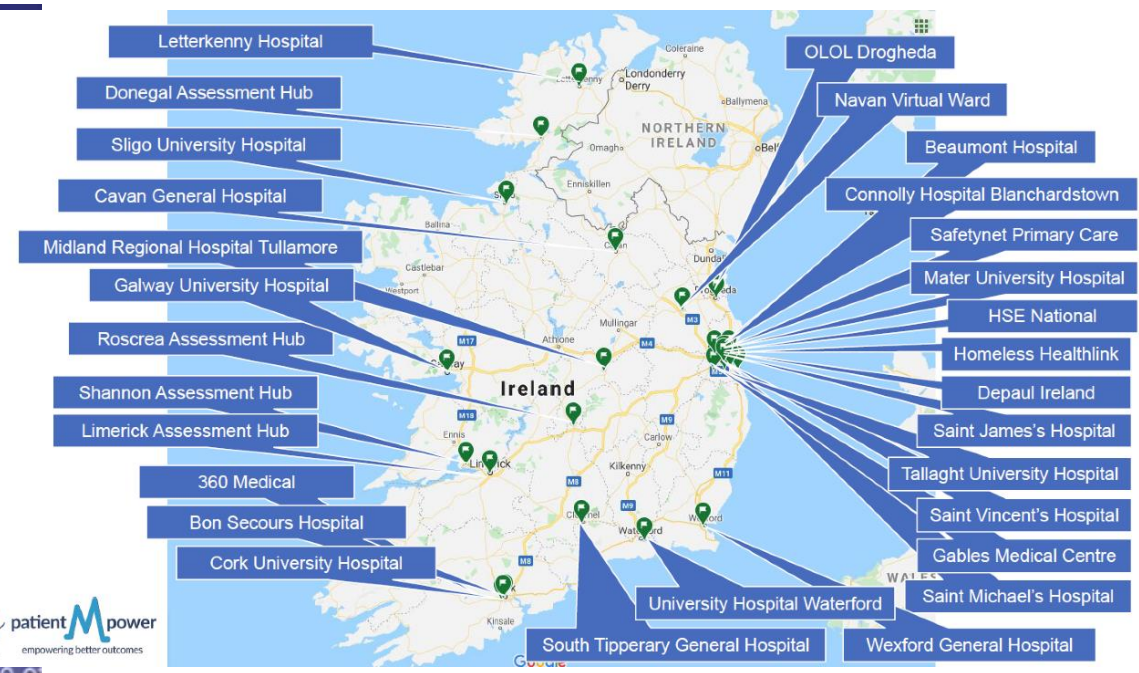
Iterative Development

The customer may not always be able to define very concrete requirements. The iterative model is more flexible in accommodating changing requirements.

11 March 2020 – IIEA,

30 April 2020

- Remote Monitoring Solution for Covid 19 developed and available in 48 hours



▶ 33 cases of coronavirus are confirmed on the island of Ireland

Updated / Monday, 9 Mar 2020 06:26



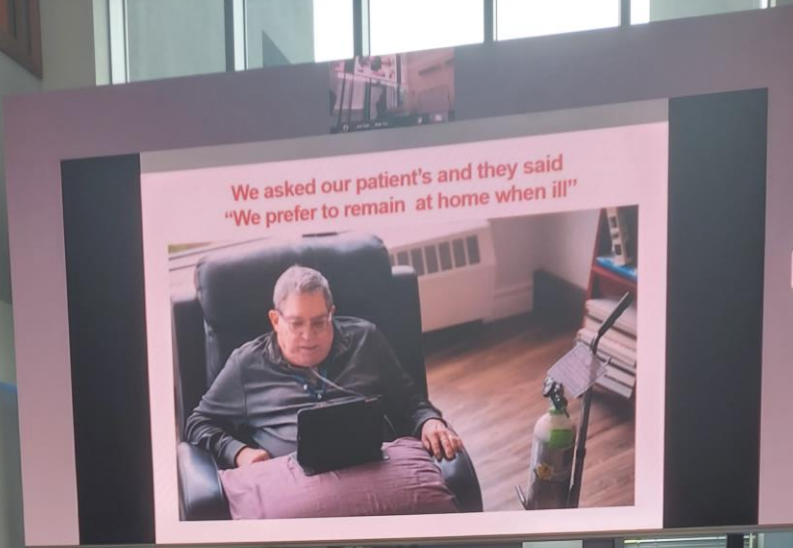
Example 10X Inn

ory

RespiraSense

In-patient RR Monitor

- OTS tablet device
- Android
- Disposable single use sensor
- Respiratory rate trend monitoring
- Continuous monitoring
- 7 days battery life
- All comm's are BT



COVID-19 drives leap in ePrescribing for Ireland

The HSE, GPs and pharmacists have been working for a long time on creating a safe, secure method of transferring prescriptions between prescribers, issuers and patients.

The Medicinal Products (Prescription and Control of Supply) (Amendment) Regulations 2020 now allows for the electronic transfer of prescriptions to a pharmacy via an approved electronic system: the HSE's Healthmail system.



An Roinn Sláinte
Department of Health

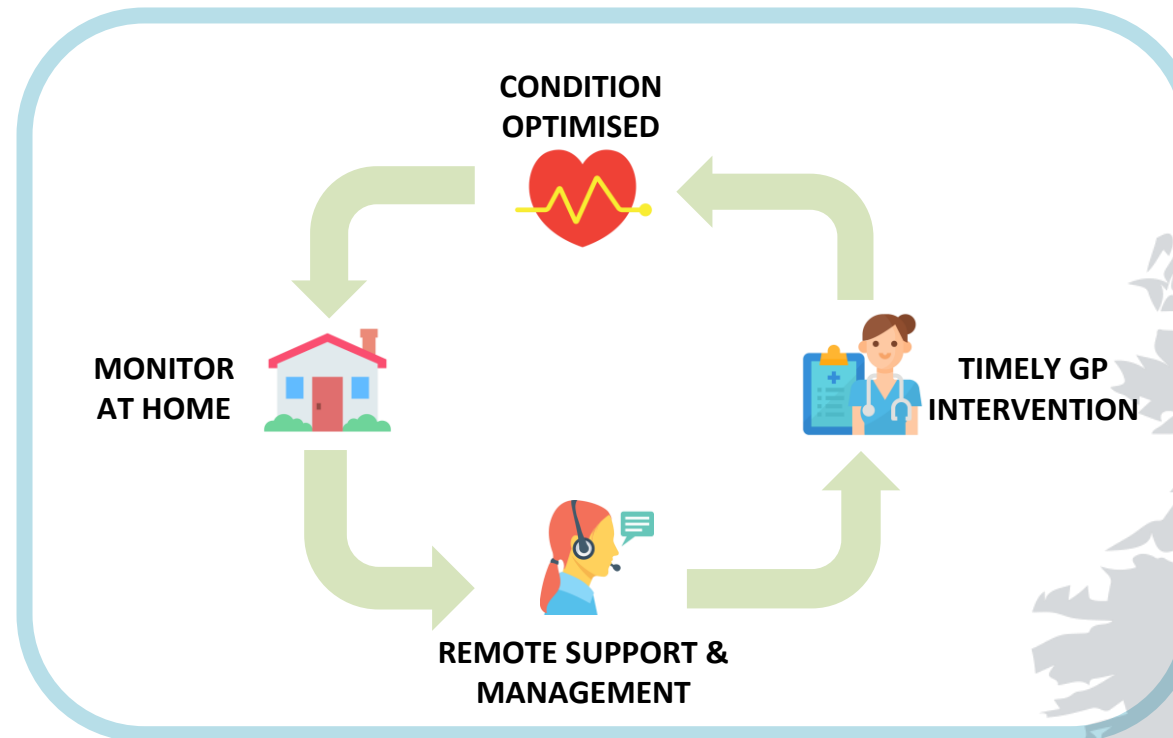
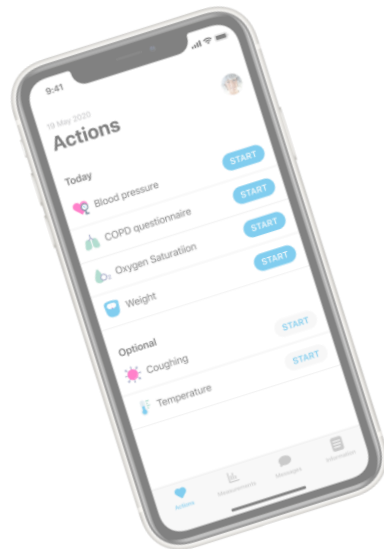
In addition, the maximum period of validity of a prescription is increased from 6 months to 9 months as of the date specified on the prescription.

A number of urgent amendments to the Medicinal Products (Prescription and Control of Supply) Regulations 2003 and the Misuse of Drugs Regulations 2017, have been signed into law by the Minister for Health on the 2nd April 2020. These were considered necessary in order to respond to the current COVID 19 emergency.

Example 10X Innovations – Heart Failure

Cardiac Living Lab: Heart Care at Home

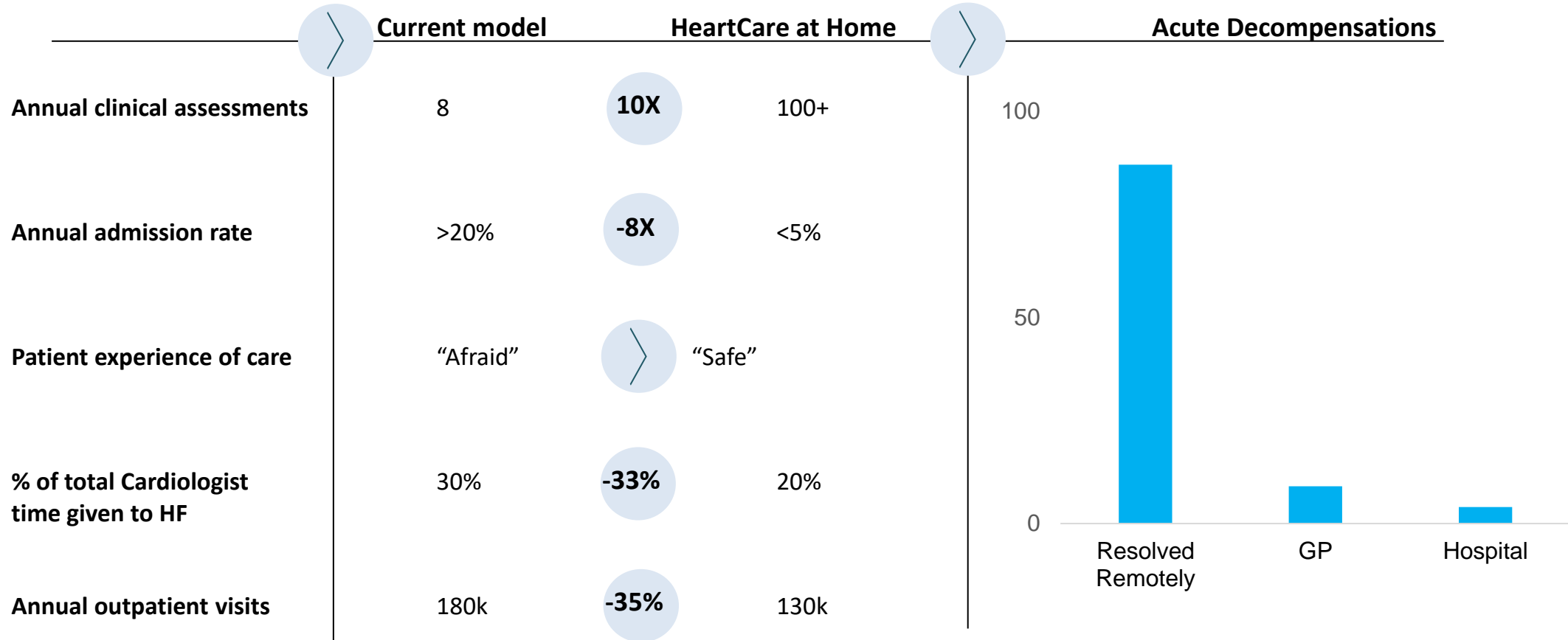
CONSTANT DIGITAL PORTAL ACCESS



“This programme has given me my life back”

Heart Care at Home patient

150 patients with Heart Failure managed remotely for more than 1 year



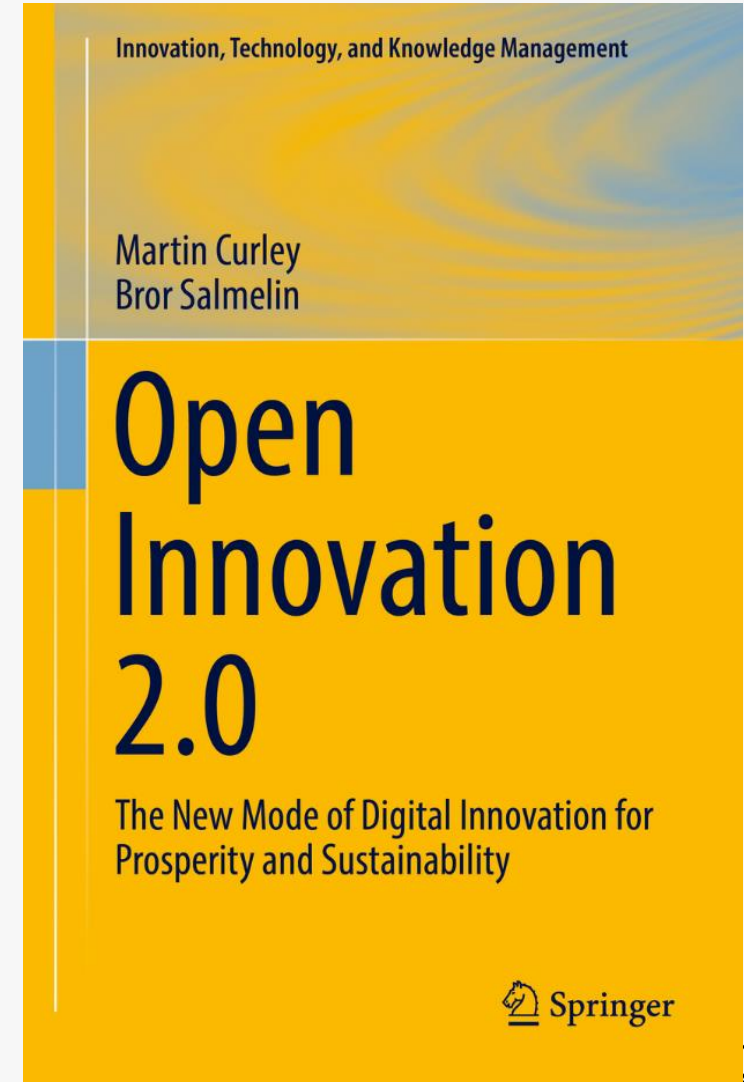
Improved patient experience, reduced admissions, and halved total cost of care demonstrated. Cardiology Team capacity could be redirected to clear waiting lists within 12 - 15 months.

@Northwell

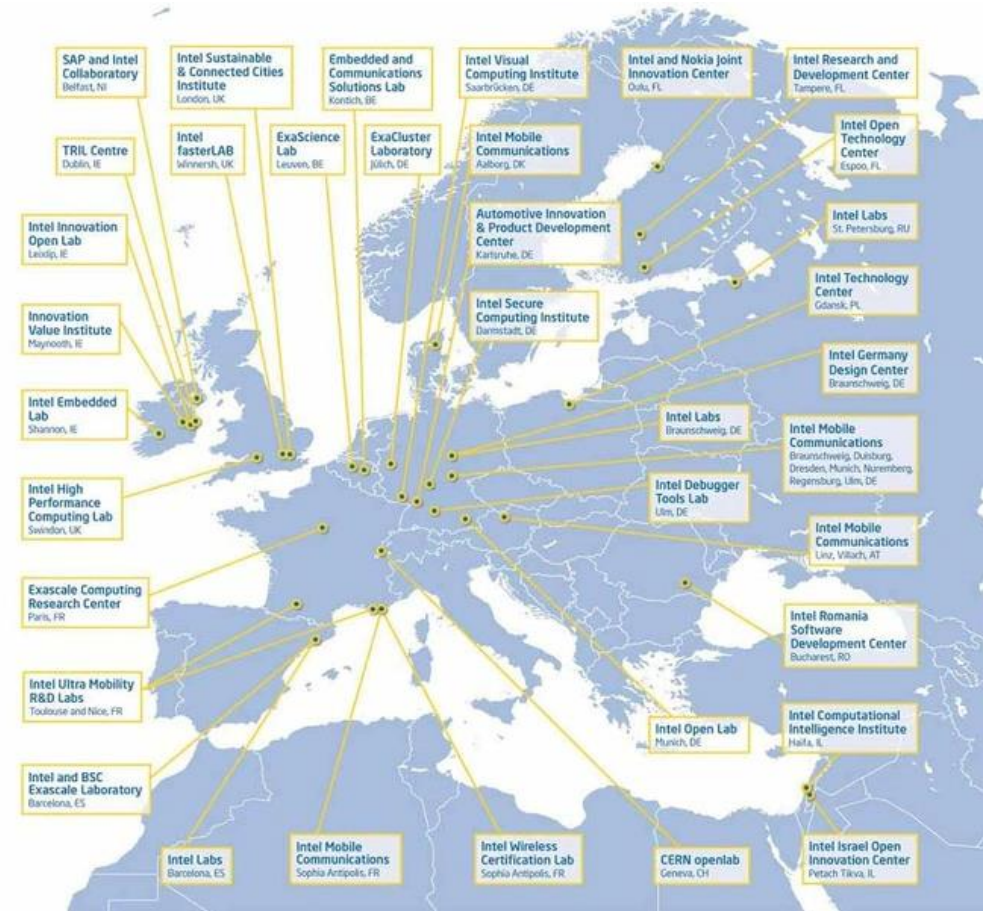


Introducing Open Innovation 2.0; OI2

The way is long if one follows precepts
(rules), the way is short if one follows
patterns - Seneca

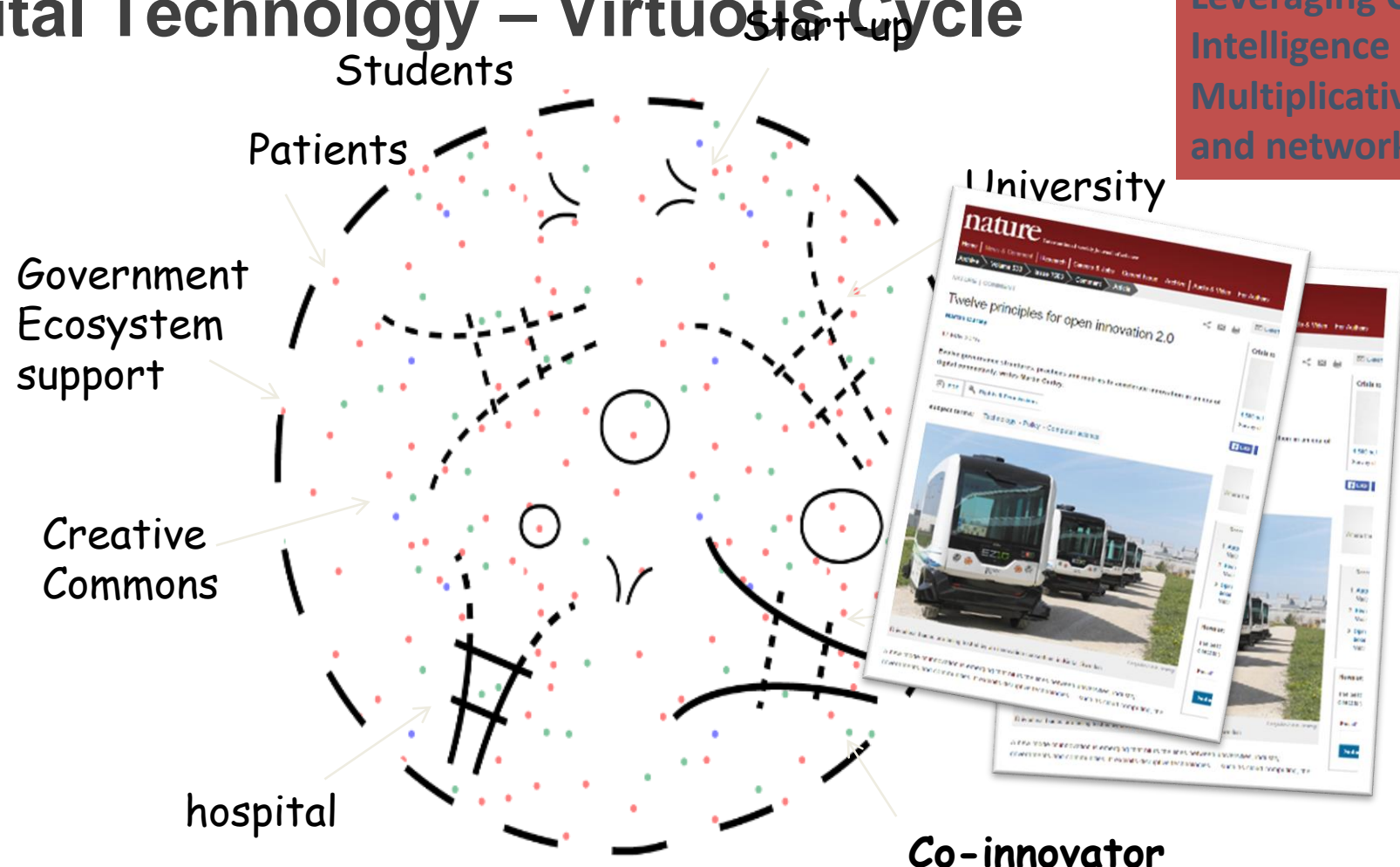


Intel Labs Europe, 5500 innovators and researchers, 55 Labs



Open Innovation 2.0: The new mode for Digital Innovation; enabled, fuelled and built using Digital Technology – Virtuous Cycle

Leveraging Collective Intelligence and Energy; Multiplicative, Synergy and network effects



Source: M Curley/B Salmelin





General Assembly of the United Nations



www.ivi.ie for details

26th & 27th
September
2023

THE DIGITAL HEALTH SYMPOSIUM



New York,
NY, USA

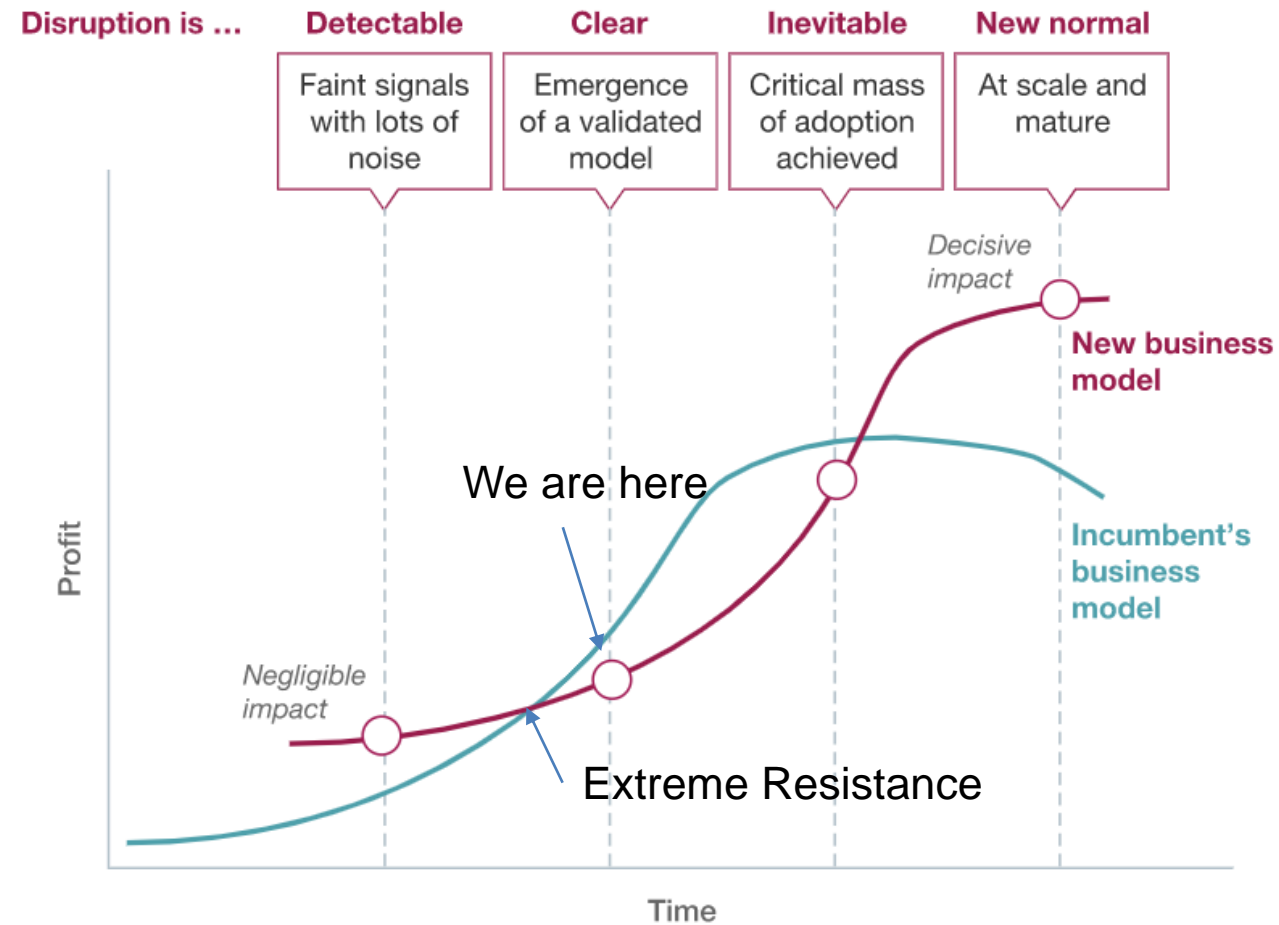


Transformative Adoption -> What we Thought vs. What we now Know

What We Thought...		What We Now Know...
Tough	→	Easy
Takes time	→	Quick
Requires lengthy assessment	→	Just do it
Opt in	→	Opt out
Requires training	→	Learn by doing
The Tech matters	→	Ease of use matters
Strategic	→	Tactical
Capital budgeting	→	Operational budgeting
Optional	→	Mandatory

Source Prof Matt Mullarkey, USF

- Disruption Dyad



Incumbent's move	Acuity	Action	Acceleration	Adaptation
Common barrier	Myopia	Avoidance of pain	Inertia	Fit

De Motu Cordis – William Harvey



1628

Adoption is a Function of Leadership



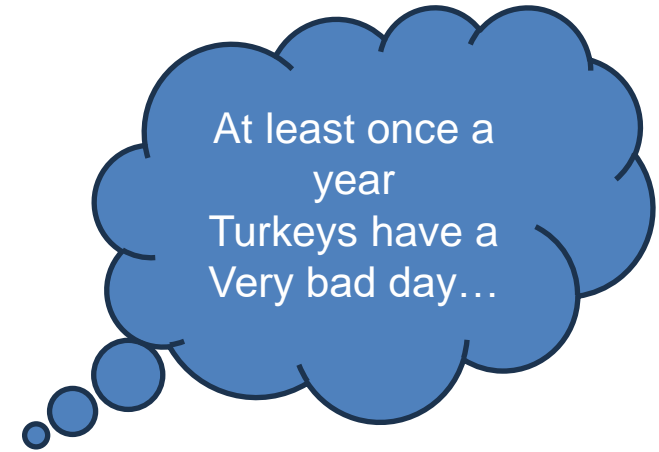
Healthcare Leader

- Mission is to Transform
- Embraces Risk
- Encourages Experimentation
- Innovates & Learns By Doing
- Growth Mindset – Embrace Challenges



Healthcare Manager

- Mission is to Control
- Avoids Risk
- Manages Current State
- Watches & Waits
- Fixed Mindset – Fear Failure, Embrace Obstacles

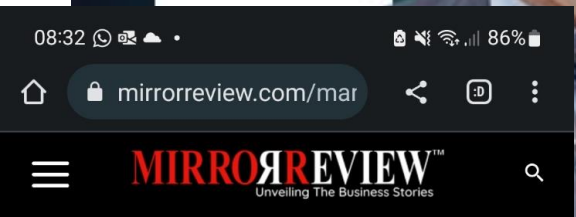


Source Prof Matt Mullarkey, USF



Stay Left,
Shift Left
10X

Thanks!



← The 10 Most Admirable Healthcare Leaders, 2022

Martin Curley: Setting The Standard For Digital Healthcare Services

