



Digital Transformation @HSE

How to scale innovation faster for patient and population benefit

Martin Curley

HSE Director of Digital Transformation



@martingcurley1



**HSE Digital
Transformation**


- “In an unstable complex system, small islands of coherence have the potential to change the whole system.”

Ilya Prigogine

Russian/Belgian physical chemist and
The Nobel Prize winner in Chemistry 1977



Digital Disruption upon us!



Think Biosolution

CUSTOMIZED REMOTE PATIENT MONITORING (RPM) PLATFORMS FOR TELEHEALTH ENTERPRISES

Schedule a call with us to discuss your goals towards integrating our RPM platform

[SCHEDULE A MEETING](#)

Logos: NOR, LUMINATE, The 100, Forbes, ENTERPRISE IRELAND, AMERICAN TELEMEDICINE





“

“We choose to digitally transform the Irish Health Care System,
Not because it is easy, but because it is hard!”

”

”

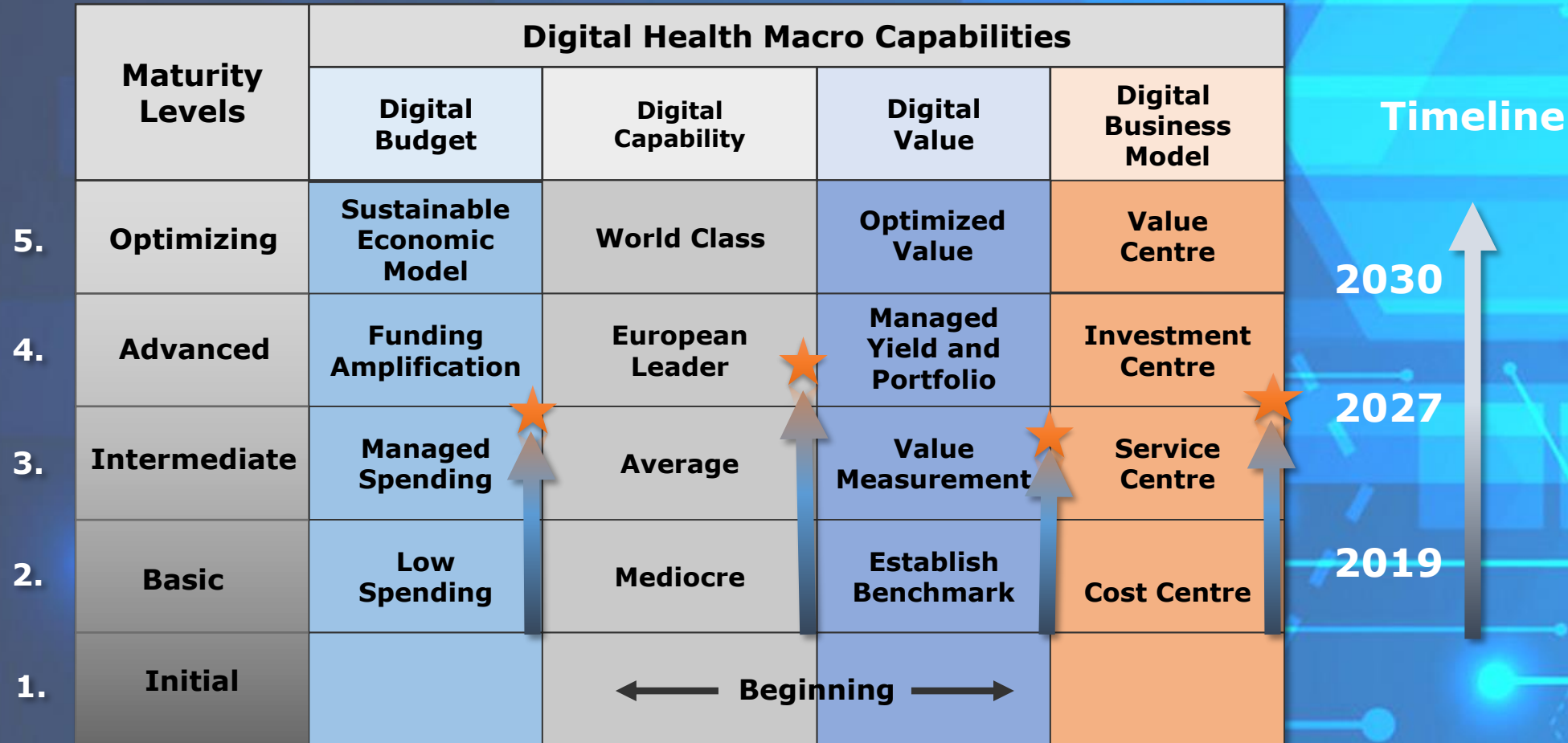
..Ireland as a European Digital Health Leader (2025-2027)

...Ireland as a Global Digital Health Leader (2030)

Seirbhís Sláinte
Níos Fearr
á Forbairt

Building a
Better Health
Service

Build a roadmap for ambition, implementation and success



Defining Digital Transformation

Digitization

- Conversion of Analog or Physical information into digital format

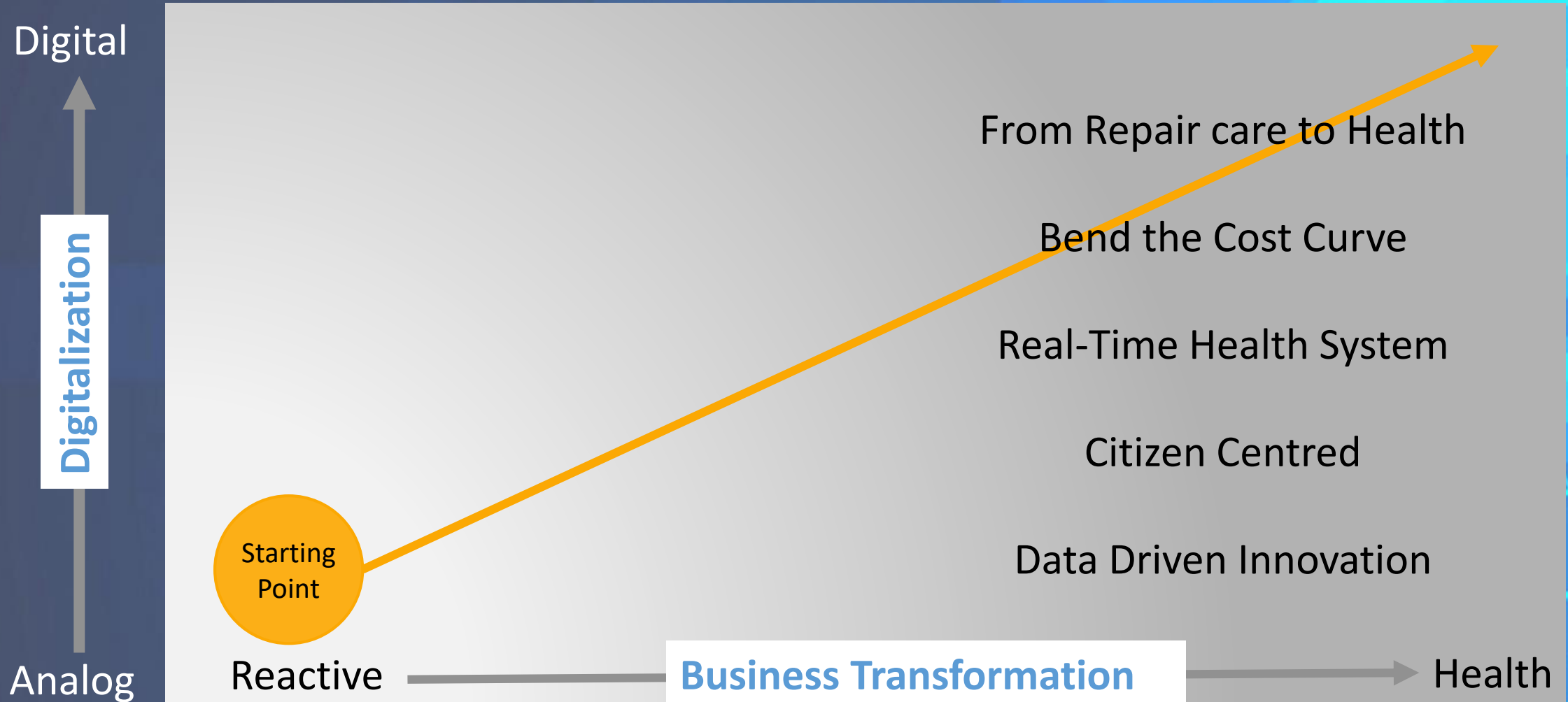
Digitalization

- Use of Digital Technologies to enable or improve business processes or outcomes

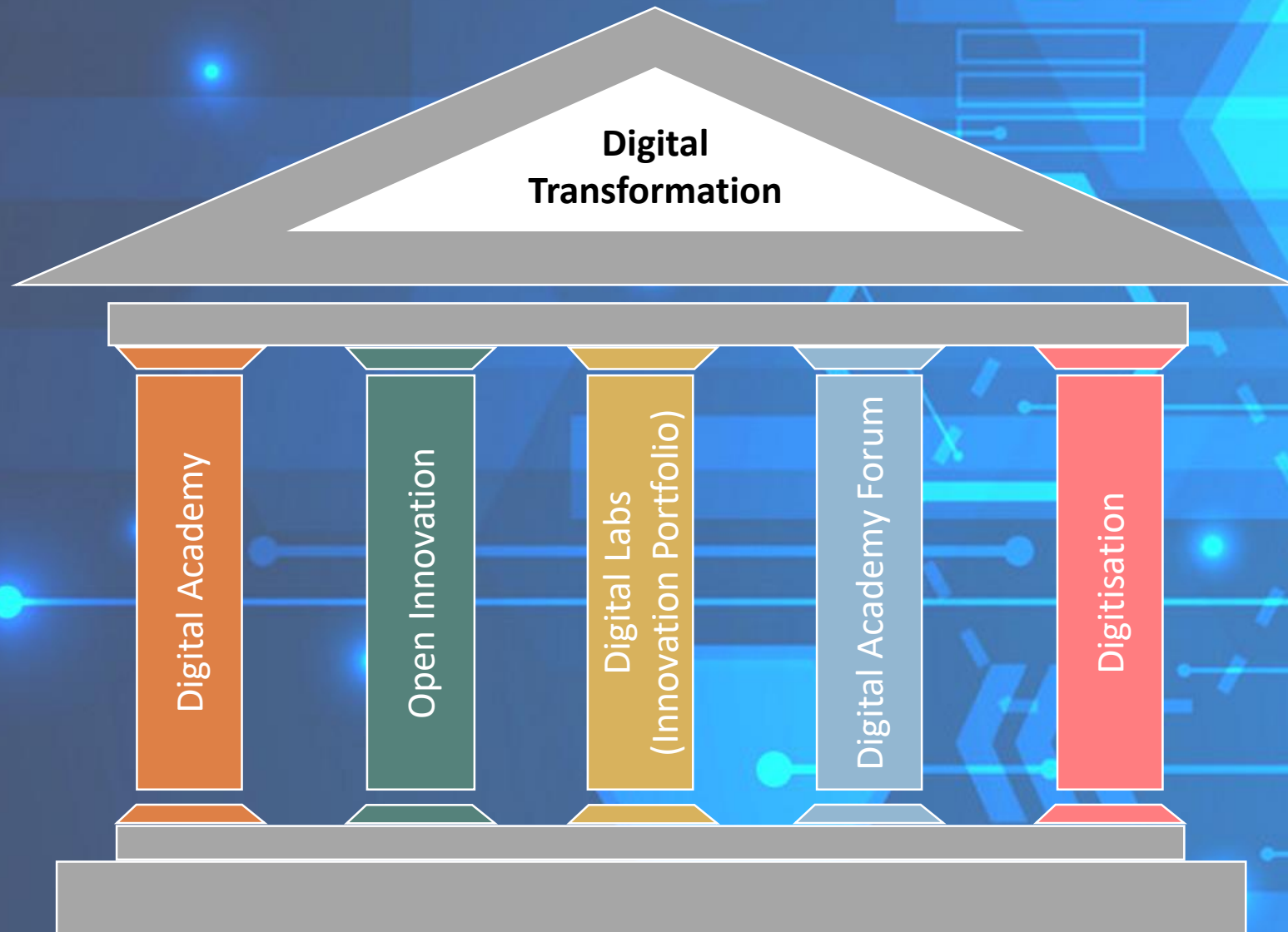
Digital Transformation

- Coordinated Digital Change effort at scale throughout all aspects of the organization and ecosystem

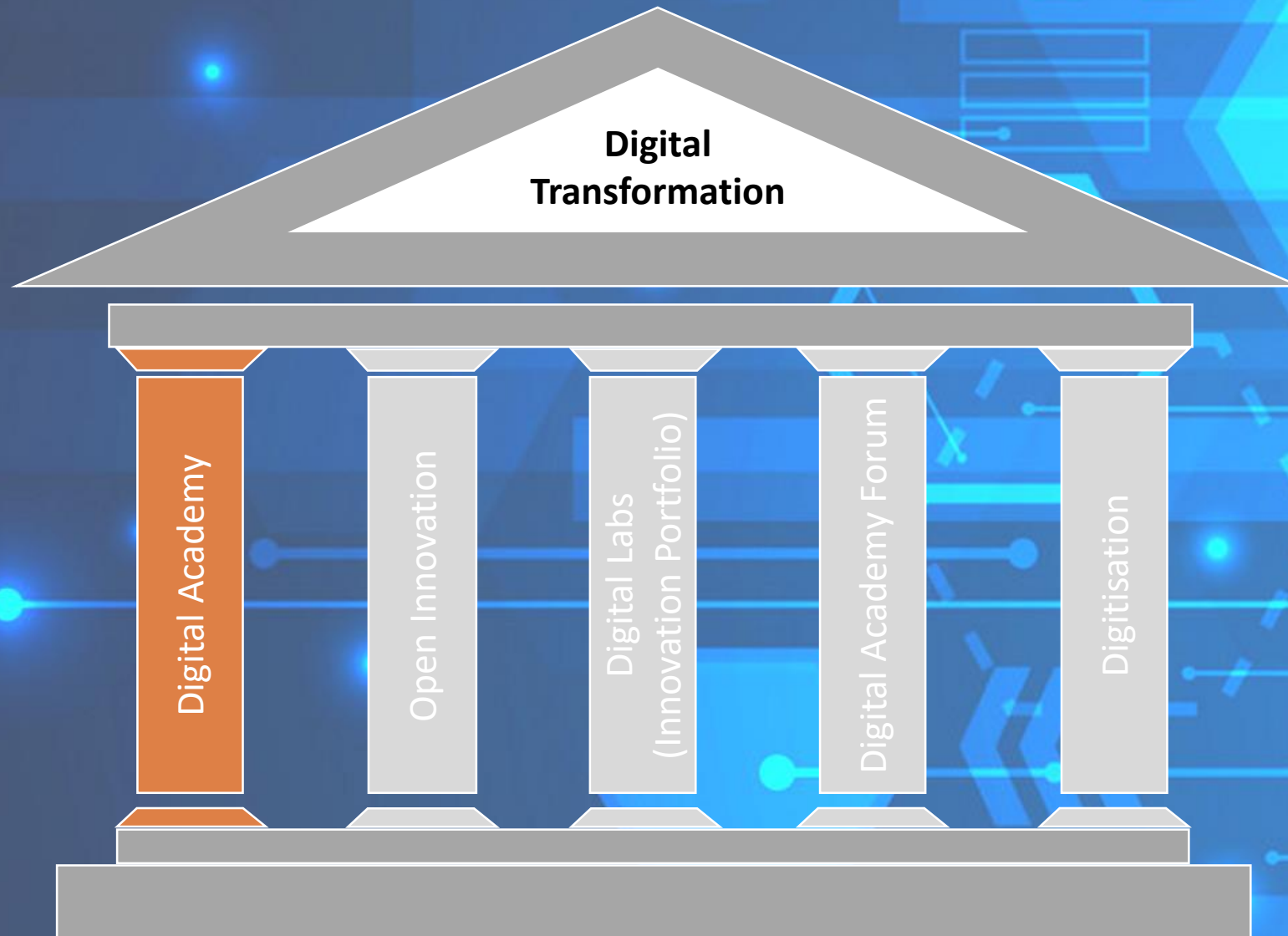
The Transformation of the Business of Healthcare



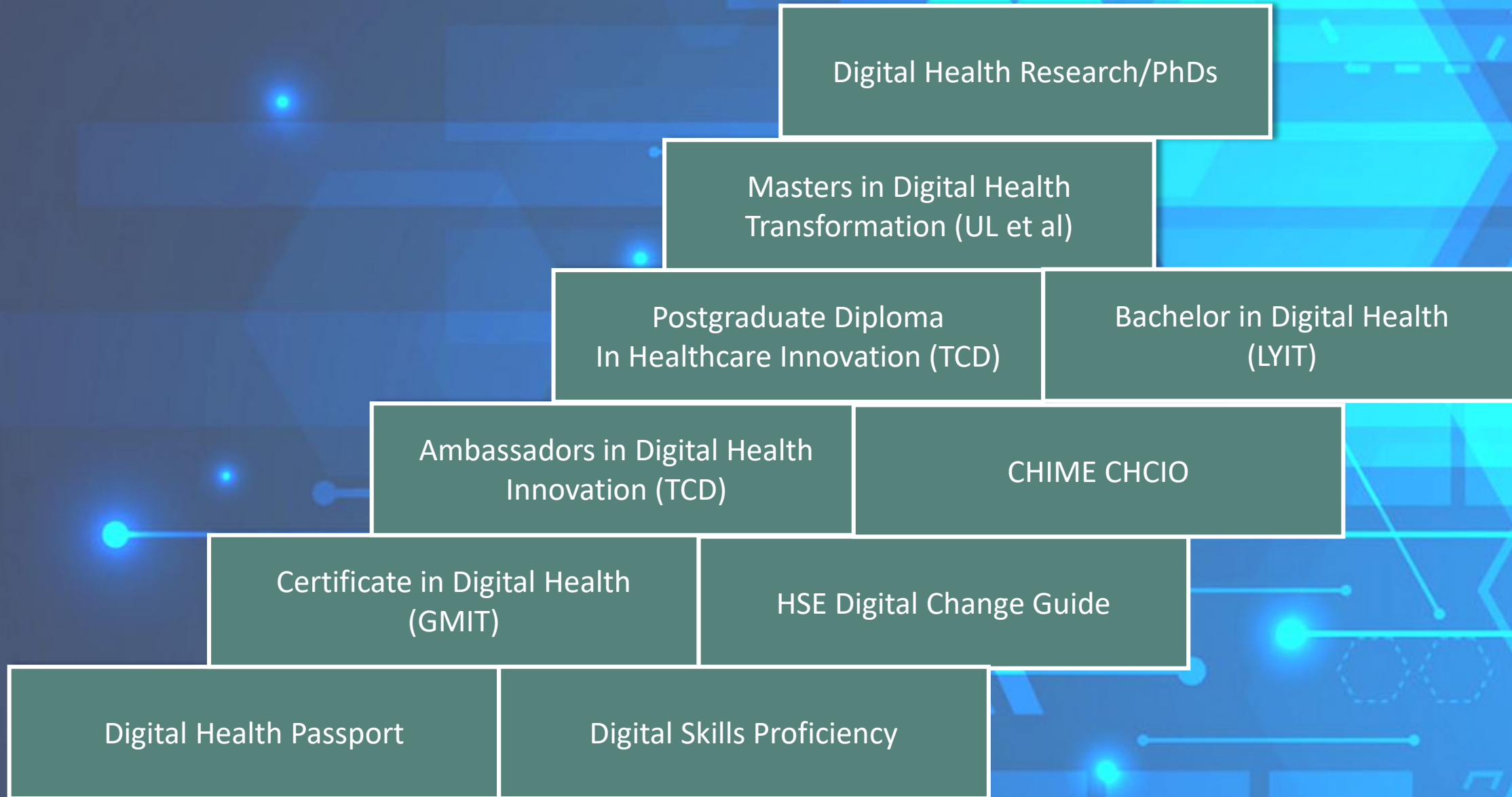
Five Pillars of Digital Transformation



Pillar 1: Digital Academy



Digital Academy Architecture



MSc in Digital Health Transformation



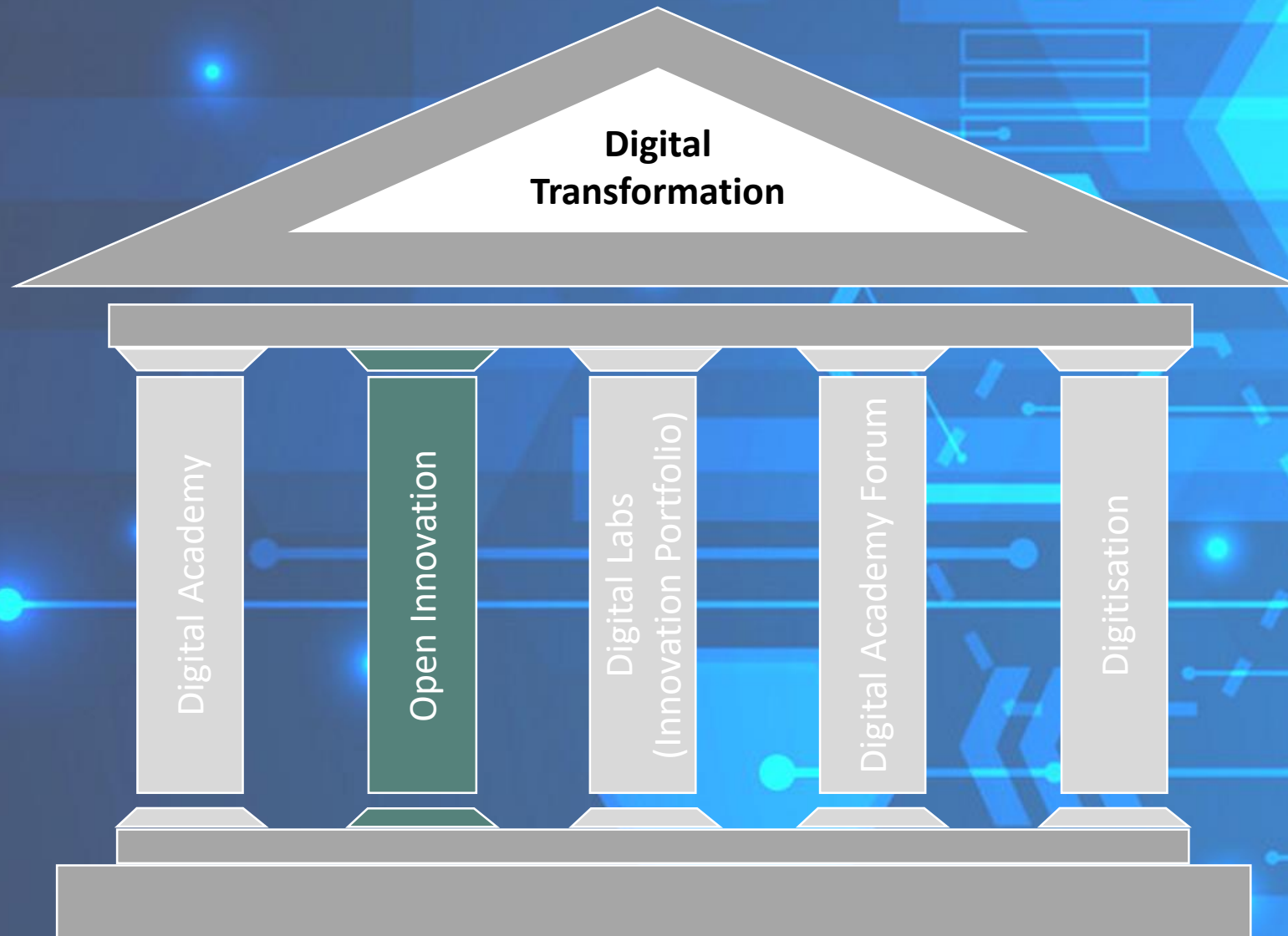
www.digitalhealthtransformation.ie

Mater Hospital as a Digital Skills living Lab

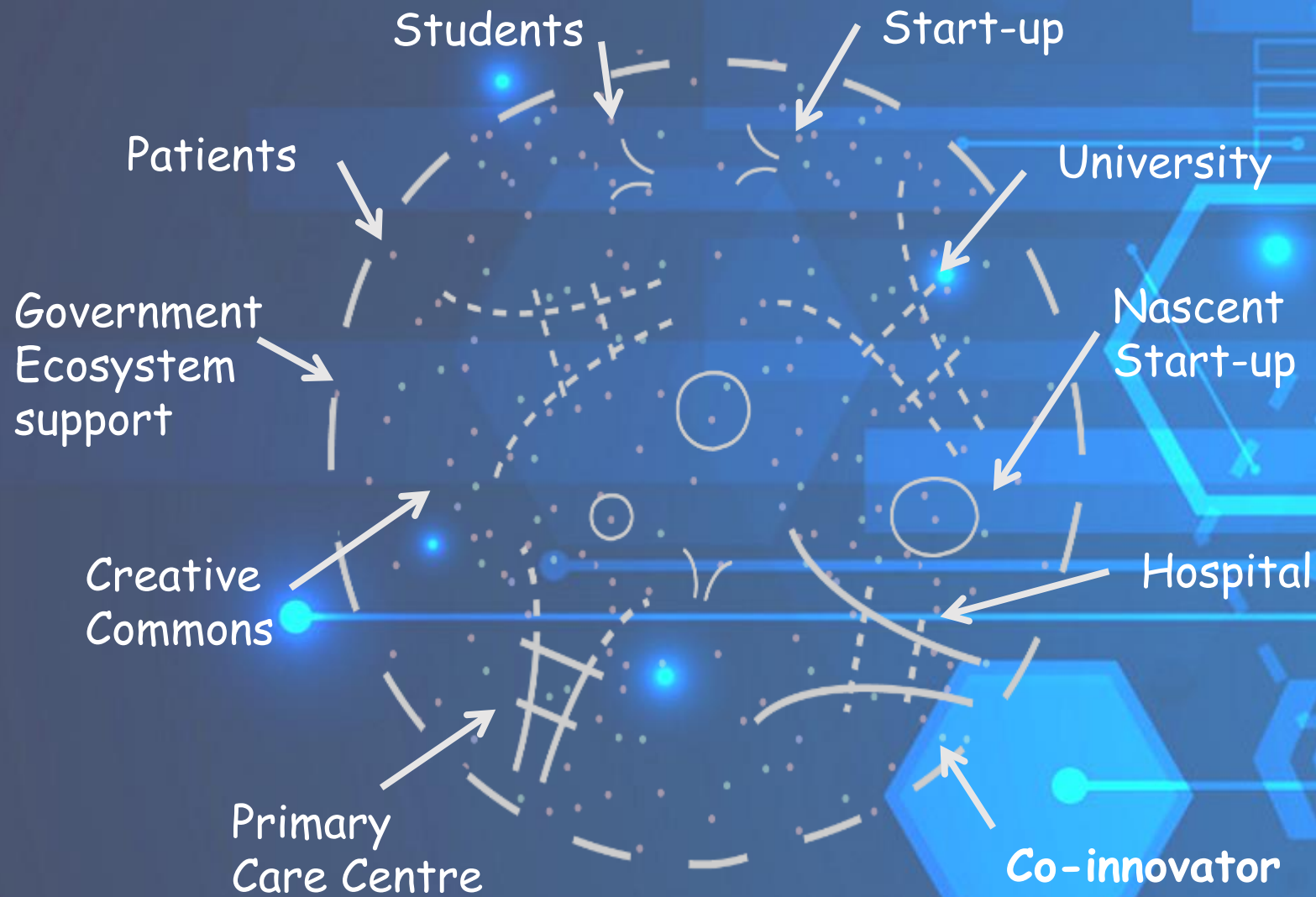
- Collaboration with Suzanne Brown, CNIO and Loretto Grogan, ONMSD
- Performing Digital Skills Assessment across Nursing and HCA population
- Perform analysis and then devise, develop and deliver training offerings
- Scale Assessment and Training offering nationally



Pillar 2: Open Innovation



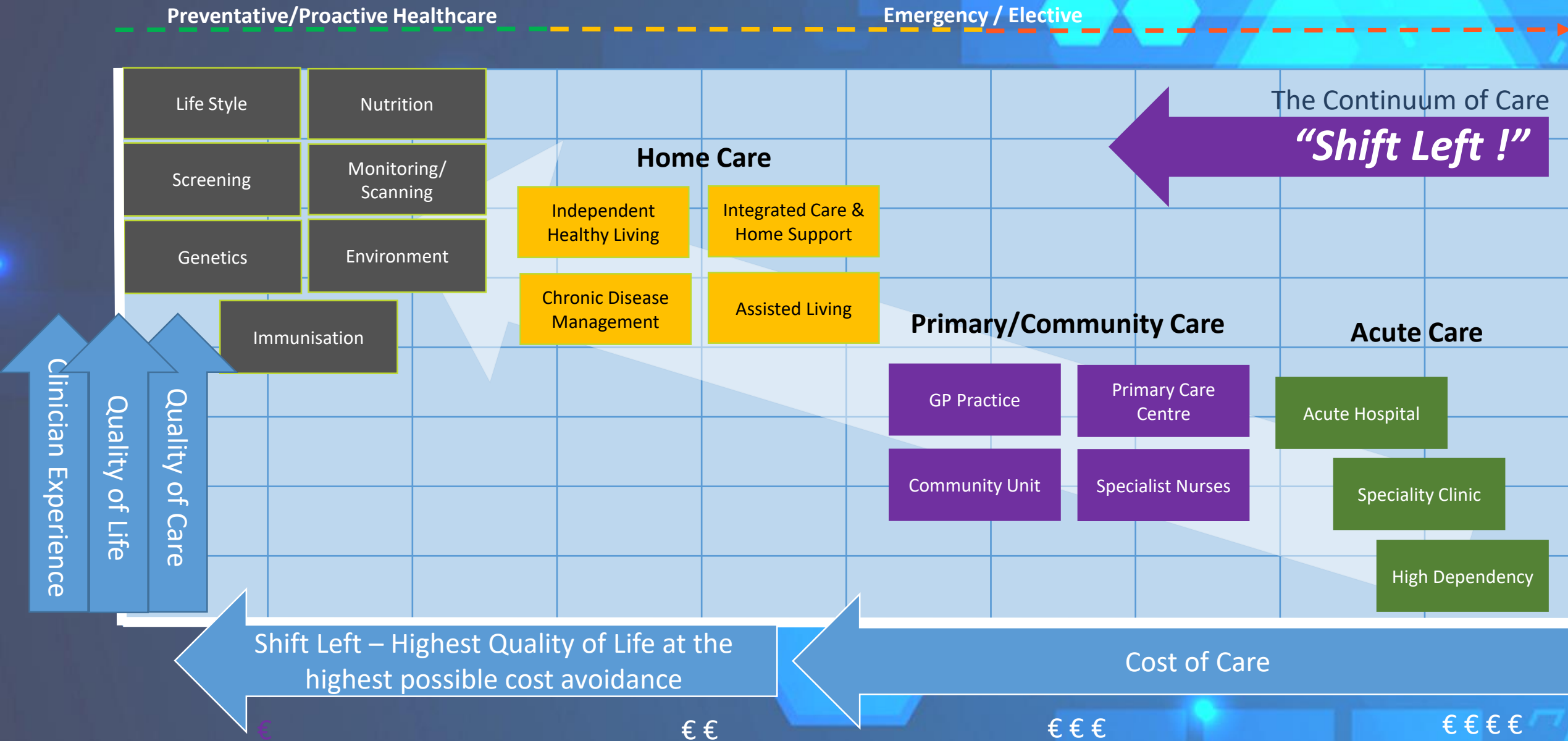
Open Innovation 2.0: The new mode for Digital Innovation;



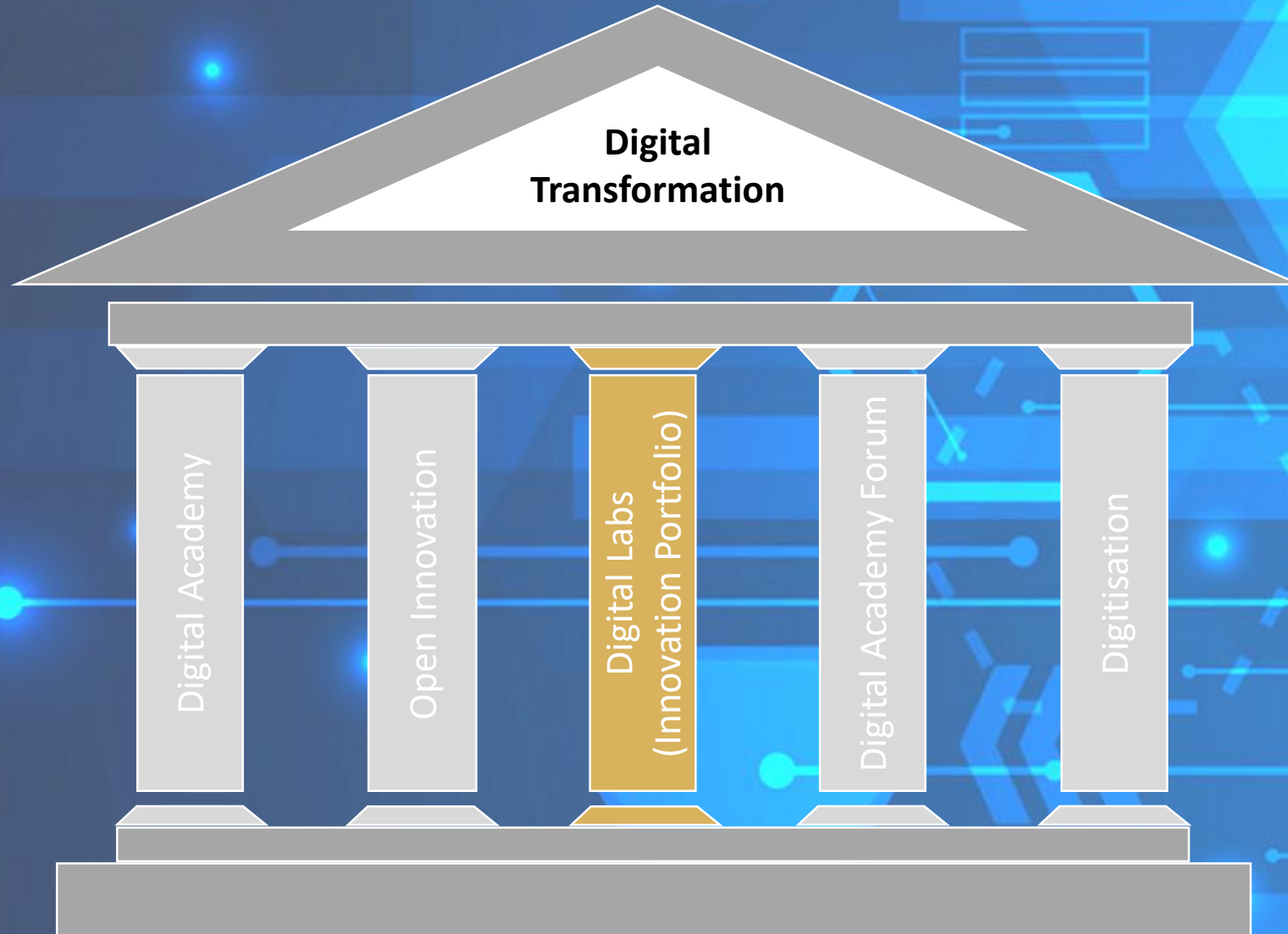
Leveraging Collective Intelligence and Energy; Multiplicative, Synergy and network effects



Sláintecare: Stay Left, Shift Left



Pillar 3: Digital Labs (Innovation Portfolio)



Digital Innovation Portfolio



HSE Digital Labs

- The Digital Lab currently has a portfolio underway of over 50 programmes and projects. These consist primarily of disruptive Digital Health solutions which are currently being evaluated and piloted throughout the HSE.
- Projects pass through four phases:
 - Research
 - Pilot
 - Demonstrator
 - Broad Adoption



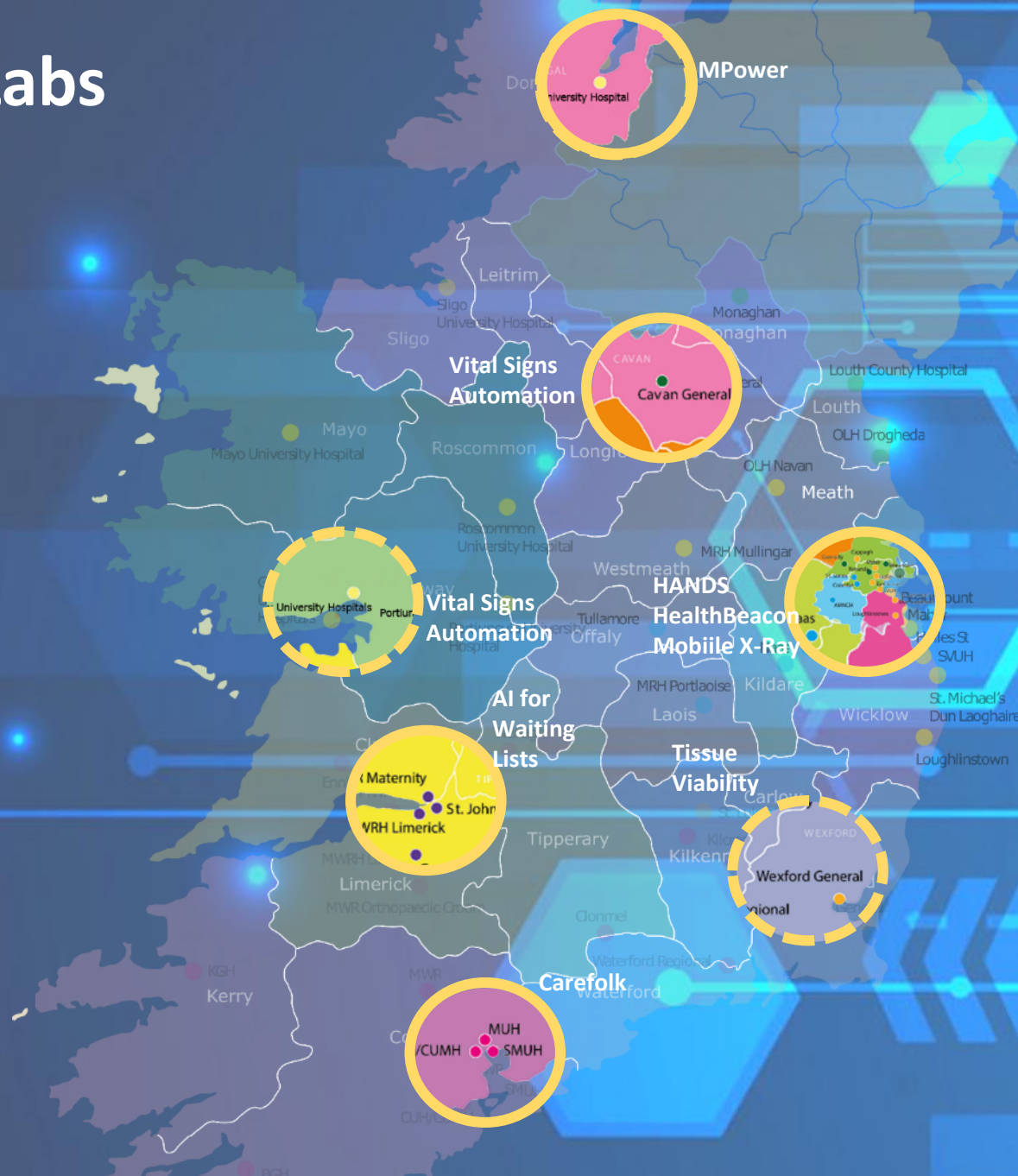
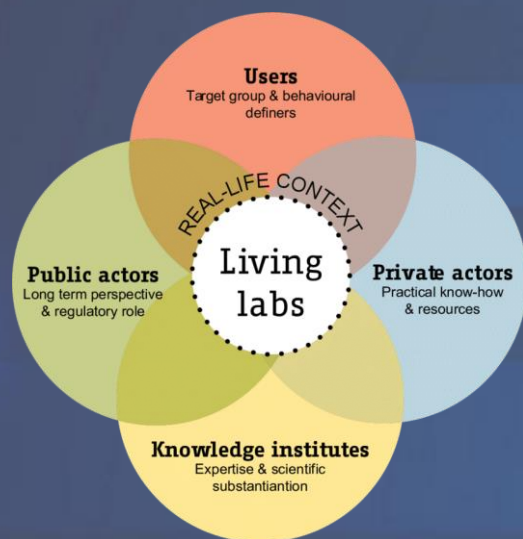
Ross Cullen (Digital Innovation Manager) presenting at the HSE Digital Academy Forum Sep. 2019



HSE Digital Labs



Digital
Transformation



Legend



Current Pilot

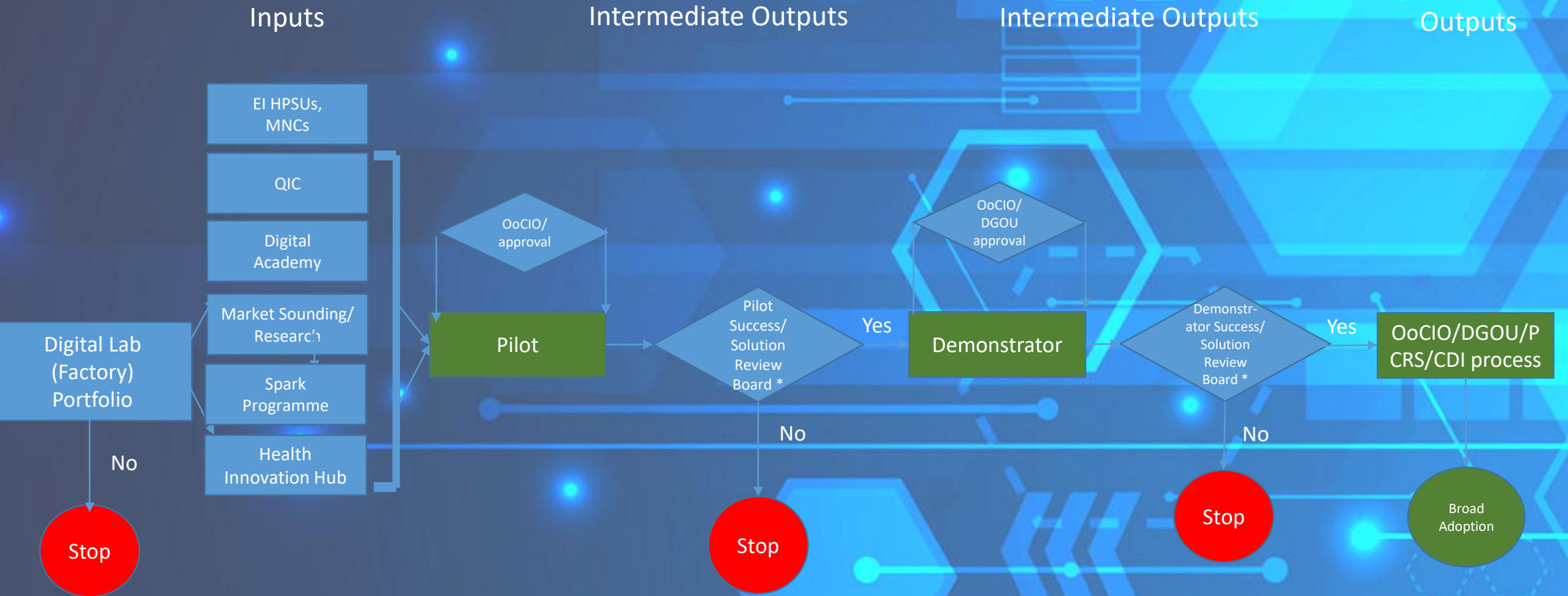


Planned Pilot

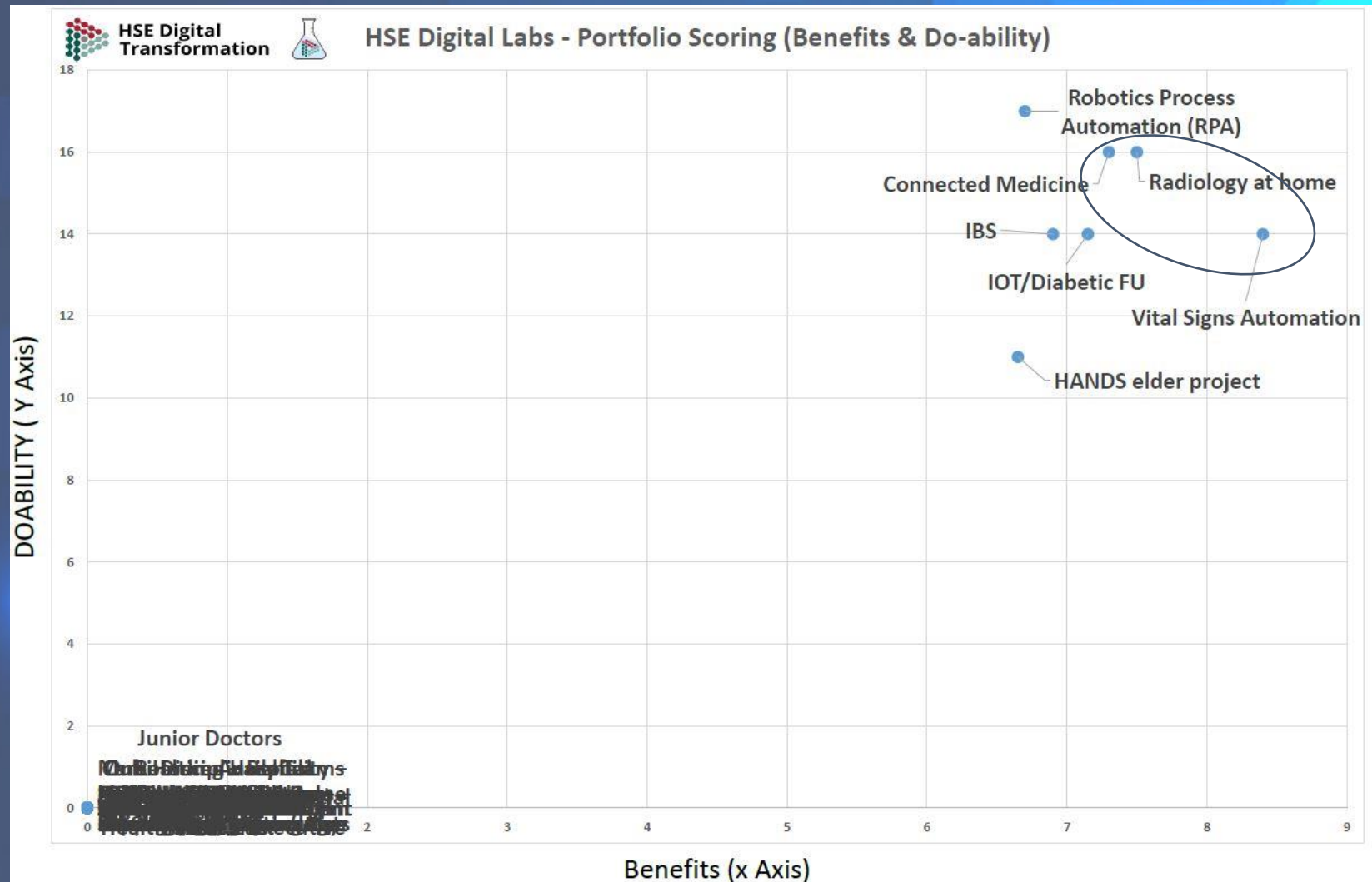




Digital Innovation Pipeline- Process Flow & Governance




Digital Innovation Portfolio




Three priority projects

- Vital Signs Automation
- Mobile X-Ray
- Connected Medicine

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	
	Project Name	ID	Potential Solution(s) Provide	Description	Location	Type	Home	Communi	Acet	Status	Stagegate	Company Con	Contact Ph	Contact E	HSE Contact (Quality of Care	QCC (Pw=1gh1 5XX)	Cost Reduction	CCR (Pw=1gh1 5XX)	Quality of Life	QOL (Pw=1gh1 5XX)	Clinician Experience	CE (Pw=1gh1 5XX)	Scalability	S (Pw=1gh1 5XX)	Total	Total (Weight)	
1	Connected Medicine	1	Abnova/Healthbus.com		Hamar	Active				ready	Pilot					7	2.45	7	1.4	7	1.05	0	1.2	0	1.2	37	7.3	
2	Vital Signs Automation	2	Syncephi		Acute/Community	Active				ready	Pending					9	3.15	9	1.9	0	1.2	7	1.05	0	1.2	41	8.4	
3	IOT/Diabetic FU	3	Blue-drop Medical		Diabetic/Clinic	Active				ready	Pending					8	2.8	6	1.2	7	1.05	7	1.05	7	1.05	35	7.15	
4	Artificial Intelligence/Waiting L	4	UCB Health		UHL					research							0			0	0	0	0	0	0	0	0	
5	Date Ontology	5	UCB Health							planning							0			0	0	0	0	0	0	0	0	
6	HANDS older project	6	UCB Health							planning						4.1	2.1	7	1.4	7	1.05	4	0.9	0	1.2	34	6.65	
7	ShiftLeft Showcase	7	UCB Health							planning						0			0	0	0	0	0	0	0	0	0	
8	Proact	8	UCB Health		Hamar/Community					Planning							0			0	0	0	0	0	0	0	0	
9	Telapsychiatry	9	VideaDoc		Mental Health Service					in use							0			0	0	0	0	0	0	0	0	
10	HSE R&H App	10	TGS or Apiccam 360		HSE Corporate					planning							0			0	0	0	0	0	0	0	0	
11	Patient MOT	11	UCB Health Medical		Hamar					in review							0			0	0	0	0	0	0	0	0	
12	HBS	12	UCB Health		Hamar	Active				in review						7	2.45	5	1	0	1.2	7	1.05	0	1.2	35	6.9	
13	Digital App Finder	13	UCB Health		Hamar					in review							0			0	0	0	0	0	0	0	0	
14	Dermatology	14	UCB Health		Hamar					in review							0			0	0	0	0	0	0	0	0	
15	Digital Mental Health	15	Silvercloud		Hamar					in use							0			0	0	0	0	0	0	0	0	
16	DTIF Blackchois/HER	16	Coader		Acute					research							0			0	0	0	0	0	0	0	0	
17	DTIF Suprie	17	Coader		St James					research							0			0	0	0	0	0	0	0	0	
18	Elder care Care Management	18	UCB Health		SWIN					in use							0			0	0	0	0	0	0	0	0	
19	Eldercare Virtual Care (EVC)	19	UCB Health		Acute					Evaluation							0			0	0	0	0	0	0	0	0	
20	Trauma and to and Hgmt	20	UCB Health		St James					in review							0			0	0	0	0	0	0	0	0	
21	Digital Patient Ecosystem	21	UCB Health		Community/Hama					in review							0			0	0	0	0	0	0	0	0	
22	ED wait time predictor	22	OpenApp		Acute					ready							0			0	0	0	0	0	0	0	0	
23	Resource Analyzer	23	OpenApp		All					ready							0			0	0	0	0	0	0	0	0	
24	Smart Health DS	24	Dublin City Council		Hamar					in review							0			0	0	0	0	0	0	0	0	
25	Access to counselling/psychiatry	25	Wallestefscop		Hamar					in review							0			0	0	0	0	0	0	0	0	
26	Slainte care Shared Care record	26	CHIO		All					in review							0			0	0	0	0	0	0	0	0	
27	SPHNS App	27	Perinatal Mental Health		Acute/Community					ready	Broad Adoption						0			0	0	0	0	0	0	0	0	
28	Valerius	28	AIMA		Acute/Community/Hama					Prototype							0			0	0	0	0	0	0	0	0	
29	eMortaring	29	CPL							in review							0			0	0	0	0	0	0	0	0	
30	Fraxtylo Libre	30	Alkerm		Hama					in review							0			0	0	0	0	0	0	0	0	
31	Self Appointment Scheduling	31	Thera52		Hama/Community/Acute					in review							0			0	0	0	0	0	0	0	0	
32	Self-management reporting tool	32	mauer (Advanced)		Community/Hama					in review							0			0	0	0	0	0	0	0	0	
33	Social Inclusion Digital Platform	33	Alusyrubhau		Community/Hama					in review							0			0	0	0	0	0	0	0	0	
34	Shared Care Record	34	RSCIP/Phyllo Foundation		All	Active				Planning							0			0	0	0	0	0	0	0	0	
35	Healthpad (?)	35			All												0			0	0	0	0	0	0	0	0	
36	IEHG Appointment Scheduling Sy	36	Suifyscove		Tracking												0			0	0	0	0	0	0	0	0	
37	Parkinson's therapy Support	37	Beato Medical														0			0	0	0	0	0	0	0	0	
38	HR Intracat	38	HSE		Active												0			0	0	0	0	0	0	0	0	
39	Falls Prevention	39	Kinavir Health Technologies Limited														0			0	0	0	0	0	0	0	0	
40	Patient Portal Research	40	UCO														0			0	0	0	0	0	0	0	0	
41	Caravanator	41	One Advanced														0			0	0	0	0	0	0	0	0	
42	homo sleep study disquartier	42	St James & Brainvascular														0			0	0	0	0	0	0	0	0	
43	Robotics Process Automation (R	43	Dulaitte		Active												6	2.1	0	1.4	6	0.9	4	0.9	0	1.2	34	6.7
44	Stavia the Robot	44	Trinity College		Active													0			0	0	0	0	0	0	0	
45	Redinec	45	Wearable Video for senior medical report														0			0	0	0	0	0	0	0	0	
46	Redinec at home	46	Mobile Medical Disquartier		Active												7	2.45	0	1.4	0	1.2	0	1.2	7	1.05	38	7.5
47	Liferiqur wearable	47	Think Biorevolution														0			0	0	0	0	0	0	0	0	
48	epilepsy EPR (Lighthouse Projec	48	Ergo		Tracking												0			0	0	0	0	0	0	0	0	
49	Ratel Shift App	49	Clinicshift														0			0	0	0	0	0	0	0	0	
50	Barcode Standardisation	50	GST Ireland		Tracking												0			0	0	0	0	0	0	0	0	
51	NGP Eating Disorder App	51	????		Tracking												0			0	0	0	0	0	0	0	0	
52	Virtual Consultations - Health S	52	Microcraft		Limrick					In Progress	Broad Adoption						0			0	0	0	0	0	0	0	0	
53	Realtime Hospital Analytics (Sy)	53	Microcraft							In Progress							0			0	0	0	0	0	0	0	0	
54	Clinical Handover - Health Servi	54	Microcraft							In Progress							0			0	0	0	0	0	0	0	0	
55	Junior Doctors Onboarding - Bal	55	Microcraft		Northern Ireland					In Progress							0			0	0	0	0	0	0	0	0	
56	Non-natal Nutrition App - Health	56	Microcraft							In Progress							0			0	0	0	0	0	0	0	0	
57	Core Home Availability - Belfast	57	Microcraft		Referta/Community attached					In Progress							0			0	0	0	0	0	0	0	0	
58	Multi-Disciplinary Teams - Health	58	Microcraft		Referta/Community attached					In Progress							0			0	0	0	0	0	0	0	0	
59	Pathology Notifications - Health	59	Microcraft		Referta/Community attached					In Progress							0			0	0	0	0	0	0	0	0	
60	NICE Guideline Approval - Warte	60	Microcraft		Referta/Community attached					In Progress							0			0	0	0	0	0	0	0	0	
61	Discharge to Rehab Process	61	Microcraft							Planning							0			0	0	0	0	0	0	0	0	
62	Compliance Notice	62	Microcraft							Planning							0			0	0	0	0	0	0	0	0	
63	Job Bank	63	Microcraft							Planning							0			0	0	0	0	0	0	0	0	
64	Clinical Communication	64	Microcraft							Planning							0			0	0	0	0	0	0	0	0	
65	Agency Management	65	Microcraft							Planning							0			0	0	0	0	0	0	0	0	
66	Sharing of Large Files	66	Microcraft																									

 Skype for Business

 Martin Curley

4:16

KEWS 300



Improving Hospital Point-of-Care Performance

- Shorter Average Length-of-Stay
- Higher standard of care
- More productive staff
- Elimination of charting and scoring errors

SyncroPhi

HSE Hospital Capacity

- Unacceptable bed-occupancy rates in acute hospitals (95%-100%)

“International evidence indicates that high bed occupancy is associated with a number of adverse factors including increased risk of HAI such as MRSA, increased mortality, increased probability of an adverse event, risks to staff welfare and reduced efficiency of patient flow”.

[Ref. p3 Dept. of Health ‘Health Service Capacity Review 2018 Executive Report’]

- Additional 5,360 – 7,150 acute hospital beds in public hospitals required over next 12 years

“The development of capacity in line with the baseline scenario is simply not an option”

[Ref. P3 Dept. of Health ‘Health Service Capacity Review 2018 Executive Report’]

“Adding 2,500 extra hospital beds would cost €1m per bed, with an expected annual running cost of €306k per bed”

[HSE/DOH answer to Parliamentary Question to Minister for Health, Sept 2018]

- An 80% increase in Adult Critical Care beds is recommended (from 240 beds to 430 beds) over next 12 years.

[Ref. ‘Multi-annual National Adult Critical Care Capacity Planning 2019, 2020 and subsequent years –Memo’ HSE Critical Care Programme, National Clinical Programmes]

Bed Capacity/Trolley Count reduction opportunity

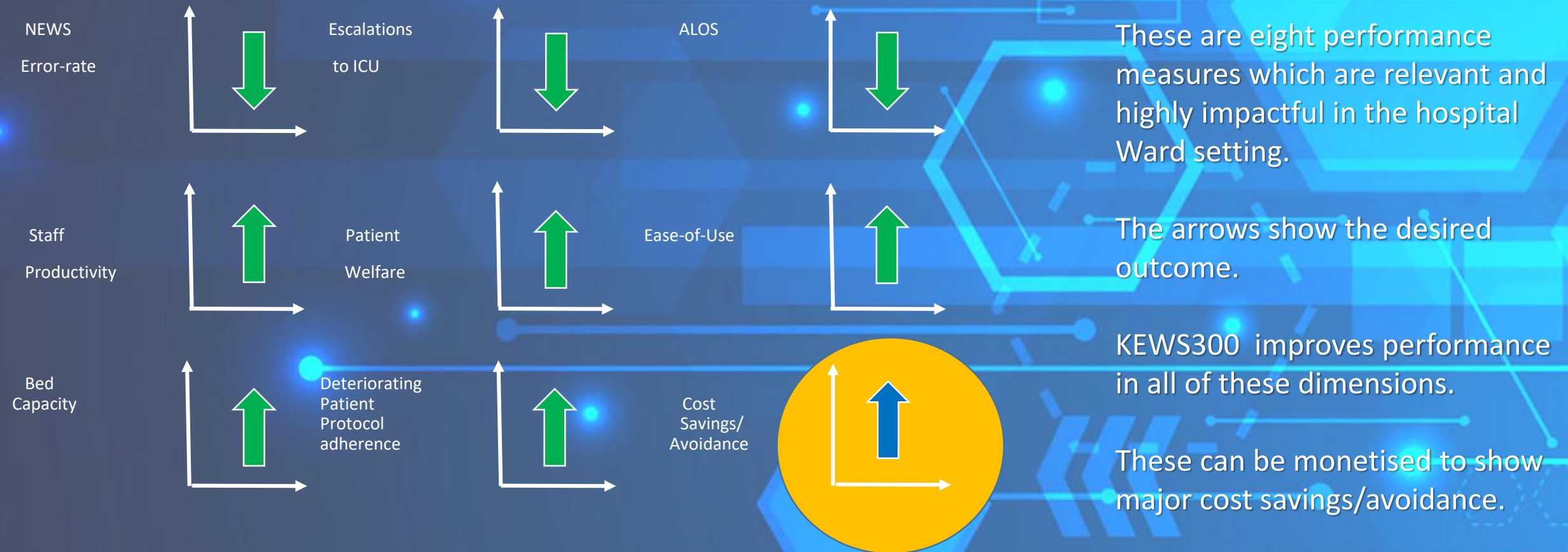
“Using data derived from the systematic review and applying this to the Irish healthcare setting, potential benefits from implementing a move from paper-based recording of vital sign parameters to an electronic early warning system could mean a potential resource gain for the Irish healthcare setting being realised through a reduction in general and ICU LOS of 28.9% (95%CI 18.6%-40.3%) and 40.3% (95%CI 4.6% - 76%), respectively. This translates to a capacity gain at a national level of 802,096 hospital bed days per annum (of a total of 2.8 million bed days per annum) and 30,628 ICU bed-days per annum (of a total of 76,000 ICU bed days per annum assuming 90% occupancy). This potential substantial resource gain would assist the efficient utilisation of acute hospital beds and result in reduced pressure on Emergency Departments, reduced waiting times for elective surgeries and ultimately more appropriate and timely access to acute hospital services.

Other potential benefits include increased efficiencies gained from reduced vital sign recording time, as much as 1.6 times faster than that of a paper-based system. This means more available clinician time to deliver care to patients. When this efficiency gain is coupled with improved accuracy of recording of vital signs and handover information, the potential gains realised through a safer patient environment are important contributions to be noted.”

[Source: P11 Health technology assessment of the use of information technology for early warning and clinical handover systems]



Multifactorial Performance Improvement

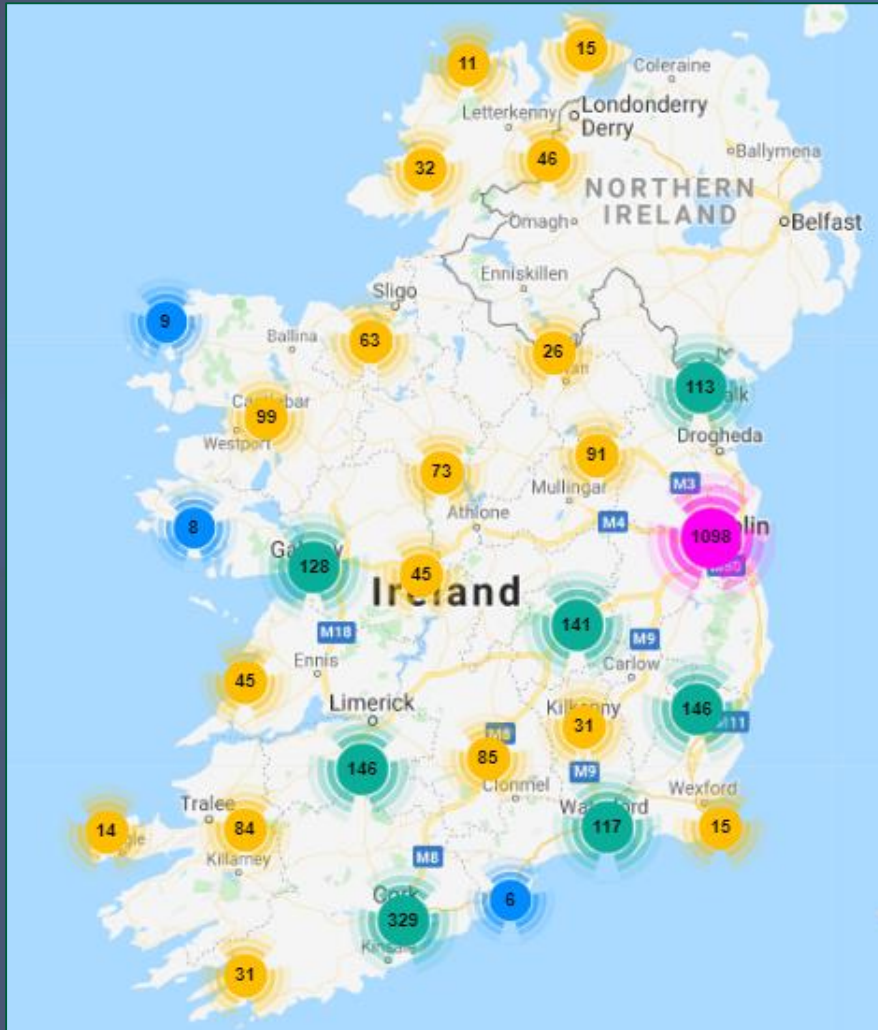


The HealthBeacon Ecosystem



- Increased Adherence
- Real world insights
- Reduce waste / unused medication

Health Beacon Ireland Living Lab



- 
- **> 6,250 patients** have had a HealthBeacon in Ireland
 - **> 3,000 patients** have a HealthBeacon unit today
 - **>240,000** Injections have been tracked

Mobile X-Ray for Nursing Homes and Private Homes

- Licensed by EPA
- Digital technology, remote connectivity and reporting
- Patient-centered care
- Timely diagnosis in familiar surroundings
- Proven hospital avoidance mechanism

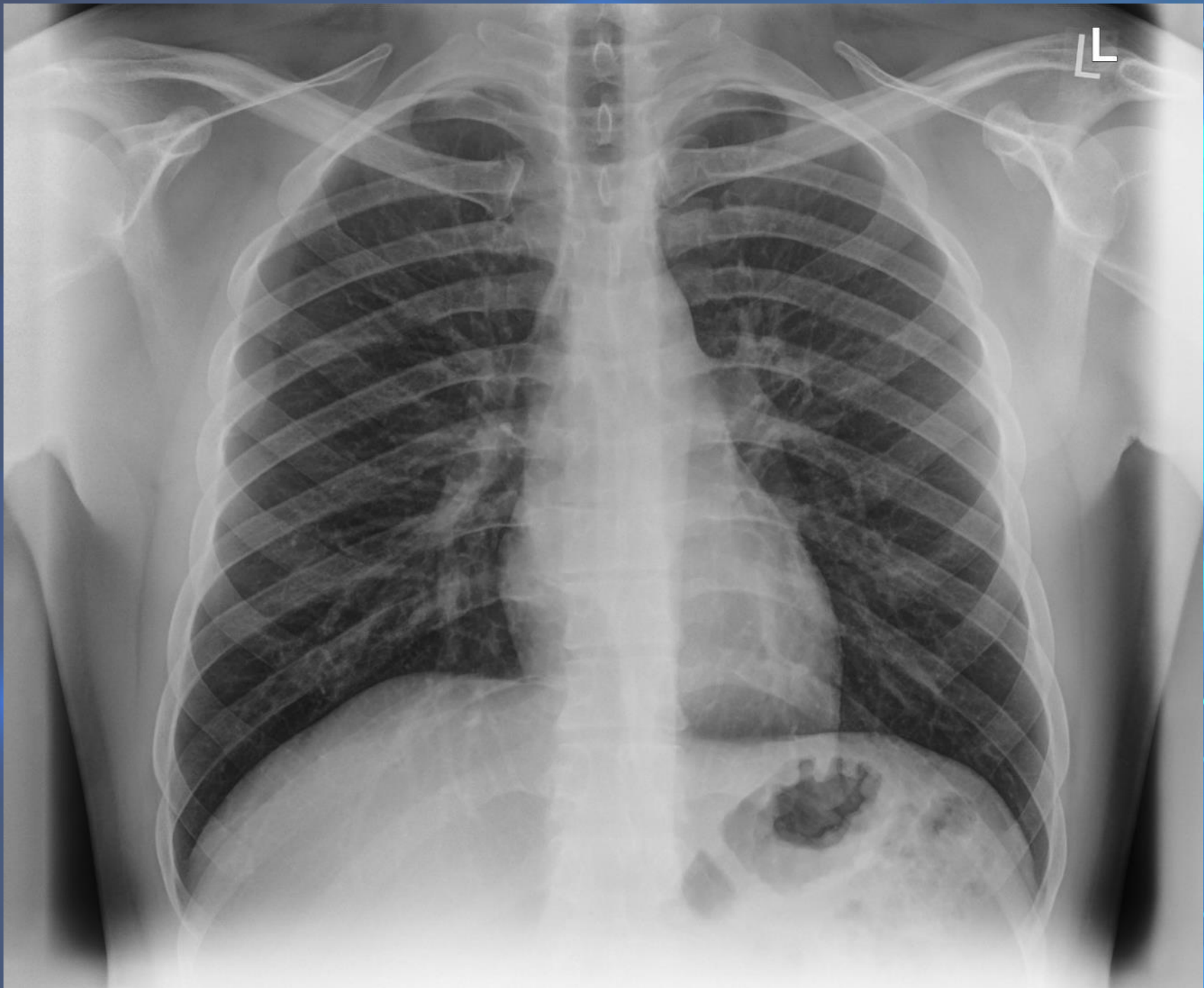



MOBILE MEDICAL DIAGNOSTICS
MOVING EQUIPMENT NOT PATIENTS

Quality Service

- Consultant Radiologists IMC registered and Dublin based
- Reports available within 1-4 hours of image capture
- Radiographers highly experienced and CORU registered

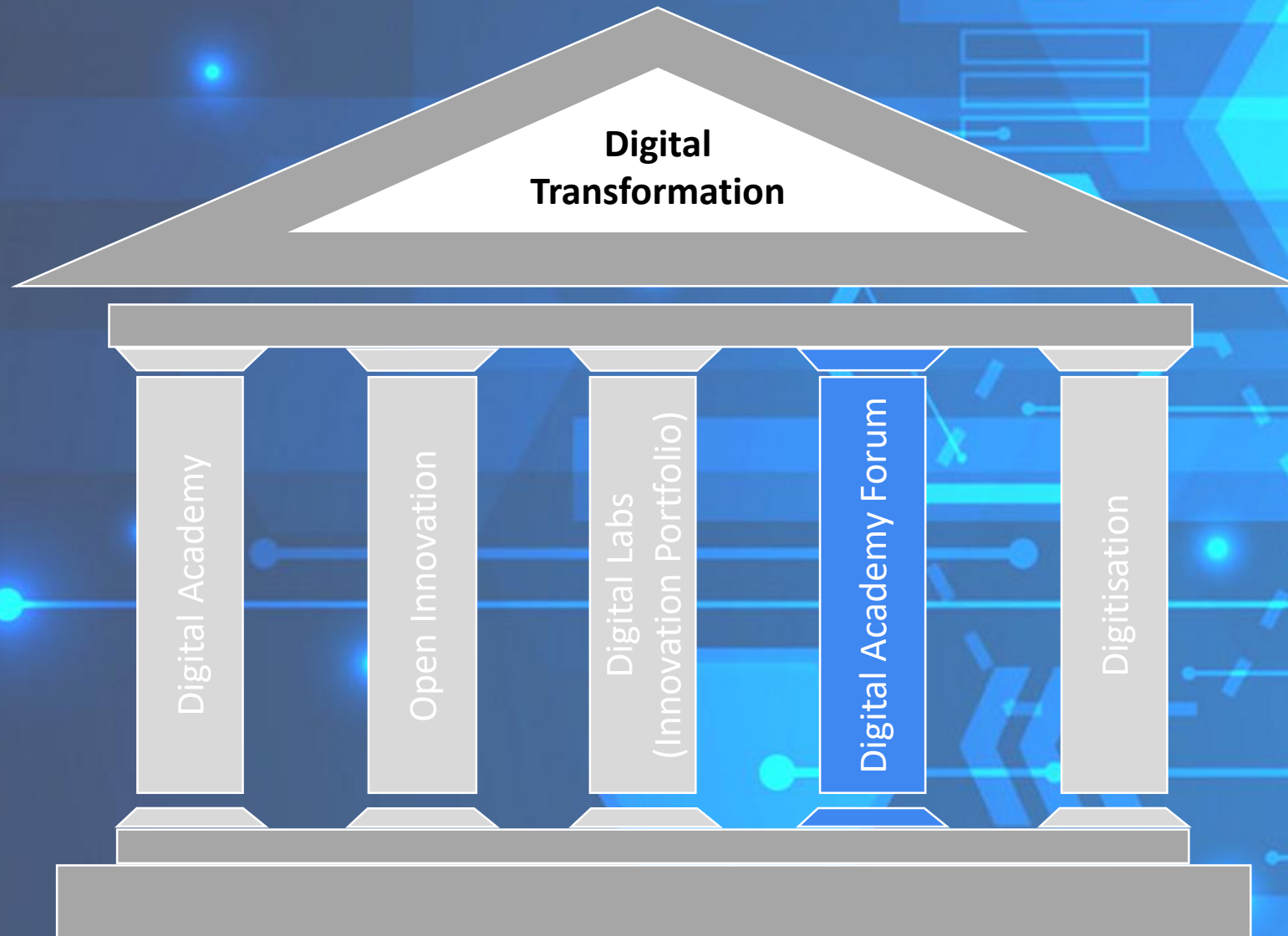




MMD Living Lab Trial 10 months

- Average patient age 86
- Many have Dementia
- 93.2% would have required ambulance transfer
- 6.8% would have required taxi transport
- 14.89% subsequently required hospital transfer
- 85.11% **AVOIDED** transfer to ED

Pillar 4: Digital Academy Forum



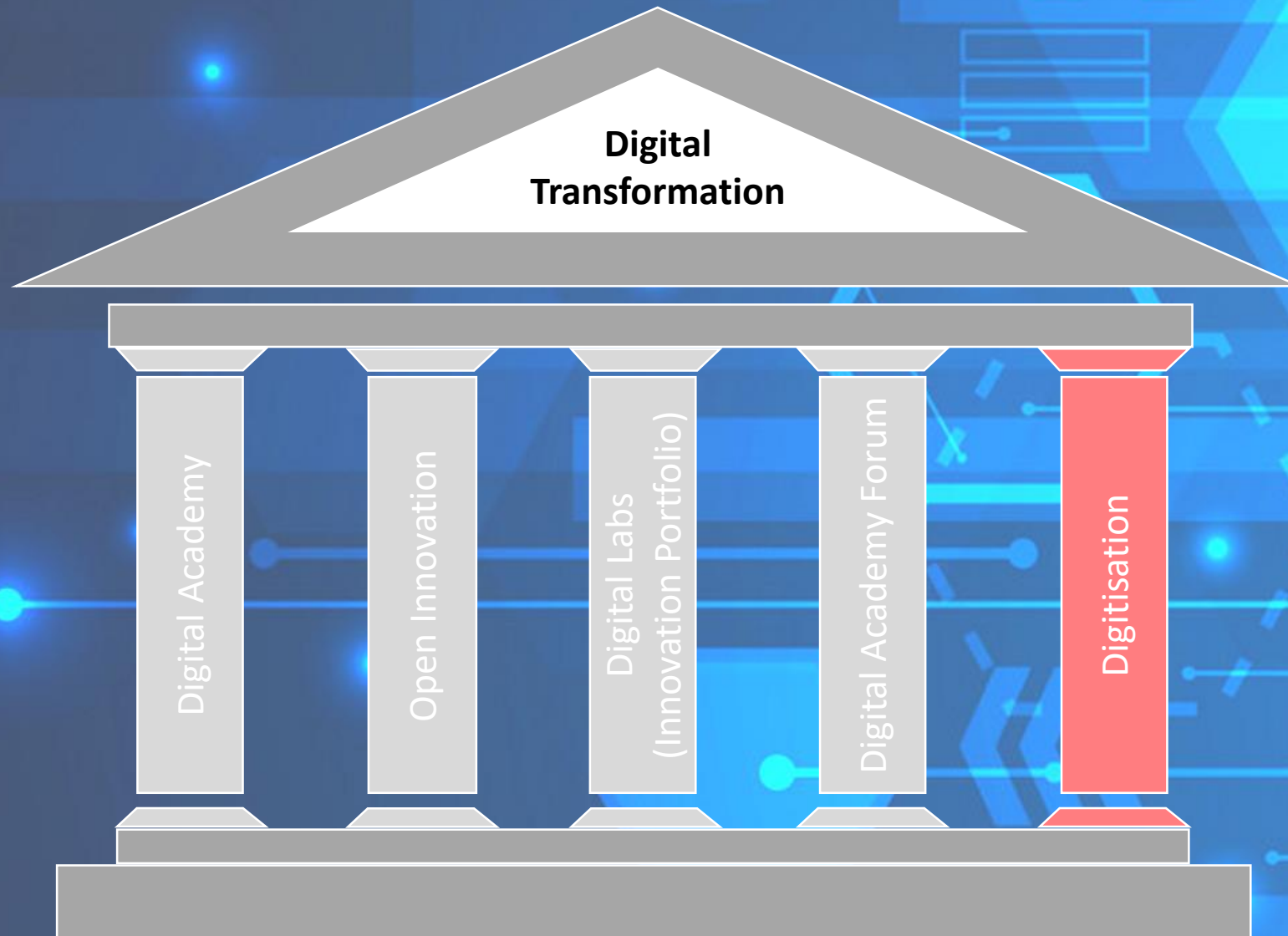
Digital Academy Forum



Next DAF: March 11
Dr Steevens Hospital
13:30 – 17:30



Pillar 5: Digitisation

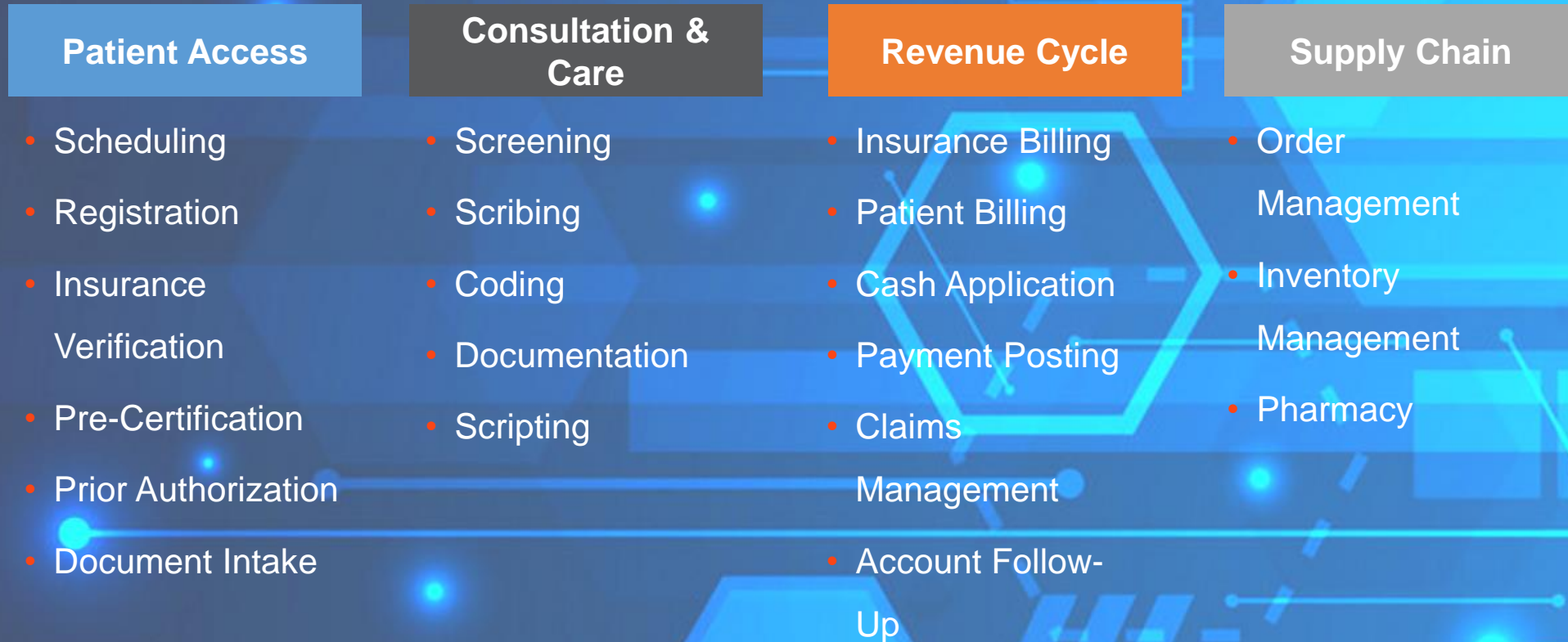


Robotics Process Automation(RPA)

- RPA is one of the fastest-growing segments of Artificial Intelligence (AI) and workplace automation.
 - 2018 saw a 63% growth increase in RPA investments
 - RPA's robust capabilities for boosting productivity and efficiency at a time when skilled talent is in short supply.
-
- RPA workshop held on 30th January 2020 (in conjunction with DPER)
 - 2 pilots identified to begin learning process



Key Target Areas for RPA in Healthcare



“The key barriers to building a 21st century health system are not technological.

They are in the institutions, processes and workflows forged long before the digital era.”

www.oecd.org/health/health-in-the-21st-century-e3b23f8e-en.htm



Thanks!



@martingcurley1

www.hsedigitaltransformation.ie