



# HEALTHY AGEING INNOVATION CLUSTER



# Healthy Ageing Innovation Cluster

## Purpose

- Collective of shared interest - expertise and skills
- Share information and support knowledge exchange
- Seek & solve demand led challenges
- Host challenge competitions
- Identify funding opportunities

## Activities

- Current focus on anticipated IUK Grand Challenges – Healthy Ageing but many other funding sources
- Identify key priorities and collaboration opportunities

Facilitated by.....



# Funding Sources

Clinical Research

Chief Scientist Office - Research Grant Schemes

Support Services: SHIL...

NIHR 19/3 - Digital Technology to Improve H&C

NIHR - Data Enabled Trials

R+I For Global Health Transformation Call 2: Mental Health

EU

H2020

Next deadline April 2019

Interreg - NWE, Europe...

Next deadline June 2019

Other

BHF, Asthma UK, CRUK, Nesta, Scottish Government, UK Government

Wolfson Foundation

Global Funding: WHO, Unicef, Commonwealth Fund, Rockefeller Foundation, Gates Foundation

Wearable technology for injury prevention

Wellcome Trust Innovator Awards

Global Challenge Research Fund

Wolfson Foundation

UKRI

EPSRC - Healthcare Tech - Investigator Led Research + Healthcare Discipline Hopping

SME Support to Evaluate Med Tech - Round 3

Digital Health Technology Catalyst - T.B.C

UK Isreal Open Collaboration Competition

ISCF - Healthy Ageing Challenge - T.B.C

Civtech Challenge Selection

Can Do Challenge Selection

SME Support + Funding

Scottish Enterprise and Highlands & Islands Enterprise. SIB

EU / SME Support - EEN, SME Instrument

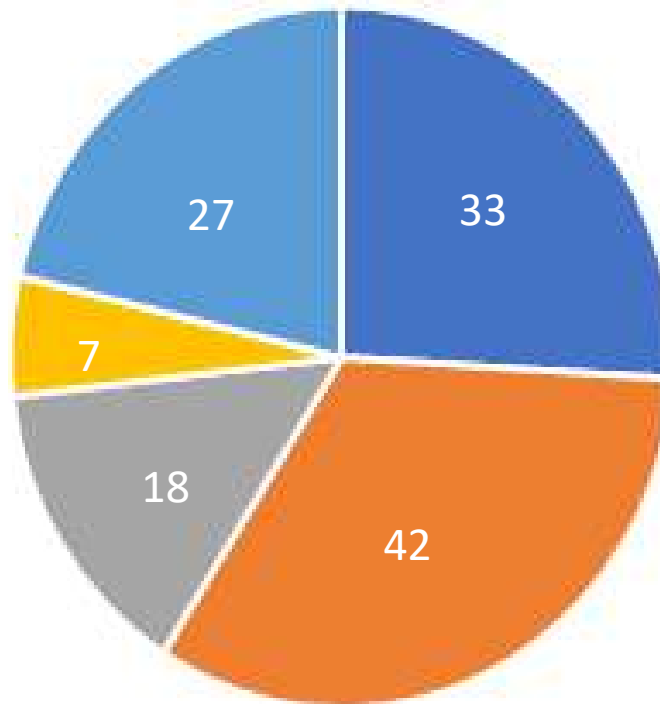
Other: Interface, KTP, Edge, Converge Challenge, Innovation Centres...

January 2019

April 2019

# HAI Cluster Membership – Feb 2019

Number of Cluster Members



127  
Members

■ Academic ■ Industry ■ Local Authority ■ NHS ■ Other

# So far, so good...



Source: [www.millerelect.com/collaboration-creates-construction-project-efficiencies/](http://www.millerelect.com/collaboration-creates-construction-project-efficiencies/)

# Healthy Ageing Innovation Cluster

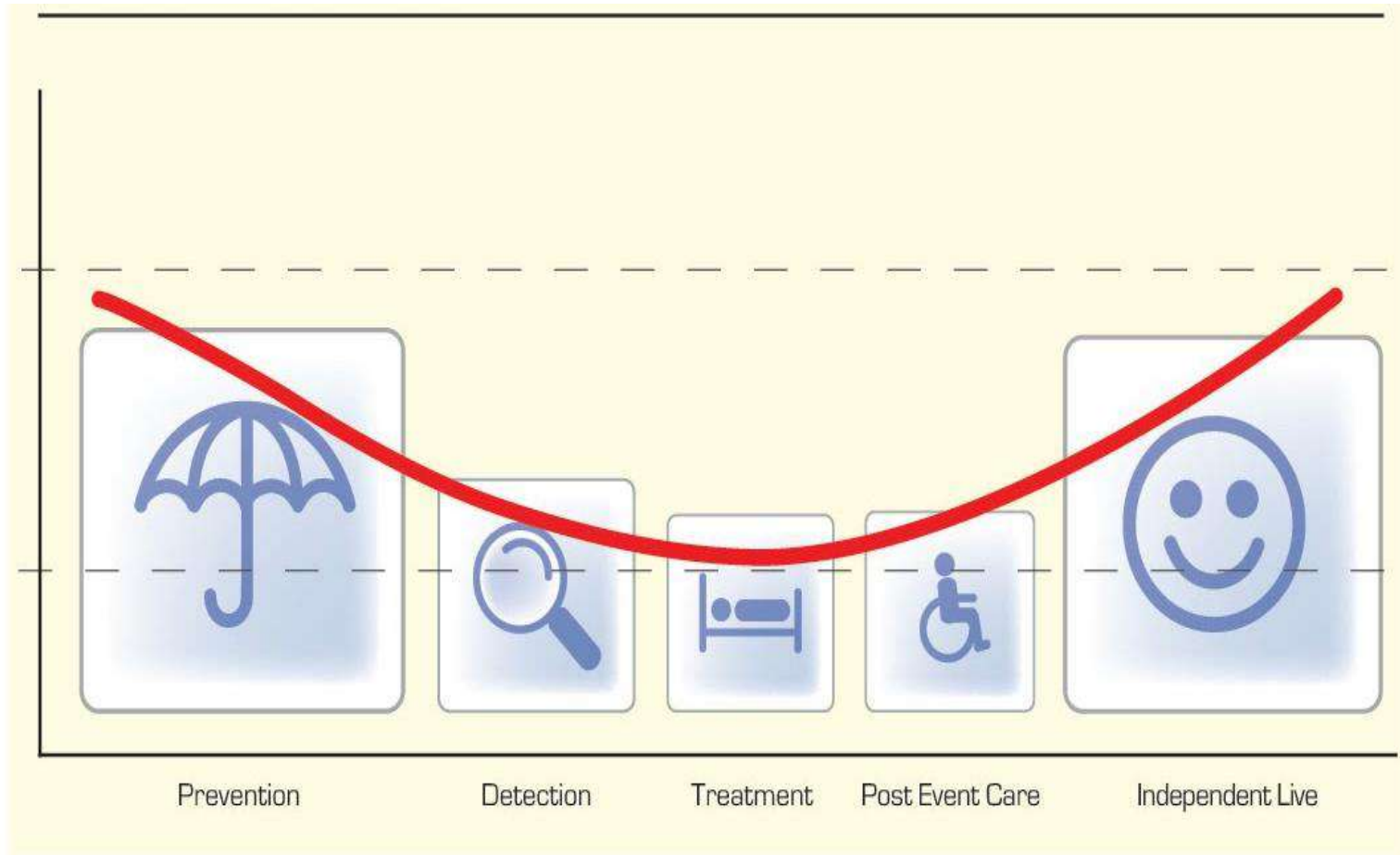
## Discussion Session

- Vision & Impact – what difference are we trying to make collectively?
- Priorities – what are our key collaboration opportunities?
- Connecting & Integrating – what assets/ongoing work could be used/links with other activity/organisations?

Facilitated by.....

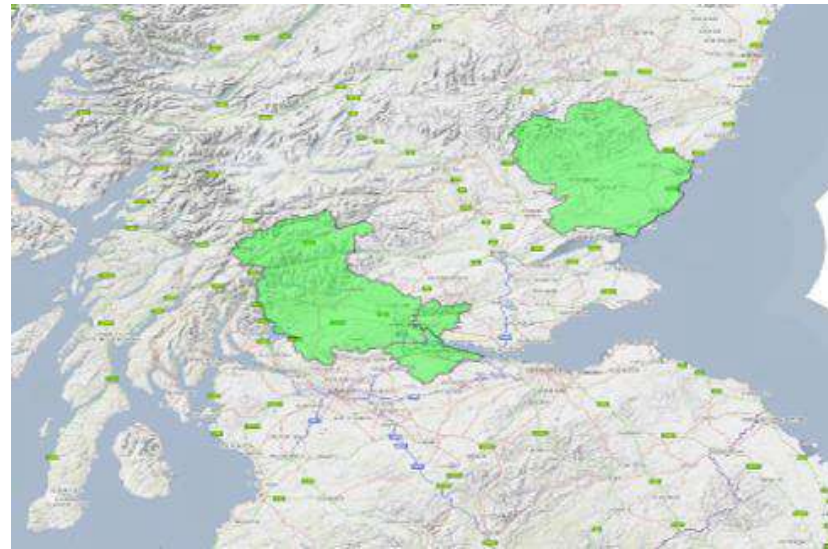


# Group activities across Care Continuum?





# Day in the Life of Telecare Service





# Background / Comparison

## Clackmannanshire & Stirling HSCP

- 4011 Service Users
- An average of 500 calls a day
- An average of 8% of calls are attended by responders
- The partnership is split into 2 areas
- There are 2 responders on duty in each area covering 24/7
- There are 2 call handlers on duty covering 24/7
- TEC Assessor working 9am to 4.30pm 3 days per week carrying out TEC assessments

## Angus HSCP

- Approx 4000 Service Users
- An average of 500 calls a day
- An average of 30% of calls are attended by responders
- The partnership is split into 4 areas
- There are 2 responders on duty in each area covering 24/7
- 2 call handlers on duty covering 24/7 plus one call handler working 9am – 5pm Monday - Friday

# Alarm Receiving Centre

- Service User Activation received by the Alarm Receiving Centre
- Service User details appear on the call handling platform. E.G. name, address, volunteer responder / next of kin details, medical history etc
- Call handlers triage calls based on robust predetermined guidelines and processes
- Call handler takes appropriate action E.G. provide reassurance, contact volunteer responder, call a Health care professional, contact emergency services, arrange TEC responder



# Top 5 Reasons for TEC Response



# Responding to Call

- When on site TEC responder will gain access using the key safe situated at the service users property
- On entering the responder will activate the equipment to alert the ARC they are on site
- The responder will carry out an initial risk / moving & handling assessment
- Assess support required and provide assistance where possible
- If additional assistance is required the TEC responder will notify the ARC.
- Ensure Service User is safe and comfortable
- TEC responder activates the alarm and advises the outcome of the call.
- Secure property and return key to key safe



# Additional Alarm Receiving Centre Tasks

- Process referrals and create database records
- Maintain database records with changes
- Communications with responders and care management teams
- Maintain stock management system
- Recording faults on database
- Closing records
- Statistical information gathering
- Outbound calls
- Telephone Reviews
- Customer Satisfaction Surveys



# Additional Responder Tasks

- Programming new equipment
- Installing / Removing equipment
- Installing alternative and additional equipment
- Equipment fault resolution
- Annual reviews
- Administrative tasks
- Check visits to service users who require additional support



# Challenges

- Budget constraints
- Geographical area
- Engaging volunteer responders
- Analogue to digital transformation, the journey into the unknown.
- Visualising what the future service will look like using the technology available







**KTN**

David Calder – Sector KTM Digital Health  
DHI – February 2019

**Innovate UK**  
Knowledge Transfer Network

[ktn-uk.org](http://ktn-uk.org) @KTNUK

# UK Innovation Landscape



**Innovate UK**  
Knowledge Transfer Network

[ktn-uk.org](http://ktn-uk.org) @KTNUK

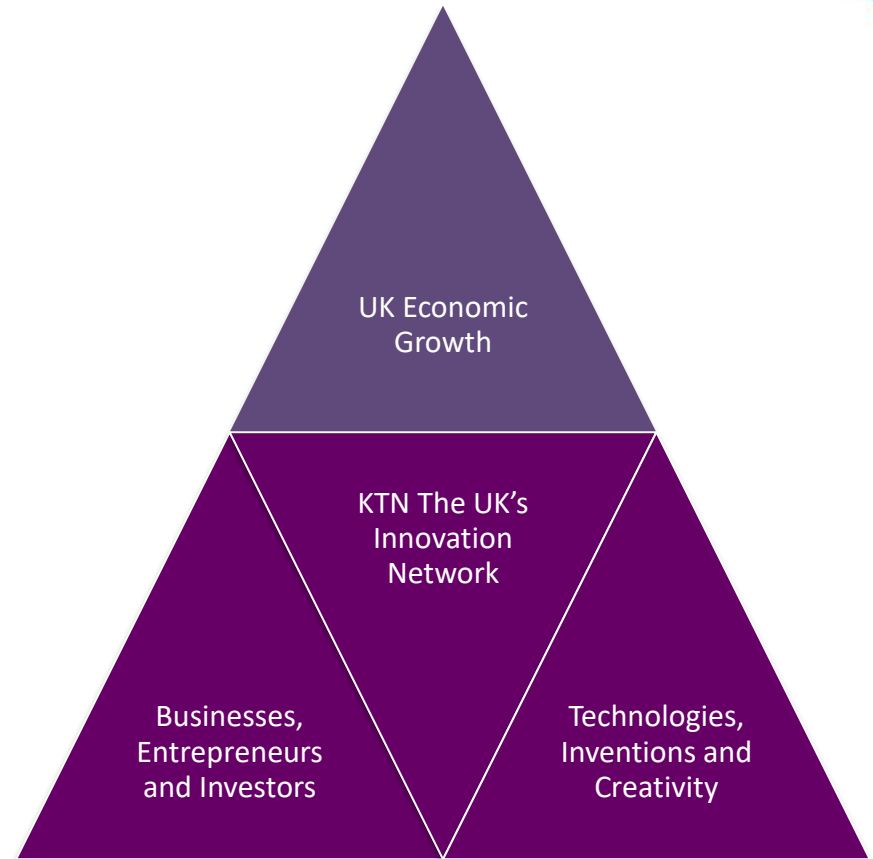
# KTN's Mission

(Who we are & why we exist)

**KTN is the UK's innovation network.**

Our mission is to deliver economic growth. We connect people to speed up innovation, solve problems and find markets for new ideas.

We bring together businesses, entrepreneurs, academics and funders to develop new products, processes and services.



# KTN Objectives

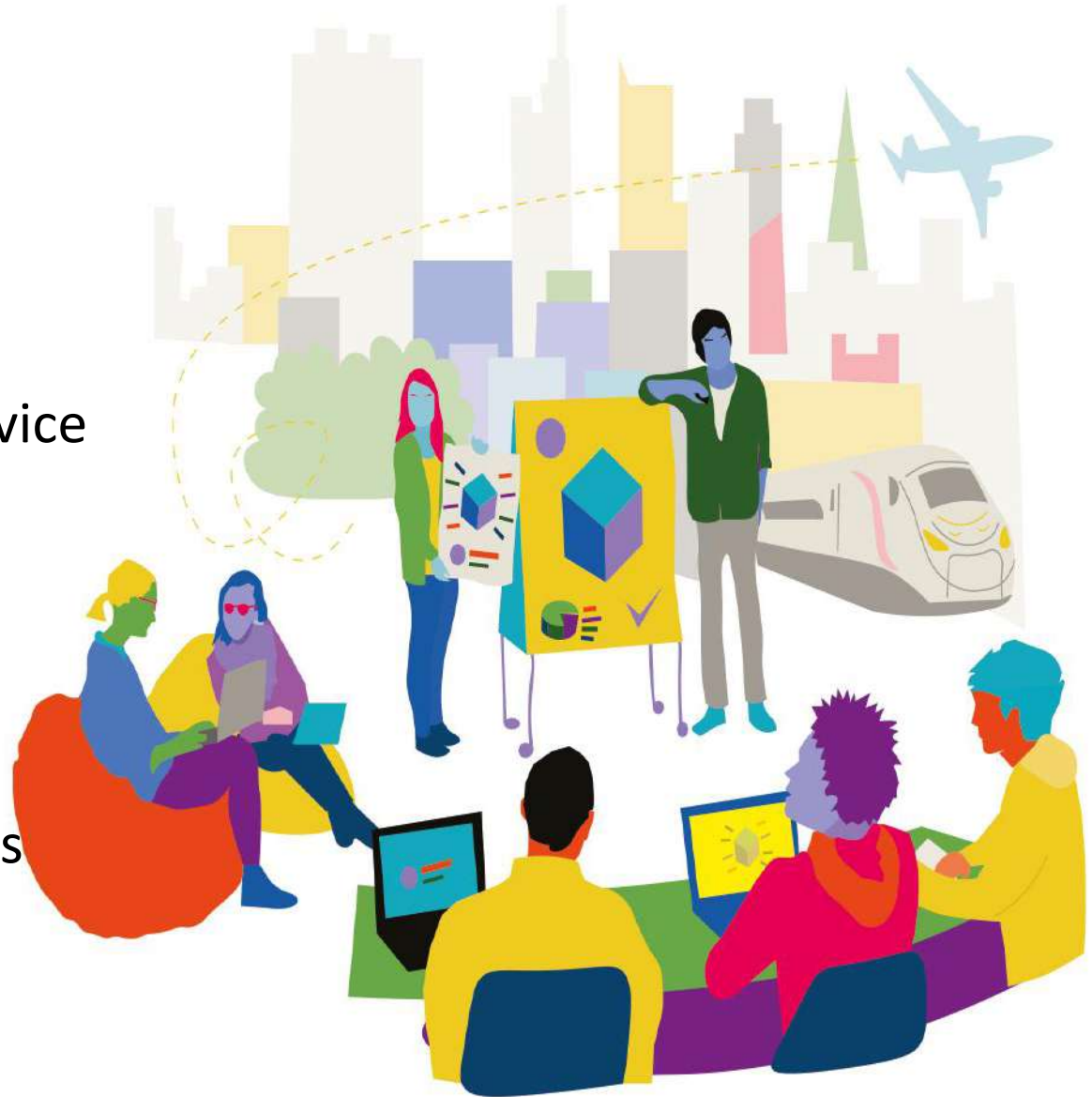
- Increase business led R&D
- Facilitate exploitation of R&D to capture more UK value from innovation
- Increase collaboration between businesses (B2B) & between businesses and the research base (B2R) for UK benefit
- Be the strategic partner of choice for innovation networking
- Provide breadth and depth of expertise for businesses looking to innovate

# Breadth of expertise



# How it works

- Attend events
- Receive expert advice & insights
- Get help with crossing sectors
- Introductions to new collaborations



# 2017-18 Stats

- ~ 3000 new introductions
- 442 new collaborations
- ~ 59500 newsletter subscribers
- 383 events
- ~ 26400 delegates
- Biggest event ever (MRE 2018) in March 2018



Commit to reach 2.4% of GDP investment in R&D by 2027

Industrial Strategy Challenge Fund



- ISCF & The Grand Challenges

The Industrial Strategy Challenge Fund (ISCF) aims to bring together the UK's world leading research with business to meet the major industrial and societal challenges of our time.



AI and Data  
Economy



Ageing  
Society



Clean  
Growth



Future of  
Mobility

# Innovate UK

- Industrial Strategy Challenge Fund

Wave 1	Wave 2	Wave 3
<b>Healthcare &amp; medicine - DHTC</b>	Transforming Construction	Business cases being finalised
Robotics & AI	<b>Data to early Diagnosis &amp; Precision Medicine</b>	
Driverless Vehicles	Transforming Food Production	
Manufacturing & Materials of the Future	Next Generation Services	
Satellites & Space technology	Prospering from the Energy Revolution	
Clean & Flexible Energy	<b>Healthy Ageing (tbc)</b>	
	Audience of the Future	
	Quantum Technology	

# ISCF Wave 3 Announced Challenges

- Ageing Society
- Accelerated Detection of Disease
- Clean Growth
- Industrial Decarbonisation Challenge
  - *End of process, clusters*
- Transforming Foundation Industries
  - *Materials and innovations in the process, heavy industry*
- Smart Sustainable Plastic Packaging

- AI and Data Economy
- Manufacturing Made Smarter
- Commercialising Quantum Technologies
- Future of Mobility
- Future Flight Challenge
- Driving the Electric Revolution

# KTN Health (Life Sciences)



## Medicines

- Discovery and development
- Scale-up and manufacture

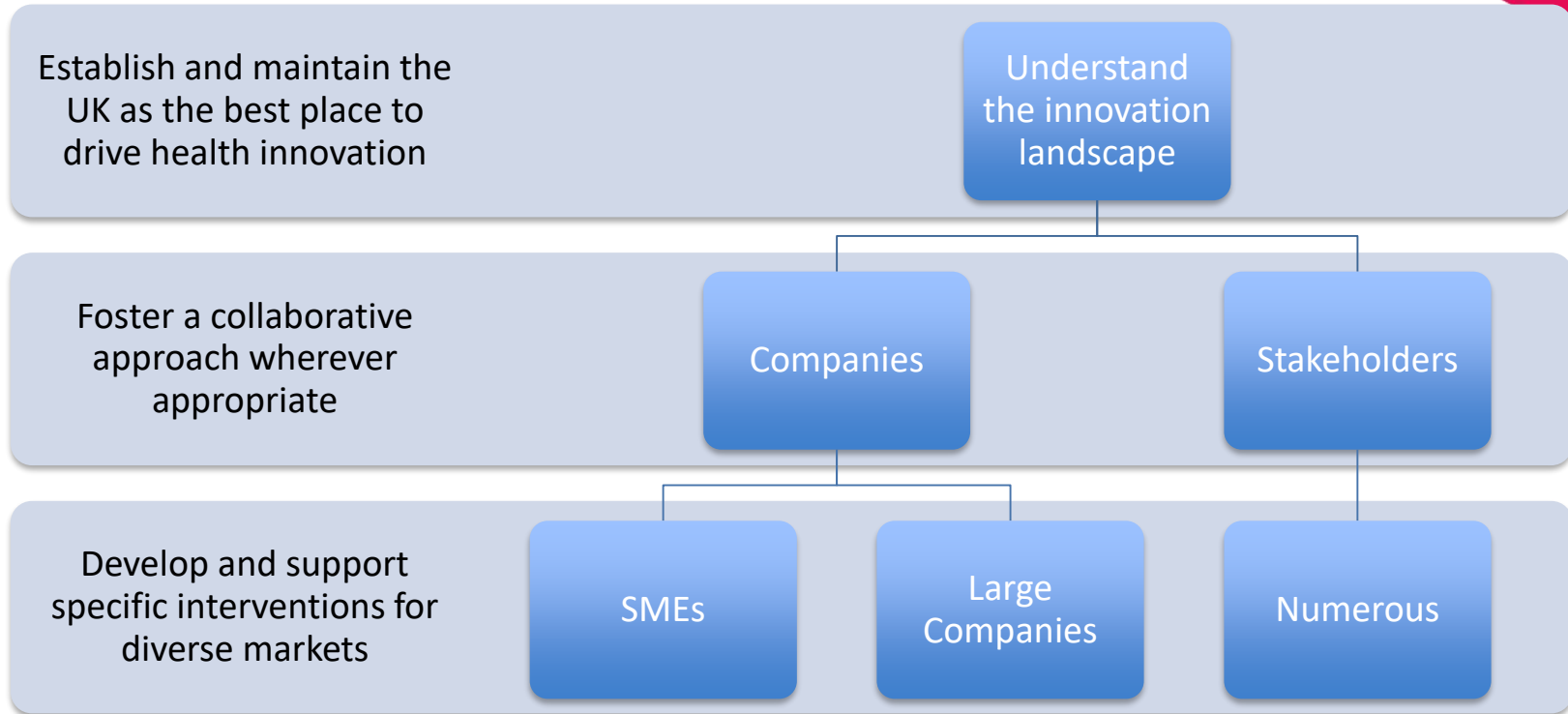
## Med Tech

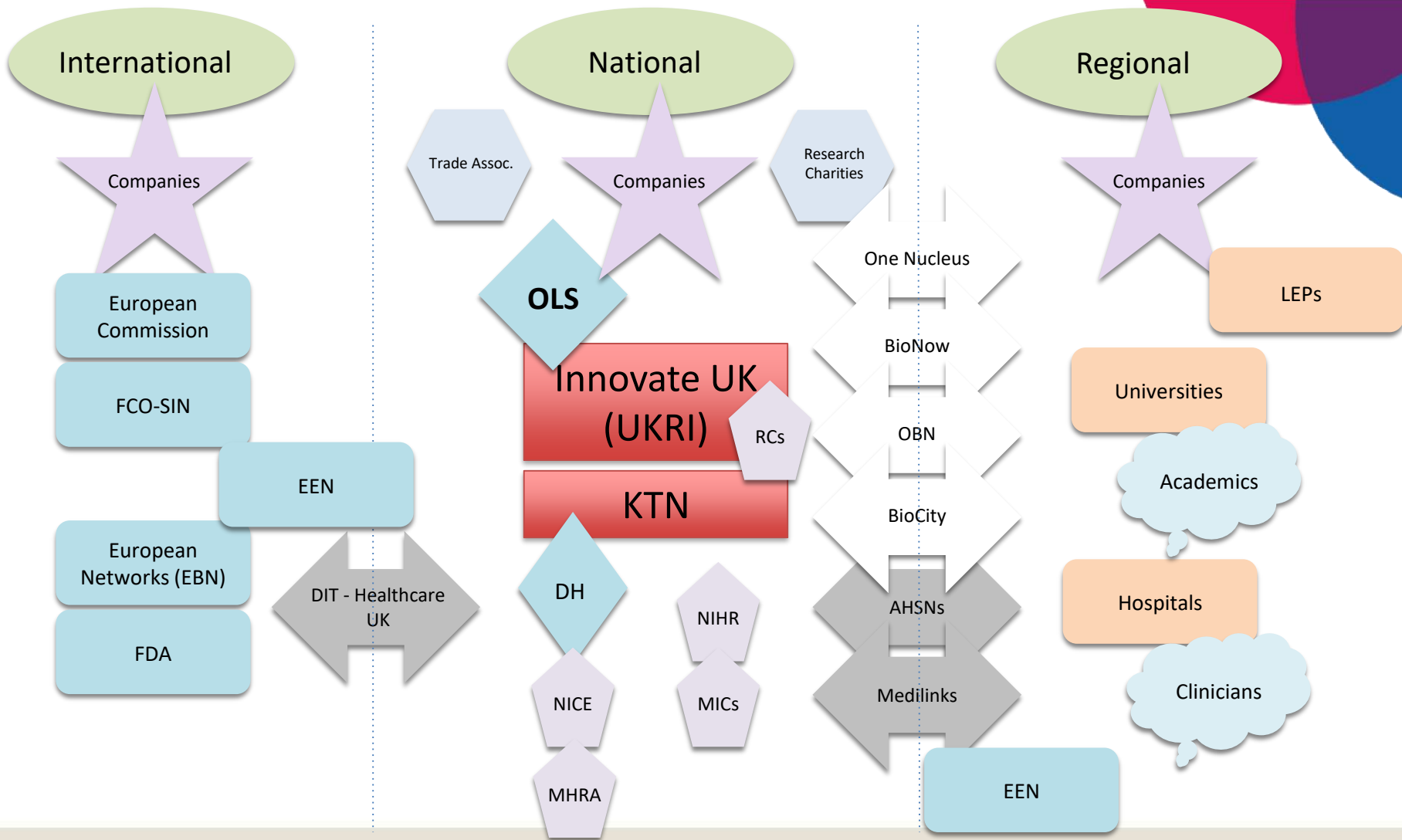
- In vitro technologies (including wearables)
- Implantable technologies

## Digital

- Systems for diagnosis/remediation of disease
- Data in health & care

# KTN Health Priorities





# KTN Support for Business

- Access to grants (all relevant grants) and assets
- Access to funding and finance (private finance)
- Building the best consortium
- Building the best application
- Connecting through a supply chain (B2B, A and C)
- Connecting across sectors and technologies
- Signposting through innovation landscape
- Awareness of new market opportunities
- International innovation opportunities (Newton, Prosperity, Expert Missions)

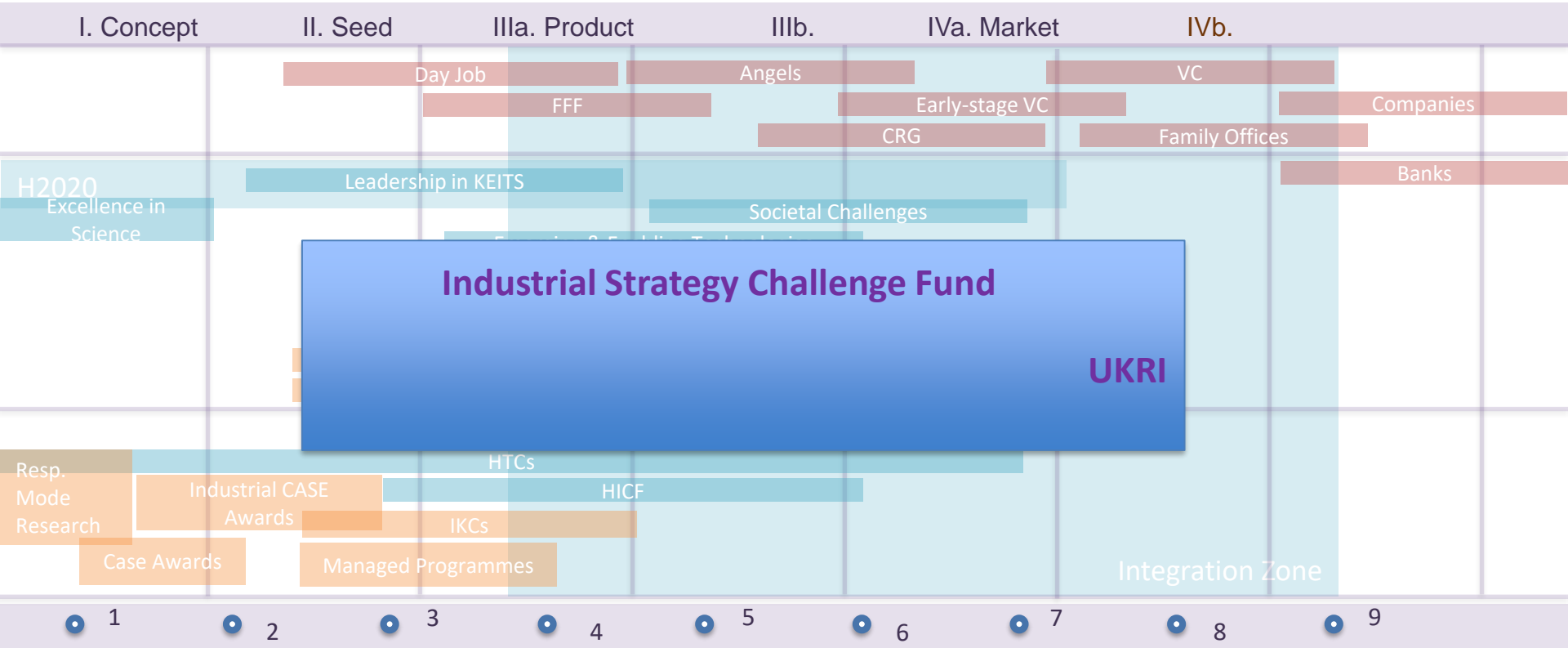
# KTN Health Typical Month

- Approx 50 business visits
- 1-4 Innovate UK/KTN events (deep-dives, competition briefings, consortia building, community building)
- Review of proposals
- Leadership Council support (MMIP, but also IBLF, SBLC, AMLC, CGP, etc.)
  - Advanced Therapies Task Force
- Government support
  - SBRI (EAHSN)
  - NIHR – MICs
  - NHSE – AHSNs
  - DAs – Scotland, Wales and Northern Ireland



# Innovation Funding

## Integrated Public / Private Funding Strategy – Health Focus



# Digital Health Technology Catalyst R4

- £5m available (typical projects £300k to £1m)
- Opens February 11<sup>th</sup> (for 6 weeks)
- UK SME's must lead – MUST be collaborative
- No Feasibility Study stage in round 4
- Funded support from NICE and datalab to help projects add value
- Typical Tech – AI, VR & AR, IoT enabled, informatics and data analytics

# Digital Health Technology Catalyst R4 Scope (includes but not limited to)

- Clinical decision support
- Systems that improve access to healthcare or treatment compliance
- Enable patient led management
- Digital technologies and products which help overcome privacy challenges of managing, sharing and exploiting data
- Projects addressing the patient-led experience from prevention, through diagnosis, treatment and recovery, to long-term care
- Applications of technology to health challenges where digital solutions offer and can demonstrate significant improvements in quality, speed, cost, outcomes and learning



# Questions?

**David Calder**

Health and Care

Knowledge Transfer Network

[David.calder@ktn-uk.org](mailto:David.calder@ktn-uk.org) • 07972 350205



**Tunstall**

Enabling independent living

Next Generation Services  
for Healthy Ageing



### Ageing Society

We will harness the power of innovation to help meet the needs of an ageing society.



### Healthy ageing (up to £98m)



## What is Healthy Ageing?

- WHO Definition of Healthy Ageing – the process of developing and maintaining functional ability that enables wellbeing in older age

## IUK NEWS (Nov 2018)

IUK Challenge Vision: People will enjoy 5 more years of healthy independent life by 2035, with the gap between the experience of the richest and the poorest narrowing

### **THEMES?**

- Sustaining physical activity
- Maintaining health at work
- Designing for age-friendly homes
- Managing common complaints of ageing
- Living well with cognitive impairment
- Supporting social connections
- Creating healthy and active places

# Connecting People, Improving Lives: A Digital Future for Technology Enabled Care (TEC)?

**1.7  
million**

Vulnerable people rely on telecare in the UK



Common devices include **pendant alarms** and **fall detectors**



Technology Enabled Care (TEC) helps people live independently at home, avoiding **homecare**, **care homes** and **hospital**

Most telecare connects via **telephone lines** to one of the UK's **240<sup>+</sup>** monitoring centres



**BUT** by **2025** all UK analogue telephone services in the UK will be **SWITCHED OFF** and



**REPLACED  
BY DIGITAL  
CONNECTIONS**



If telecare providers don't **upgrade** from analogue to digital

**BY 2025**



then many people could lose the technology that keeps them safe

Any loss of TEC would put pressure on health and social care

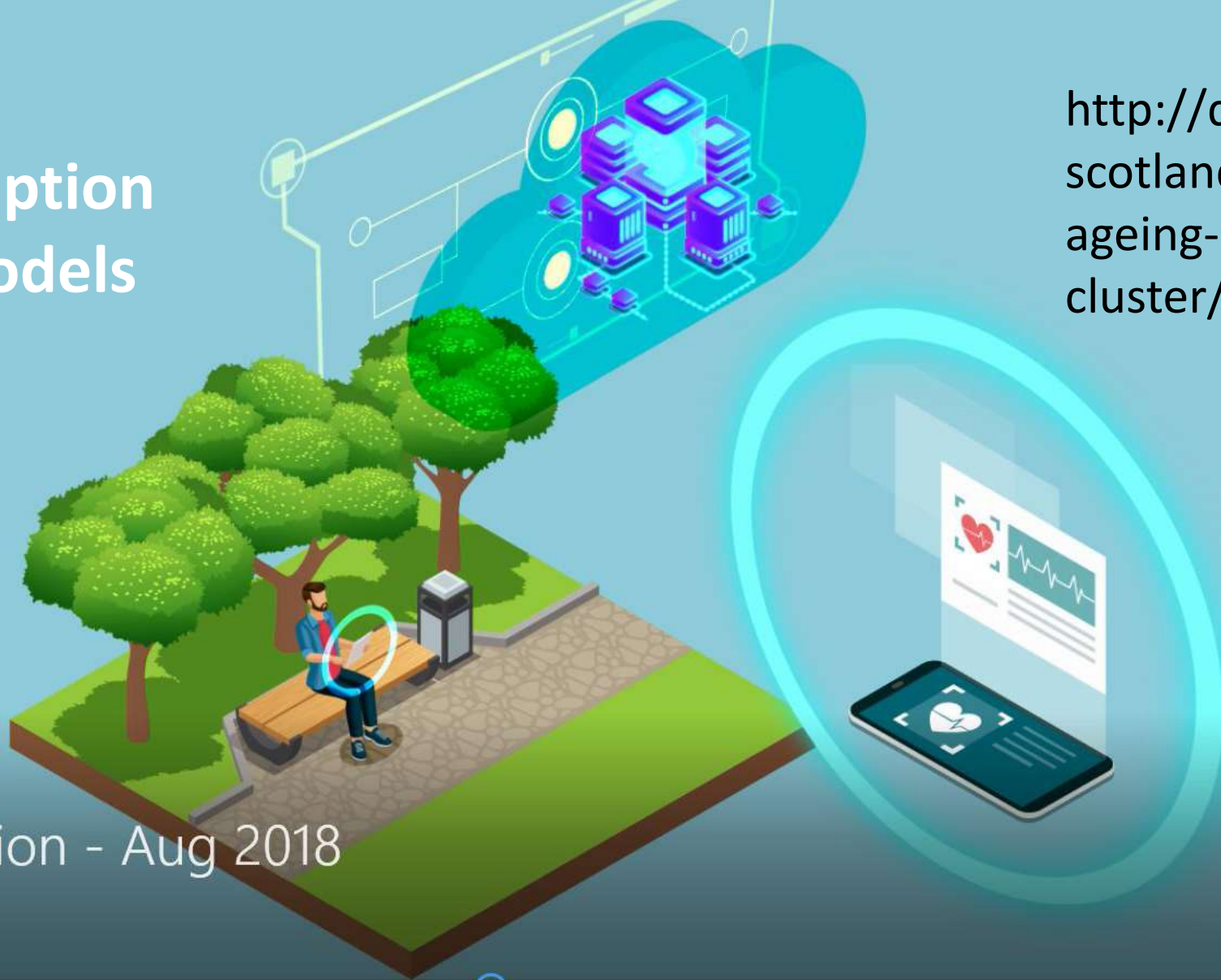


**Yet action is slow and uncertain**



# Positive Disruption of existing Models of Care

<http://dhi-scotland.com/healthy-ageing-innovation-cluster/>

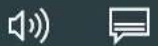


NGS Final Animation - Aug 2018

People can take their blood pressure and upload readings whilst out and about.

00:01:05

00:01:21



# Healthy Ageing Innovation Cluster - Key project focus areas

- Supporting those who chose to live independently with a technology supported approach to active aging with a focus on addressing key issues including
  - Frailty
  - Long term conditions
  - Co-morbidities
  - Loneliness
- The foundation and blue print for a digital replacement Telecare service model for Scotland.
  - Proactive, Personalised, Predictive driven by insight
- A rapid evaluation and validation program for third party technology and service innovation
- A focus on currently deliverable technology in year 1 and benefits anticipated





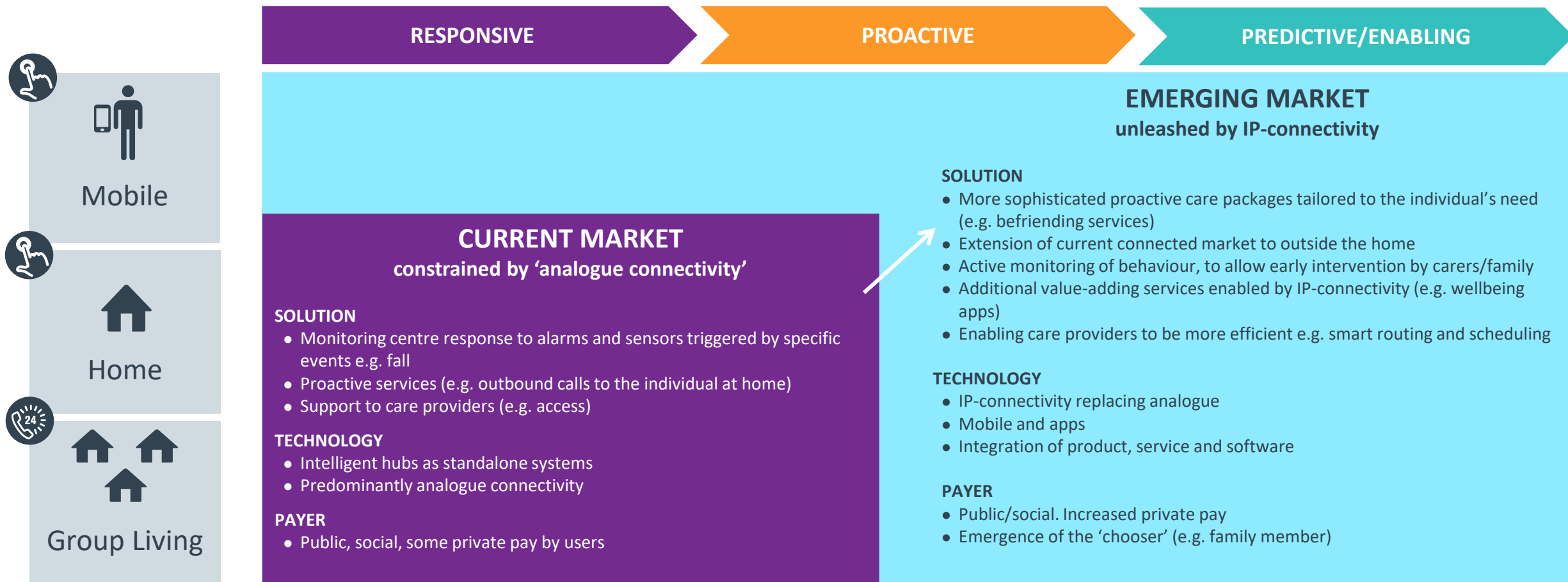
# User and Chooser driven solutions



The connectivity of IP has the power to deliver a wide range of possibilities within Independent living – for users, choosers and formal and informal carers.

- Bringing the ability to track and manage our loved ones ADL and make sure they are ok.
- Interact more with better communication links from video calls to messages and sharing photos
- Take control of your home so it works for you with a range of IP sensors and devices

# IP connectivity is transforming our markets from responsive to predictive

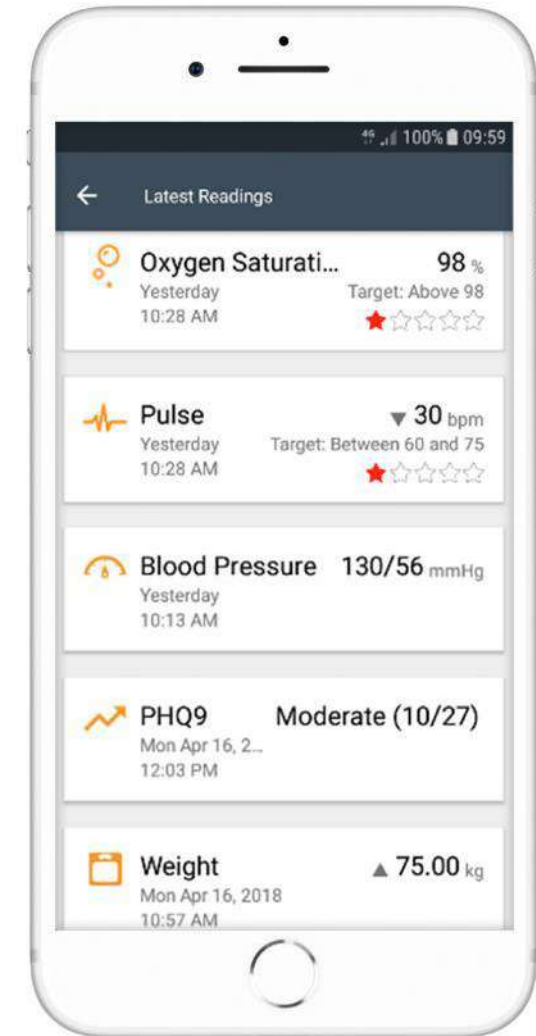
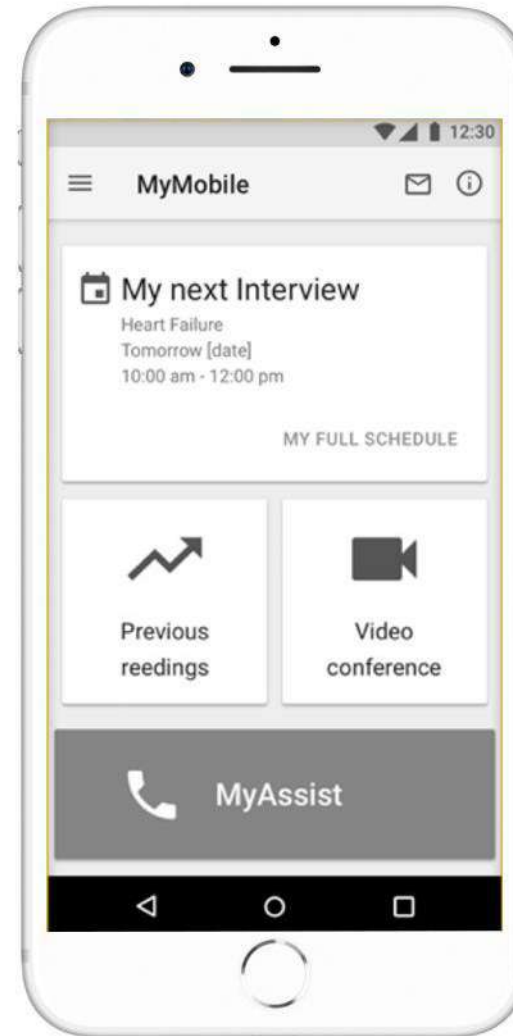


*Developments in technology, such as mobile capability and increased connectivity are stimulating the transition towards more proactive and predictive/enabling care, by increasing the value of these new models of care to key stakeholders*

# Service Users and their carer network engaging with Care data

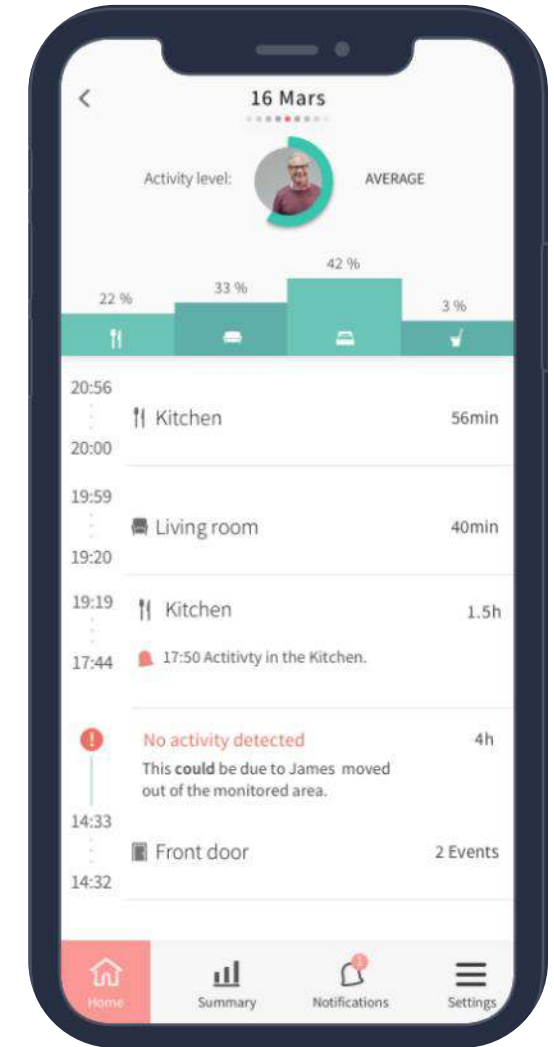
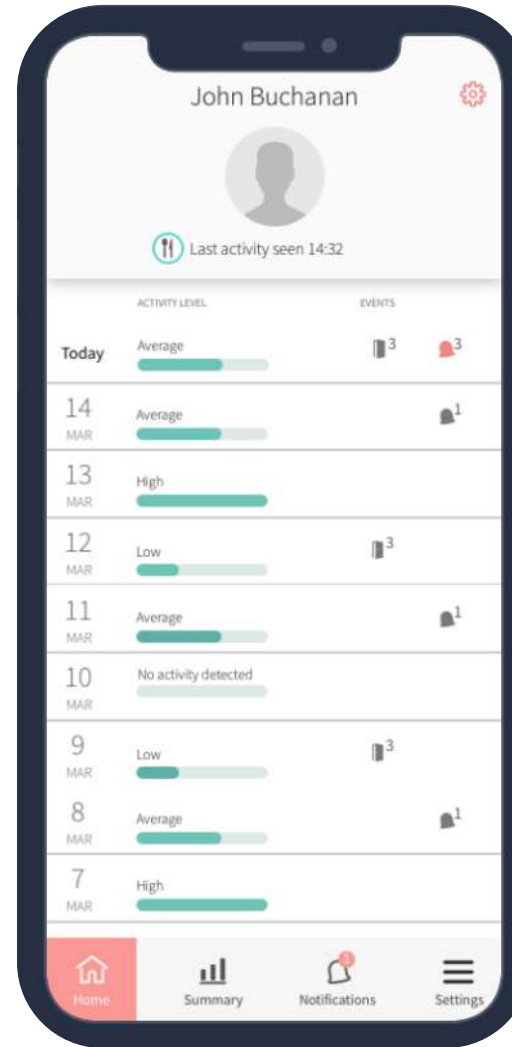
## Enabling self-management

- Easy to use and intuitive **Service User App**
- **Automated Alerts** and ability for **Manual Entry** of BYOD expanding variety of devices utilised
- **Care & Health Questionnaires** for non-device related care and wellbeing information
- Bi-directional **Messaging** for interactive service users and support network communication
- **Video Conferencing** improving service user / patient interaction
- Citizen view of **Monitoring Results**
- **Bluetooth low-energy** service user extending life between charges and improving usability



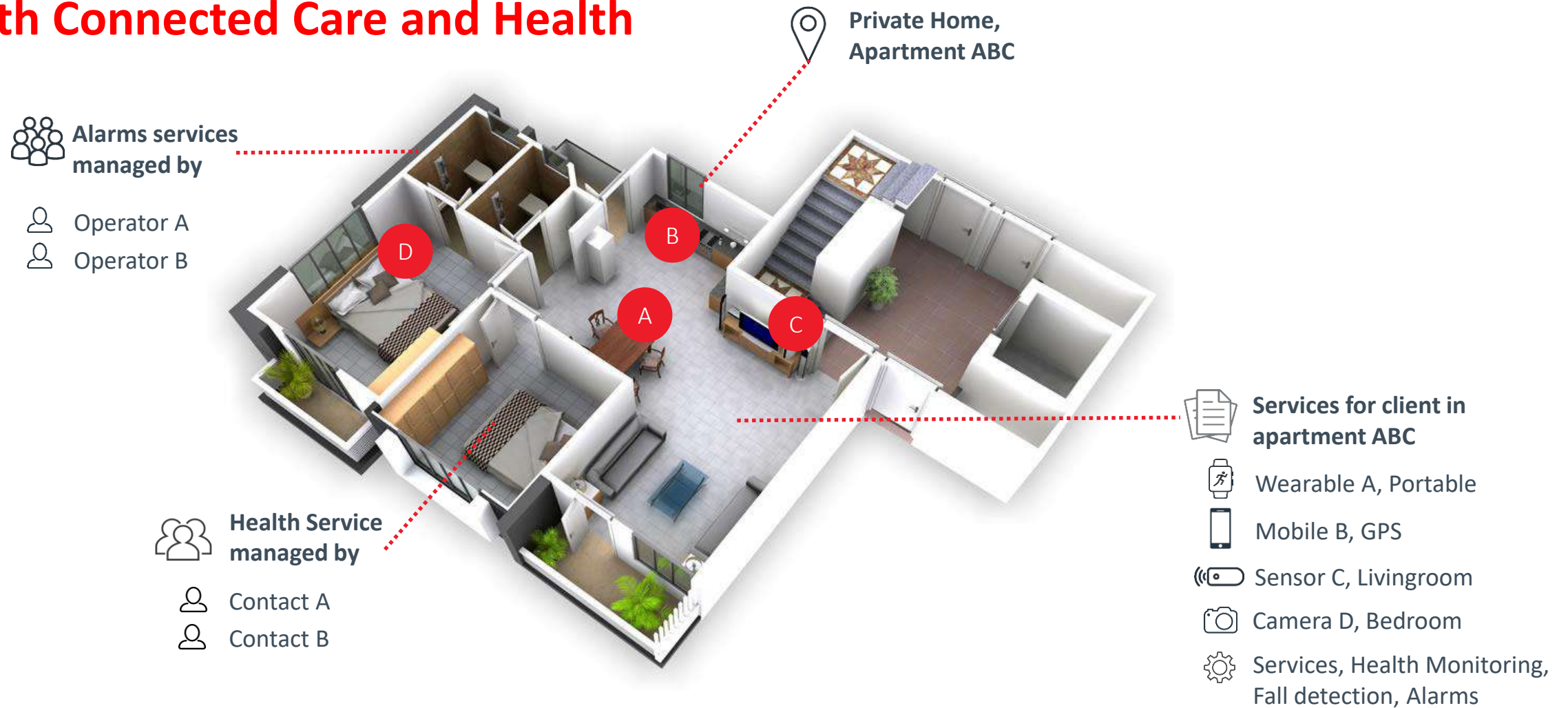
Private and Confidential

# IoT Sensors and Innovative Care Models



# Smart home

## With Connected Care and Health

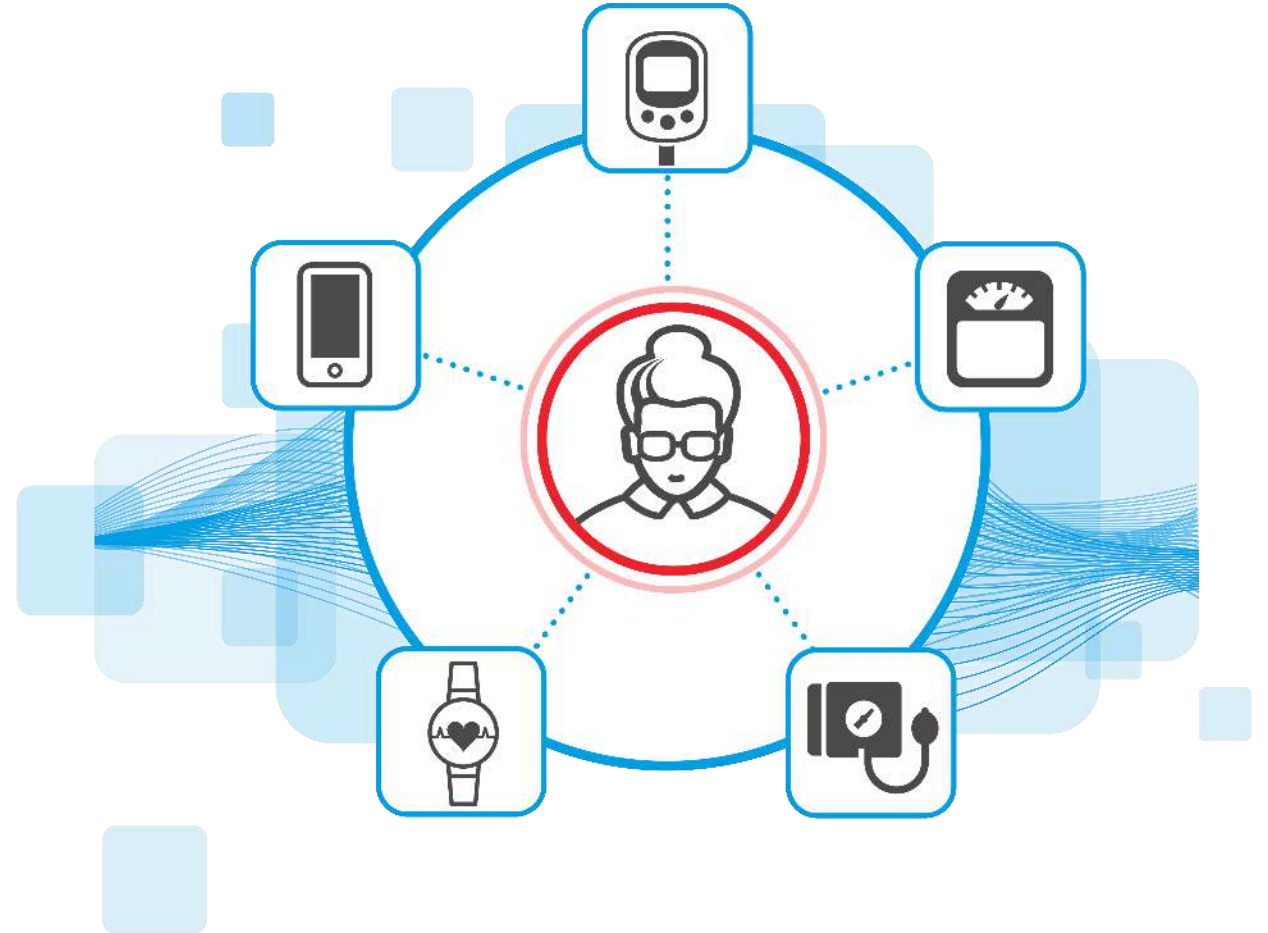




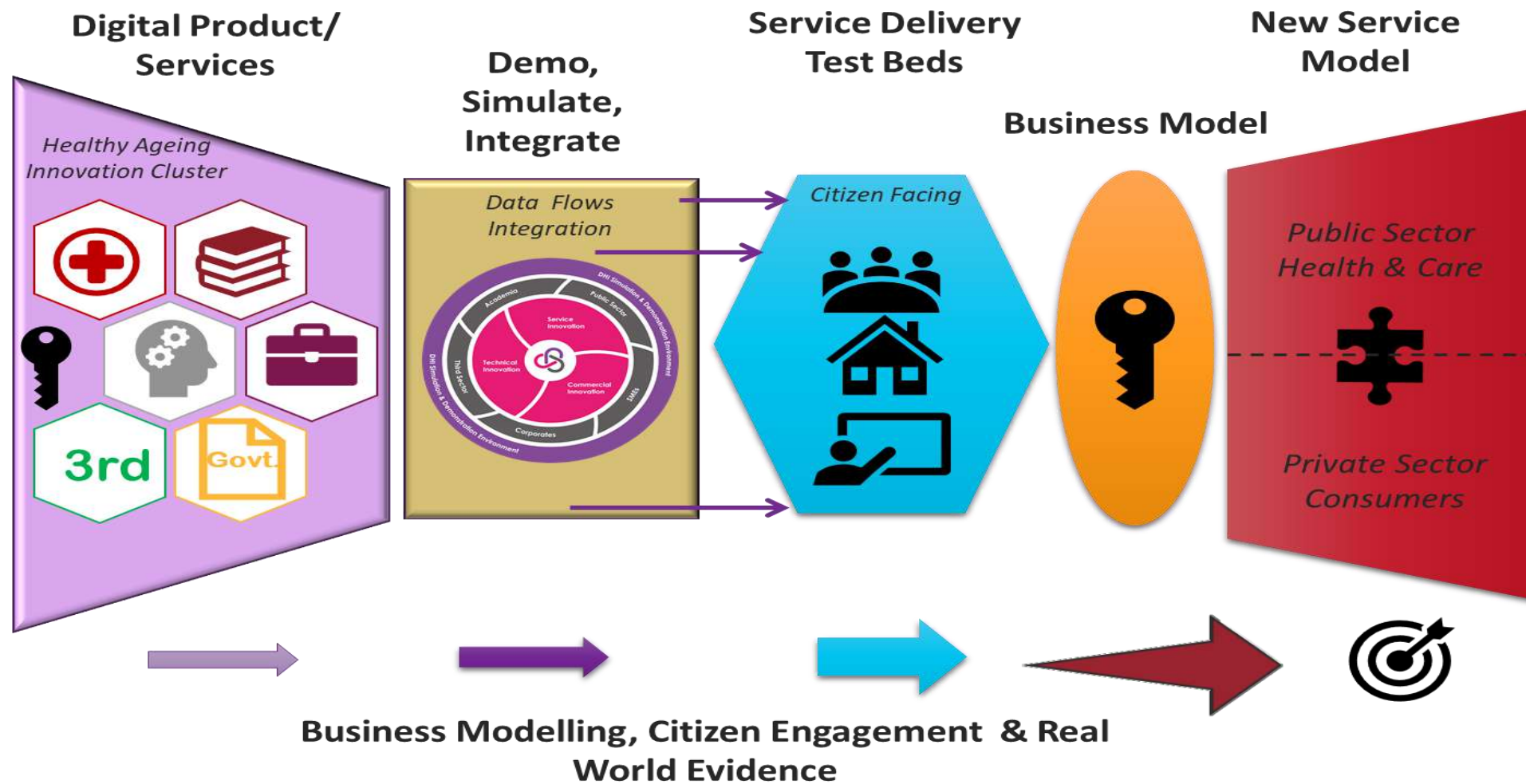
# Integrating best of breed assistive technologies

## Assistive Technology

- Tunstall brings over 60 years experience of provisioning and supporting Tech Enabled Care
- Device architecture is tailored around the citizen's individual needs, incorporating best of breed 3<sup>rd</sup> party assistive devices and solutions
- Capable of adding approved Bring Your Own Devices (BYOD) connectivity into IT ecosystem



# The 3<sup>rd</sup> Party Proposition – Route to Market



# Advanced Telecare: personalized connected health and care services

## Services at home:

- Extension of the environmental and personal sensors use for domestic and personal adverse events early detection (gas leaks, water, fire, falls, movement, medication, epilepsies crisis, enuresis, etc.)

- ★ Continuous remote monitoring to define activity patterns and increase predictive capabilities

## ★ Healthcare programs.

- Appointment Scheduling & Reminders
- Integration between telecare platforms and EHR.
- Definition of processes and protocols for integrated health and care pathways, transitional services and referral processes,
- Remote tele-diagnostics, Remote tele/video consultation
- Physical and functional Tele-rehabilitation
- Cognitive Tele-stimulation



## Services outside the home:

- Mobile Telecare with geolocation.
- Remote patient monitoring
- Digital Inclusion program

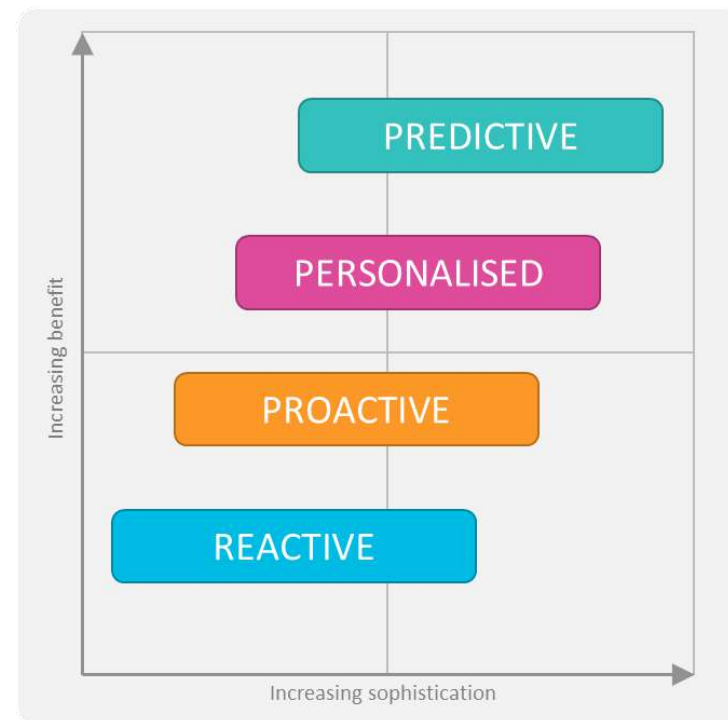
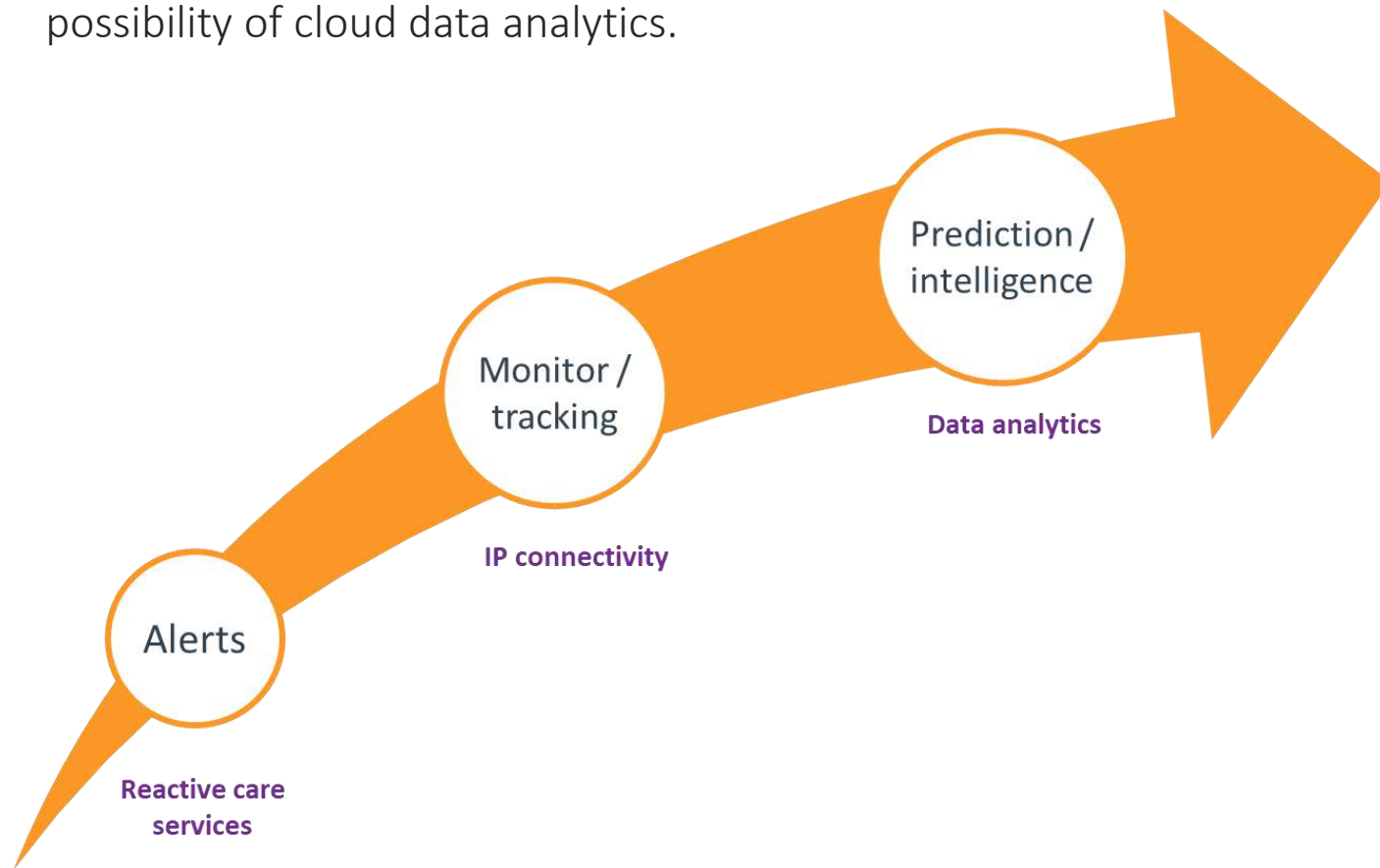
## Comprehensive care programs.

- Psychosocial care program
- Active and Healthy Aging Promotion Program
- ★ Programs of early detection and prevention of cognitive impairment.
- ★ Clinical telemonitoring programs for people with chronic diseases.
- Careers support programs
- Special protocols:
  - ★ End of life telecare.
  - Abuse prevention.
  - Suicide prevention.
  - Contingency and major disaster management

Agreement of 19 October 2017 for determining the content of basic and Advanced Telecare service that will be funded by the Long Term Care System established by the Law 39/2006 of 14 December, of Personal Autonomy Promotion and Care for people with dependency needs. Ministry of Health, Social Services and Equality. Territorial Council of social services and long term care.

# Where is the journey taking us?

IP unlocks great potential to combine mass data and connectivity, enabling the possibility of cloud data analytics.



Predict events before they happen, highlight increased risk of falls or issues around the home

# Discussion

---

- Current Telecare Services in Scotland
- Emerging Models in Spain
- What might a digital service model for Scotland look like?