SCOTTISH 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 others applicable
- Identify key priorities and opportunities for collaboration

Facilitated by…..

DIGITAL HEALTH & CARE INSTITUTE

Life Sciences Sector Deal 2 Announced 5 Dec 2018

LIFE SCIENCES SECTOR DEAL 2

INDUSTRIAL STRATEGY

HM Government

Key commitments:

IDEAS

Government will commit up to £79m for the *Accelerating Detection of Disease challenge* – Prof Sir John Bell will bring together UKRI, leading health charities, industry and the NHS to build a world-leading, first-of-its-kind cohort. We will invest a further £50m in our digital pathology & radiology programme to make this a national asset. In genomics, we will sequence at least one million whole genomes over the next five years.

PEOPLE

Government is facilitating greater flexibility on the apprenticeship levy to support the uptake of life sciences apprenticeship and are exploring a potential pilot with key partners to better enable SMEs in the sector to take on apprenticeships. The Science Industry Partnership, with ABPI and BIA, will lead and deliver a 2030 Skills Strategy to help address the sector's future skills needs.

INFRASTRUCTURE

We will support the UK's health data infrastructure through the implementation of Digital Innovation Hubs and measures to expand digitally-enabled clinical research. We will ensure secure and appropriate use of patient data, & create the right framework for commercial agreements involving data – improving outcomes for patients & the NHS. Industry is pioneering the use of digitally-enabled research in the UK and digital technologies.

BUSINESS ENVIRONMENT

Through a strengthened Accelerated Access Collaborative, we will build a stronger innovation ecosystem & improve patient access to innovations. We will develop better testing infrastructure to improve NHS/industry collaboration & co-development – attracting more innovators to develop products in the UK. We will work with the MHRA to ensure the UK regulatory framework keeps pace with emerging technology developments.

PLACES

Government will renew its offer of Life Sciences Opportunity Zone status to help areas raise their profile at an international level. We will work with the sector to make the landscape easier for investors to navigate. New industry partnerships are being developed across the devolved administrations and the English regions generating significant investment.

What is the Life Sciences Sector Deal 2?

The second Life Sciences Sector Deal continues to drive forward the joint commitments of government and the sector to make the UK a global leader in life sciences, and outlines the strong **progress made since the first Life Sciences Sector Deal** was announced in December 2017:

- We have made an investment of £85m in our already world-leading genomics assets at UK Biobank has launched the world's largest whole genome sequencing project.
- £50m will get five new centres of excellence in digital pathology and radiology off the ground next year to apply AI tools to digital images to detect abnormalities more quickly and accurately than humans.
- A £146m commitment to medicines manufacturing is building an impressive end-to-end national infrastructure for advanced therapies including doubling capacity at the Cell and Gene Therapy Catapult Manufacturing Centre; three new advanced therapies treatment centres; and two new innovation centres for vaccines and medicines manufacturing.
- Supported by £86m of government funding, the government, the NHS and its partners are delivering on their clear commitment to implement the Accelerated Access Review.

Together with the sector, Government is further developing and capitalising on opportunities in new and emerging industries, including early disease detection and genomics, digital technologies and data analytics, and advanced therapies, which look to tackle some of the major challenges that healthcare systems are facing.

The second Sector Deal also highlights how industry continues to show confidence in the UK's R&D strengths, with **£1.2 billion of new inward investment announced as part of the deal** – including a major £1bn commitment from UCB – which will further strengthen the UK as a world-leading science base.

How can you help?

- Posting social media content and creating your own – digital assets are available at:
  https://drive.google.com/drive/folders/1M96OgWwLhJ3cGj9pjCWRNdOvJiJtHXQZ?usp=sharing
- Please use the hashtag #IndustrialStrategy
- Including content in newsletters, blogs and online (both internal and external)
- Longer term support: host a roundtable or event with stakeholders linked to the life sciences sector and the wider Industrial Strategy

@UK_Life_Science
@beisgovuk
#IndustrialStrategy

DIGITAL HEALTH & CARE INSTITUTE

NEXT GENERATION SOLUTIONS FOR HEALTHY AGEING

Workshop – 7 Dec 2018

Innovate UK | ISCF - Wave 2 (£729.5m) | 19

INDUSTRIAL
STRATEGY

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 LATEST NEWS

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 (Nov 2018)

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+** monitoring centres

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

ON
OFF

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

SLOW

Yet action is slow and **uncertain**

TSA 2017

The Opportunity

- **The digital telecare shift is inevitable; a plan of action to replace like for like is already progressing in Scotland**

- **Beyond the minimum – a rare opportunity to enable a transition to proactive/preventative & integrated care**

- **Perfect storm – service redesign imperatives, consumer expectation and emerging technologies**

- **Co-design, development and service alignment are vital (to address the complexity)**

- **Investment will not only create a platform for sustainable, cost effective care BUT will produce innovative products and services that can be marketed worldwide.**

Positive Disruption of existing Models of Care

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

Use Case - Helen

- Current

The Proposition – Route to Market

Digital Product/ Services

Demo, Simulate, Integrate

Service Delivery Test Beds

New Service Model

Business Model

Healthy Ageing Innovation Cluster

3rd

Govt.

Data Flows Integration

Citizen Facing

Public Sector Health & Care

Private Sector Consumers

Business Modelling, Citizen Engagement & Real World Evidence
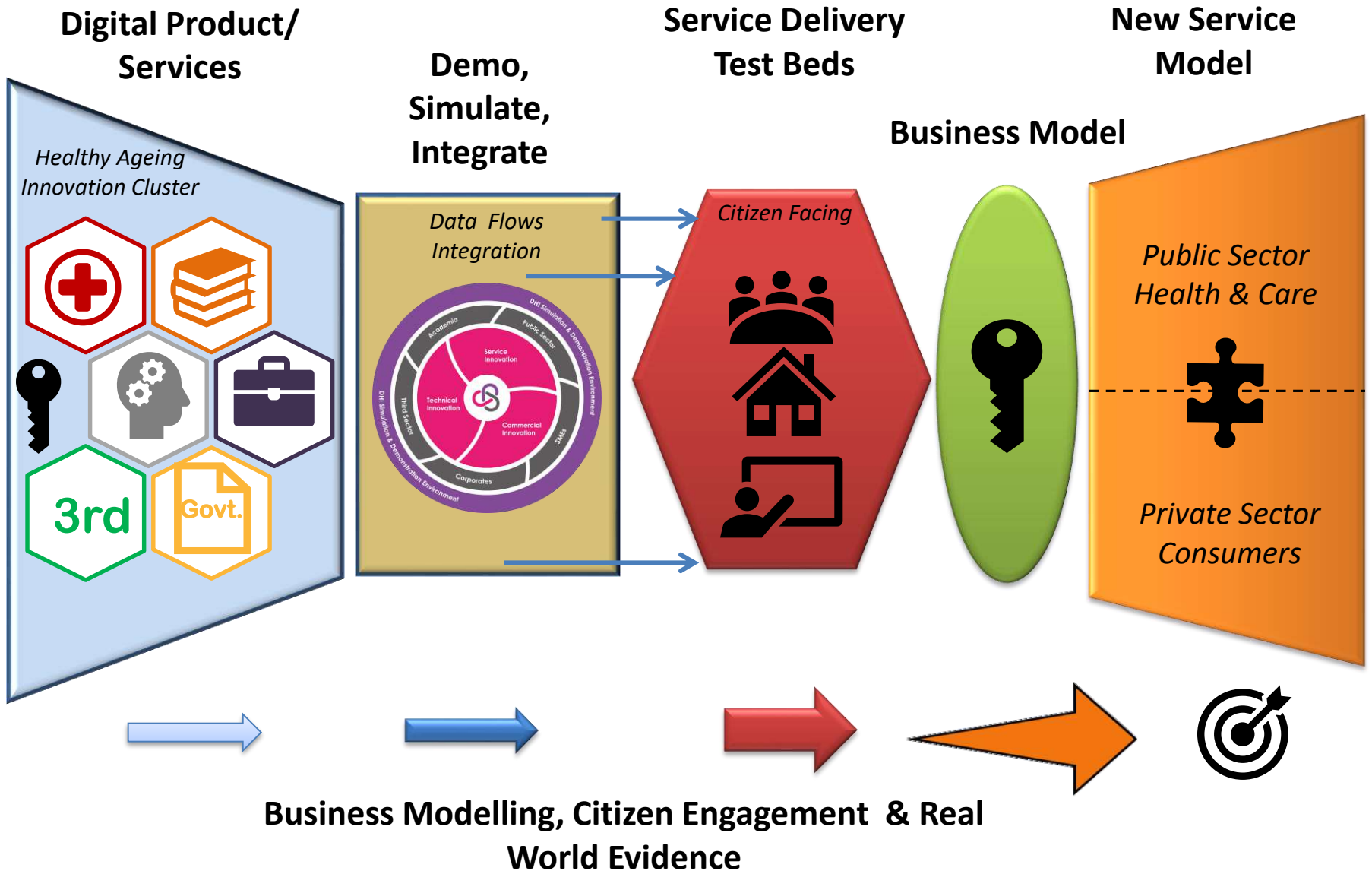
Industry Lead Partner Requirements

Tunstall

Enabling independent living

- An appetite for new models of service
- Executive level commitment to implementing change
- A significant understanding of the sector
- Commitment to a collaborative, distributed model
- A large footprint in Scotland to accelerate roll out
- Open standards approach/citizen owned data

Feedback

Workpackages

Project Management/Co-ordination/Cluster Management

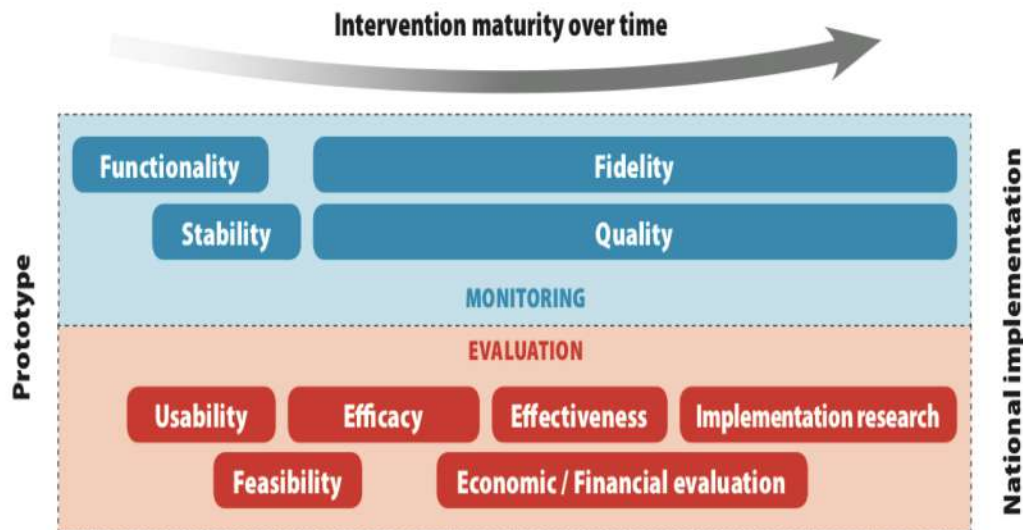| TECHNOLOGY | TEST BEDS | REAL WORLD EVALUATION/ BUSINESS MODELLING | CITIZEN ENGAGEMENT |

Evaluation:
ICSF Healthy Ageing Challenge

Professor Roma Maguire
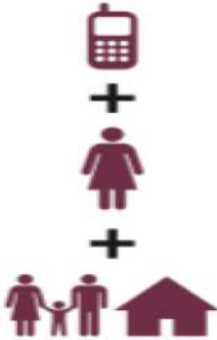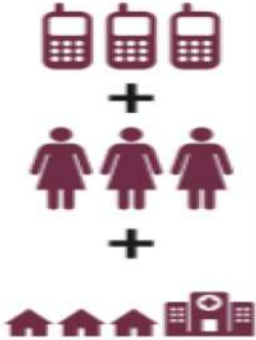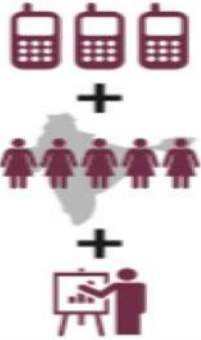
University of Strathclyde

WHO Framework

Figure 1.1. Intervention maturity life-cycle schematic, illustrating concurrent monitoring (blue/upper) and evaluation (red/lower) activities that occur as an intervention matures over time (left to right) from a prototype application to national implementation

http://apps.who.int/iris/bitstream/handle/10665/252183/9789241511766-eng.pdf;jsessionid=DBABB092B2D19BBD3A8F4C0421011F81?sequence=1
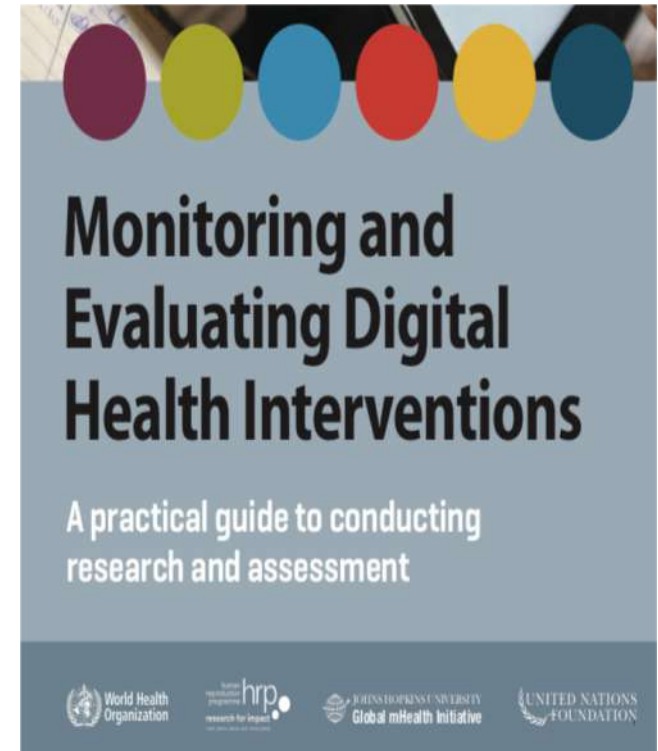
WHO Framework....what stage are we at?

Box 1.1. Schematic depiction of the six stages of the intervention maturity life-cycle from pre-prototype to national-level deployment

Stage of maturity	1 & 2: Pre-prototype/ prototype	3: Pilot	4: Demonstration	5: Scale-up	6: Integration/ sustainability
Monitoring goals	Functionality, stability	Fidelity, quality			
Stages of evaluation	Feasibility/usability	Efficacy	Effectiveness	Implementation science	
Illustrative number of system users	10–100	100–1000	10 000+	100 000+	
Illustrative measurement targets	■ Stability (system uptime/failure rates) ■ Performance consistency ■ Standards adherence (terminology, interoperability, security)	■ User satisfaction ■ Workflow "fit" ■ Learning curve (design) ■ Cognitive performance/ errors ■ Reliability	■ Changes in process (time to X) ■ Changes in outcome (system performance/ health)	■ Changes in process/outcome in less controlled environment ■ Reduction of cost ■ Total cost of implementation ■ Error rates ■ Learning curve of users	■ Improvements in coverage ■ Changes in policy, practices attributable to system ■ Extendability to new use-cases ■ Adaptability to other cadres of users ■ Health impact

Evaluation: Proposition

- Feasibility/Pilot study – feasibility of new model of telecare, acceptance, adherence, , recruitment rates etc

- Prospective recruitment (**P**ragmatism)

- Sample size - no power calculation– based on expected numbers to be recruited – consecutive sample (100-1000)

- Main component - strong process evaluation underpinning (qualitative focus) – stakeholder experiences, attitudes and perceptions, workforce, implementation etc explored at different points in pathway – before start, middle and end?

- Explore trends in patient/carer reported outcomes and potential cost-benefit

- Start process of effectively collecting data to demonstrate efficacy after the first 2 years funded by this test bed

Thoughts?

- Proposed approach?

- What do we need to measure and why?

- Areas of expertise to contribute to these workstreams?

Tunstall

Enabling independent living

DHI Healthy Aging Cluster
# Next Generation Services

Martin Jeffries

Group CMO

Tunstall Group in Numbers

- Tunstall digital care products and services now supporting over **5 million end clients** around the world across the Independent Living and Group Living portfolios

- Tunstall schedule and manage over **1.6m patient appointments** per annum across primary and secondary care on behalf of hospital systems in North America

- Tunstall directly monitoring **1.4m end clients** from Tunstall's **15 response centres** around the world including full manged service, out of hours support and disaster recovery support

- **795,000 end clients** are supported in Group Living schemes provided by Tunstall

- **224,000 hospital beds** are supported by Tunstall's Nursecall systems[1]

- **64,000 patients** in the Nordics have their clinical care home visits scheduled, coordinated and managed using Tunstall systems

Source: Management estimates
(1) Includes out-of-hours and disaster recovery support

A global footprint operating in over 50 countries

Direct Operations
Resellers/Export
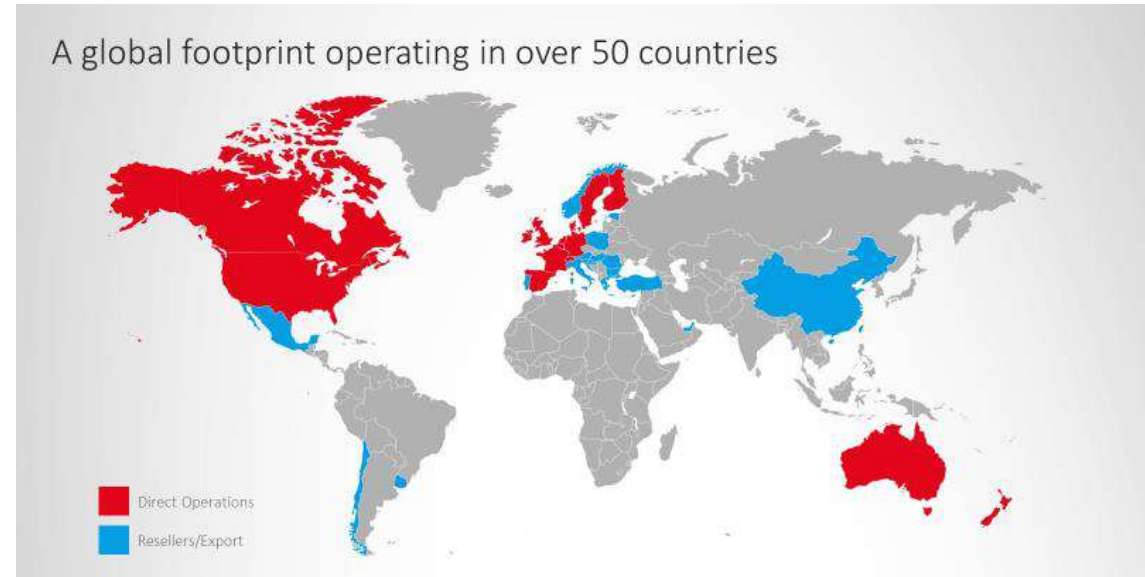
- **2,800 FTE** worldwide

- Over **12,000 business clients** have chosen Tunstall's products and services to help meet their care management requirements

- **253 client monitoring centres** world wide have chosen use Tunstall software

Collaborative Innovation…..

Driving market change…..

- Explore new models of care to ensure patient needs are met

- Enable more proactive approaches that focus on prevention rather than reaction

- Reduce pressure on the healthcare system

- Embrace technological progress to fast-track the development of data-enabled solutions

Where is the journey taking us?

IP unlocks great potential to combine mass data and connectivity, enabling the possibility of cloud data analytics.
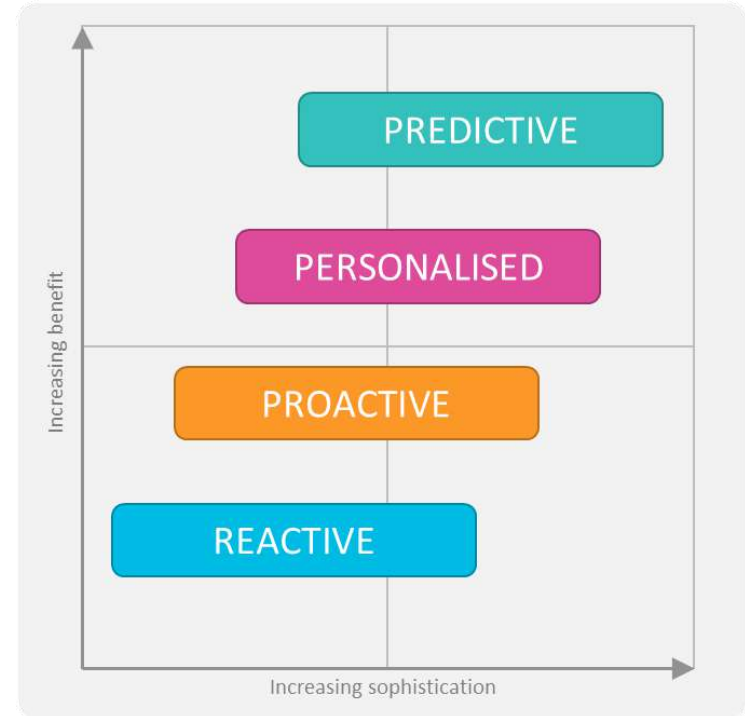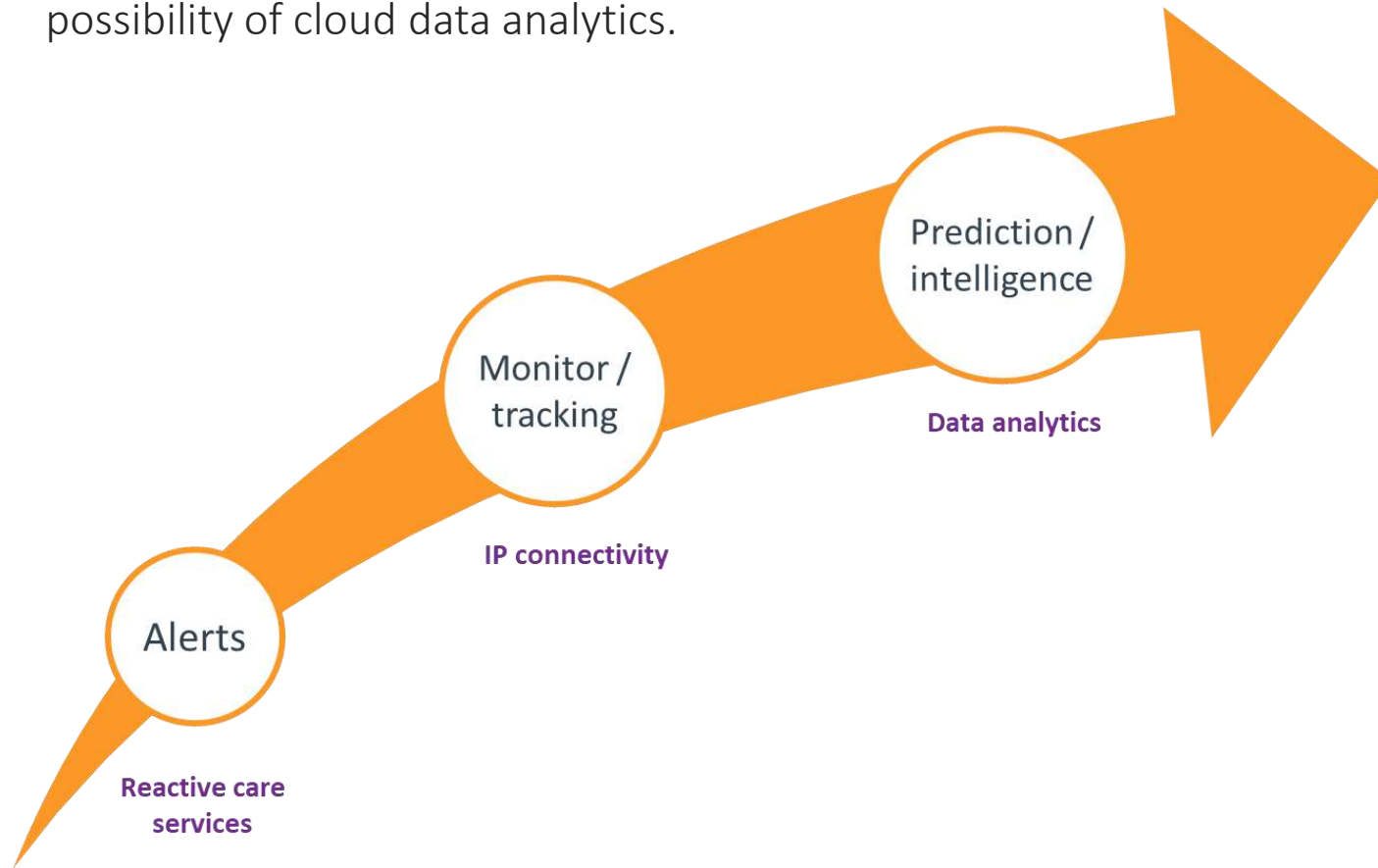
Predict events before they happen, highlight increased risk of falls or issues around the home

Tunstall

Telecare evolution in Spain

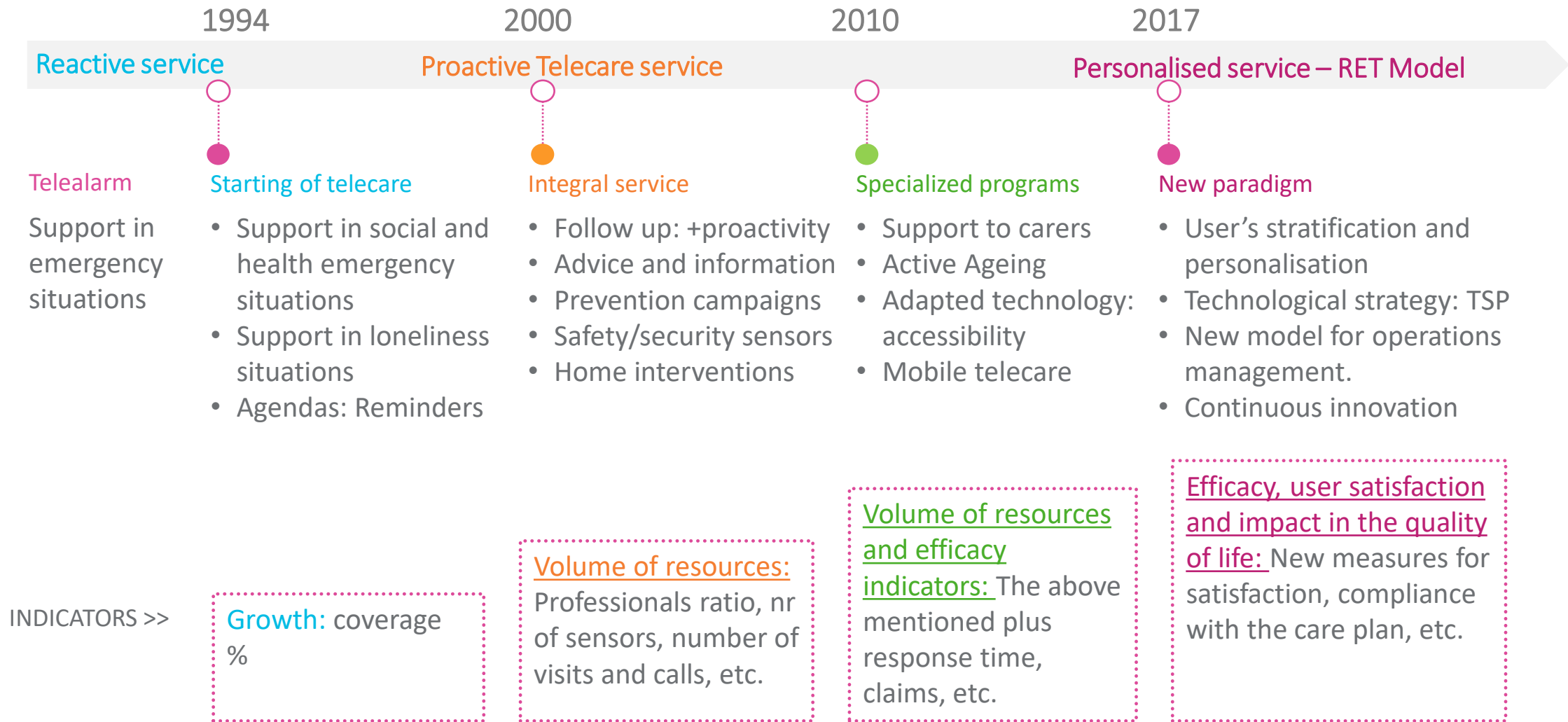| 1994	2000	2010	2017

Reactive service   **Proactive Telecare service**   **Personalised service – RET Model**

Telealarm

Support in emergency situations

Starting of telecare
- Support in social and health emergency situations
- Support in loneliness situations
- Agendas: Reminders

Integral service
- Follow up: +proactivity
- Advice and information
- Prevention campaigns
- Safety/security sensors
- Home interventions

Specialized programs
- Support to carers
- Active Ageing
- Adapted technology: accessibility
- Mobile telecare

New paradigm
- User's stratification and personalisation
- Technological strategy: TSP
- New model for operations management.
- Continuous innovation

INDICATORS >>

Growth: coverage %

Volume of resources: Professionals ratio, nr of sensors, number of visits and calls, etc.

Volume of resources and efficacy indicators: The above mentioned plus response time, claims, etc.

Efficacy, user satisfaction and impact in the quality of life: New measures for satisfaction, compliance with the care plan, etc.

# Potential impact of delayed residential care

Barcelona – Proactive & Personalised care

- *As an example*, in England in 16/17[1] there were 64,660 new admissions in to residential/nursing homes (total of 577,600 in the year) for >65y olds. There is considerable flux, as illustrated by 400,300 in receipt of service at the year end and 269,800 of these being over 12m in duration.

- Safely delaying admission is the objective of most stakeholders which could also release considerable potential capacity value…

- To illustrate this, if we could delay institutionalisation by just 12 weeks on average, this would release **c6m bed days with close to £0.5b**[2] **of capacity released**

Length of stay (Telecare) overall and by ceasations to residential care (years)
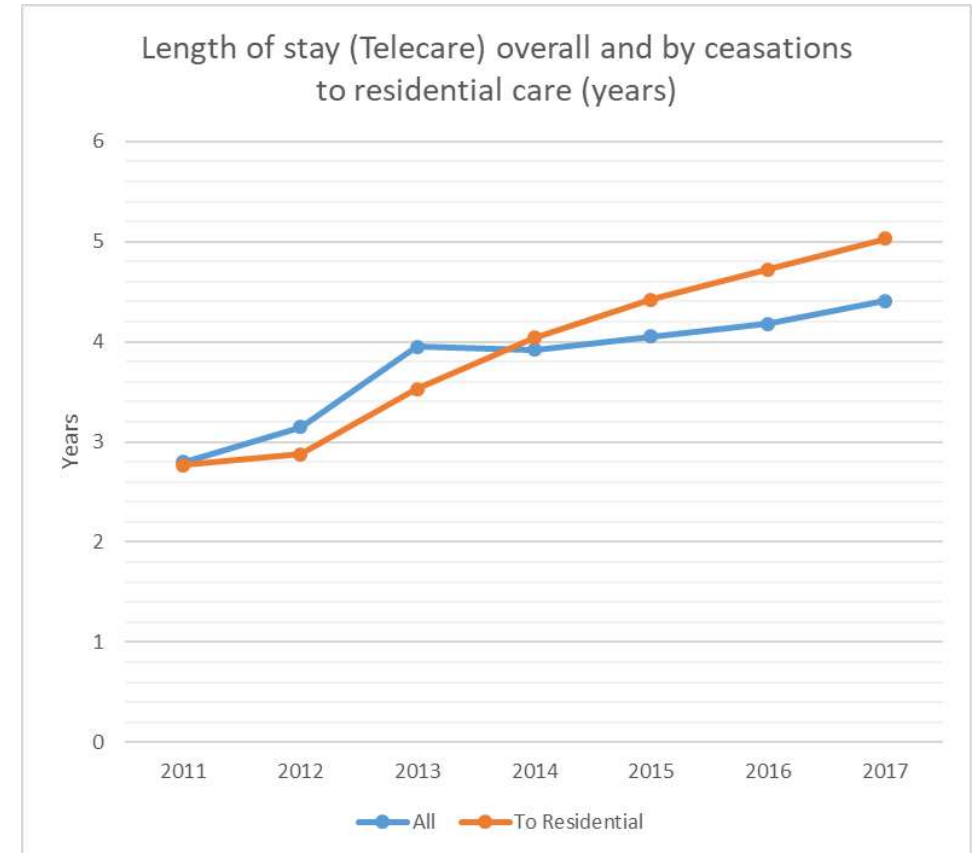
Open Integration Architecture
Connected Health & Care
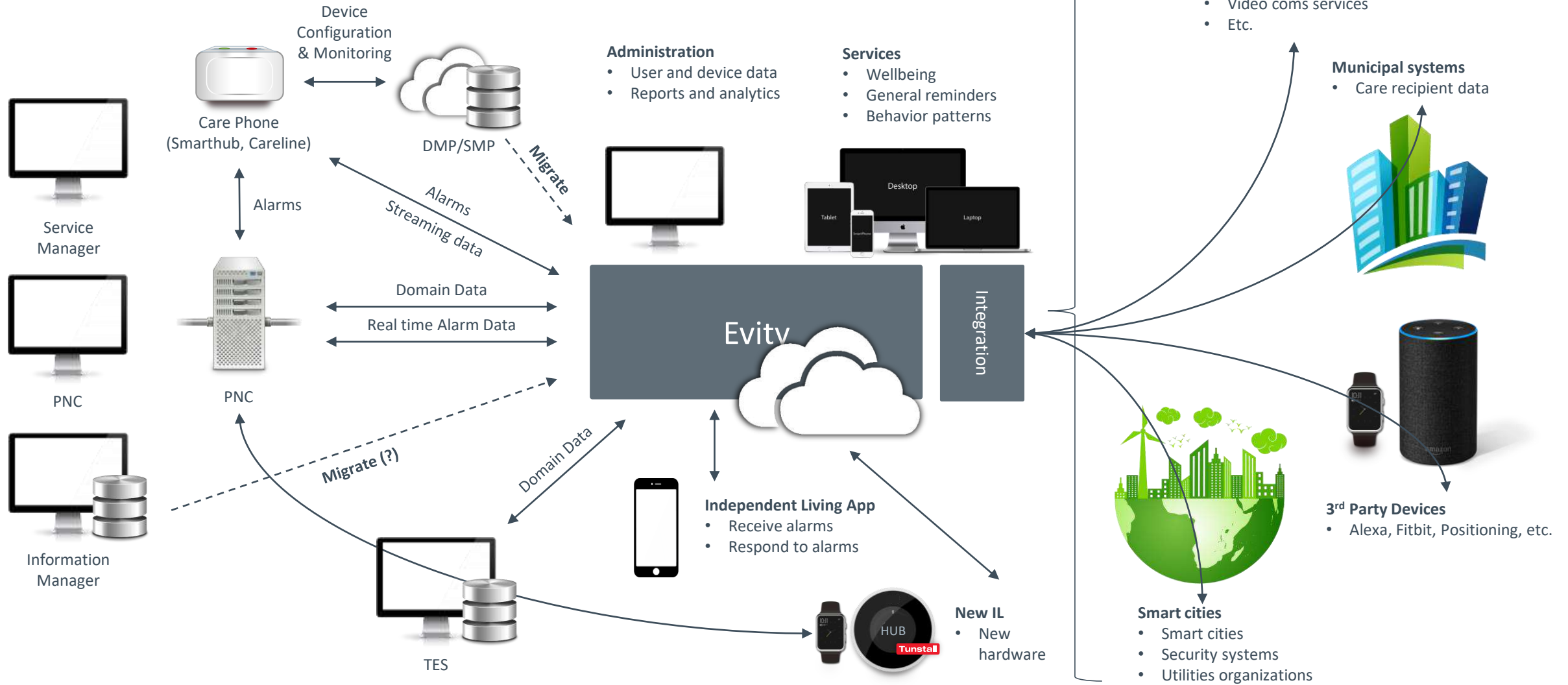
New data enabled services…. result from collaboration

User

Informal carer/
Family

Chooser

Tunstall