HEALTHY AGEING INNOVATION CLUSTER

April 2019

AGING 2.0 https://www.aging2.com/grandchallenges/

Aging 2.0 Grand Challenges is a global initiative to drive collaboration around the biggest challenges and opportunities in Aging.

8 Grand Challenges

INNOVATION PRIORITIES FOR AGING 2.0 COMMUNITY

- Topics identified from 6 years of bottom-up and top-down dialogue with stakeholders from across Aging 2.0's interdisciplinary, intergenerational, international community of older adults, senior care providers, thought-leaders and entrepreneurs.

Grand Challenges (1)

Ageism and outdated social norms have led many older adults in both rural and urban communities to feel isolated and marginalised. Helping older adults get and stay meaningfully engaged is critical for their health and the health of our communities. New and creative ways are needed to not only tap into their wisdom but also provide opportunities for lifelong learning and meaningful engagement across the lifespan.

Grand Challenges (2)

Despite the majority of older adults stating a preference to age in place, “one third of people over the age of 65 need assistance with at least one activity of daily living (e.g. eating, bathing, dressing)”. Products and services are needed to not only support older adults basic daily activities, but also to foster and support their ability to thrive, pursue their passions and engage with their chosen lifestyle.

Grand Challenges (3)

The healthcare journey can be particularly complex and fragmented for older adults, two-thirds of whom have at least two chronic conditions. With three-quarters of global healthcare spending going to chronic care management, families and payers are aligned in their desire to care for people in the least restrictive most cost-effective setting possible. Families and providers need new tools and care models to support care transitions, clinical collaboration, medication management, population health management and remote care delivery.

Grand Challenges (4)

Maximising cognitive ability and brain health is increasingly a priority for ageing societies as the number of people with cognitive limitations and mental health issues continue to rise. New approaches, tools and services are needed to increase awareness, reduce stigma, improve prediction, speed diagnosis, enhance treatment and support caregivers.

Grand Challenges (5)

Care for older adults is provided by informal and formal caregivers, both of which increasingly care for people with high levels of acuity and complex conditions. Family caregivers - who are often juggling other family and work responsibilities while living remotely from the care recipient - need better support, training resources and tools to support their loved ones and themselves. On the professional side, staff shortages and quality concerns require new solutions to help attract, train, develop and leveerage scarce human capital.

Grand Challenges (6)

Everyday objects, homes and communities not originally designed with longevity in mind, often become obstacles to movement, safety, independence and socialising. With safety and mobility continuing to be top priorities for older adults, there is a need for products, programmes and services that enable people to maximise their safety, strength, balance, fitness, independence and mobility as they age.

Grand Challenges (7)

People are living longer and traditional models of work and retirement have not kept pace. To finance this increasing longevity, we need to provide new opportunities for later life employment, new models for planning for and financing care as well as better ways of prevents scams and frauds.

Grand Challenges (8)

Death is inevitable, but that doesn't seem to make it any easier to prepare for. Far too often, the way people experience the end of life fails to honour how they have lived their lives. Better health outcomes, high quality and cost-responsible care – can and should exist in tandem. By leveraging emergent technologies and encouraging collaborations, we can expand the range of possibilities for the end of life experience.

Roadmap…?

Activities	Timescale
Establish the Cluster	Dec 2018
Identify Vision, Impacts, Priorities	Feb 2019
Key Challenge Areas for Collaboration	April 2019
Leads/groups to explore challenges & scope approach	
Initiate & develop propositions collaboratively	
Identify funding opportunities & timelines	
Host challenge competitions/Bid submissions	
Implementation	
Learn & Share	

Progress some of these concurrently?

WHO definition of Healthy Ageing: **“the process of developing and maintaining functional ability that enables wellbeing in older age”**

This includes a person’s ability to;

- meet their basic needs
- learn, grow and make decisions
- be mobile;
- build & maintain relationships
- contribute to society

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
- Build Collaborations

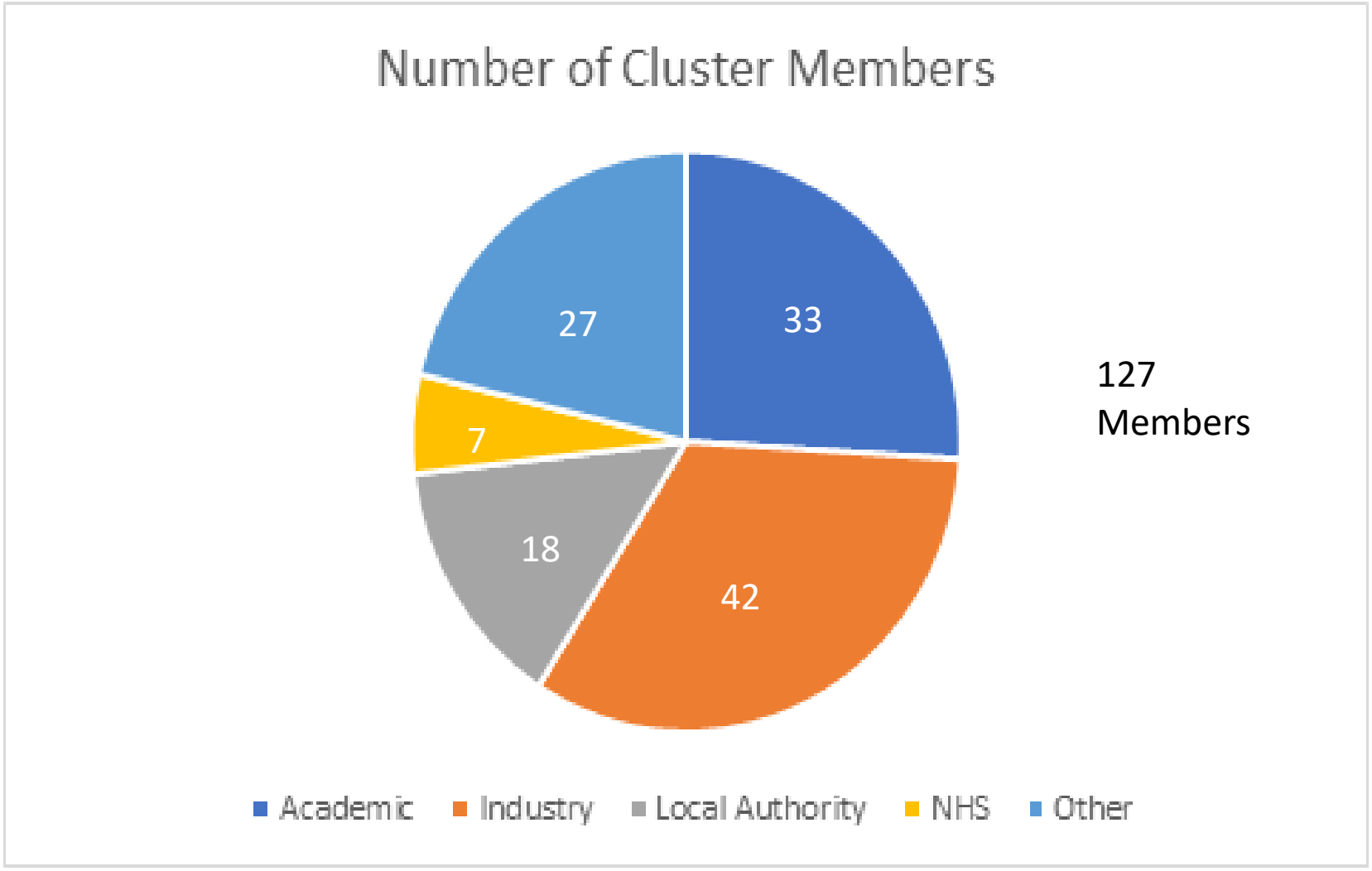
Activities

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

Facilitated by…..

DIGITAL HEALTH & CARE INSTITUTE

HAI Cluster Membership – Feb 2019



127 Members

Healthy Ageing Innovation Cluster

- **<u>Discussion Session (Feb 2019)</u>**

  - Vision & Impact – what difference are we trying to make collectively?
  - Priorities – what are our key collaboration opportunities?
  - Connecting & Integrating – what useful existing assets/links with other activities & organisations?

HEALTHY AGEING COLLABORATION PRIORITIES

KNOWLEDGE EXCHANGE

Awareness of Policy & Guidance

- Scottish & UK Government – Policy Direction
- Relevant Strategic Guidance & Best Practice
- Team Scotland Approach

Awareness of Technology

- Consumer Technology
- Keeping pace with a fast moving market
- Build Trust to Share

Identify Funding Opportunities

JOINT DEVELOPMENTS

Shared Focus on Specific Conditions/Challenges

- Falls,
- Diabetes,
- Physical Activity

Support Independent Living

- Transport
- Housing
- Supporting people to work longer
- Hospital at home
- Care in the Community
- Reducing inequalities

Develop

- Test beds
- Data/Analytics
- Patient/Citizen Journeys

RESEARCH & METHODS

Prevention

- When should interventions best be made?
- Better adoption at earlier stage in life?

Evidence Impact

- Health Economics
- Methodologies
- Real World Impacts

Ensure Citizen at the Centre

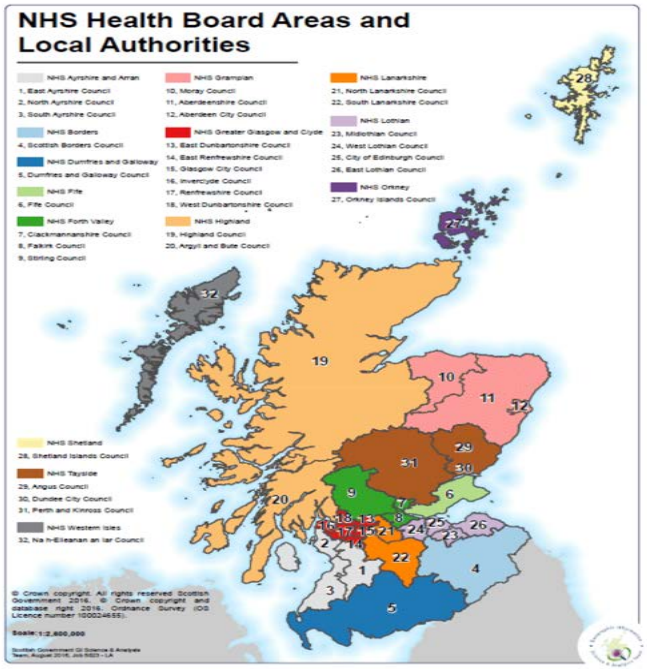
- What does the citizen want?
- How best engage with the end user?
- Co-design
- Build Trust

SKILLS & CAPABILITIES

Skills & Training

- Joint Learning

Business Models for Scotland



One Test Bed Scotland

SCOTLAND CAN DO

Innovation, Commercialisation, Translation, Adoption

Investment, Acceleration, Growth, Sustainability

Test Bed Function

Provide real-word explorations/partners , providing advice/testing 'combinatorial' innovation (new combinations of products and processes) aiming to improve patient/citizen outcomes at the same or less cost than current practice; whilst supporting economic growth

ACTIVITY

- Supply led Innovations- Procurement Accelerator, Health Inr Partnerships, Supplier Feedback Forums, Academic Translation, Enterprise sponsored Inward Investments etc
- Demand Led Innovations- SBRI, Hackathons, Innovation Partnership, Open Innovation Projects
- Internal Innovations- SHIL, Innovation Hubs, Health and Social Care Partnership Award Schemes, Clinical Entrepreneurs etc
- Investment Incentivised Innovations- Banks, UK Industrial Strategy Funds, Investor Led, City Deal etc

OFTEN CROSS OVER

SCOTLAND CAN DO

Industrial Strategy Challenge Fund

UK Research and Innovation

Example: NHS Greater Glasgow and Clyde COPD

AI and Diagnostics

SCOTLAND CAN DO

iCAIRD

Industrial Innovation in Artificial Intelligence and Digital Diagnostics

iCAIRD

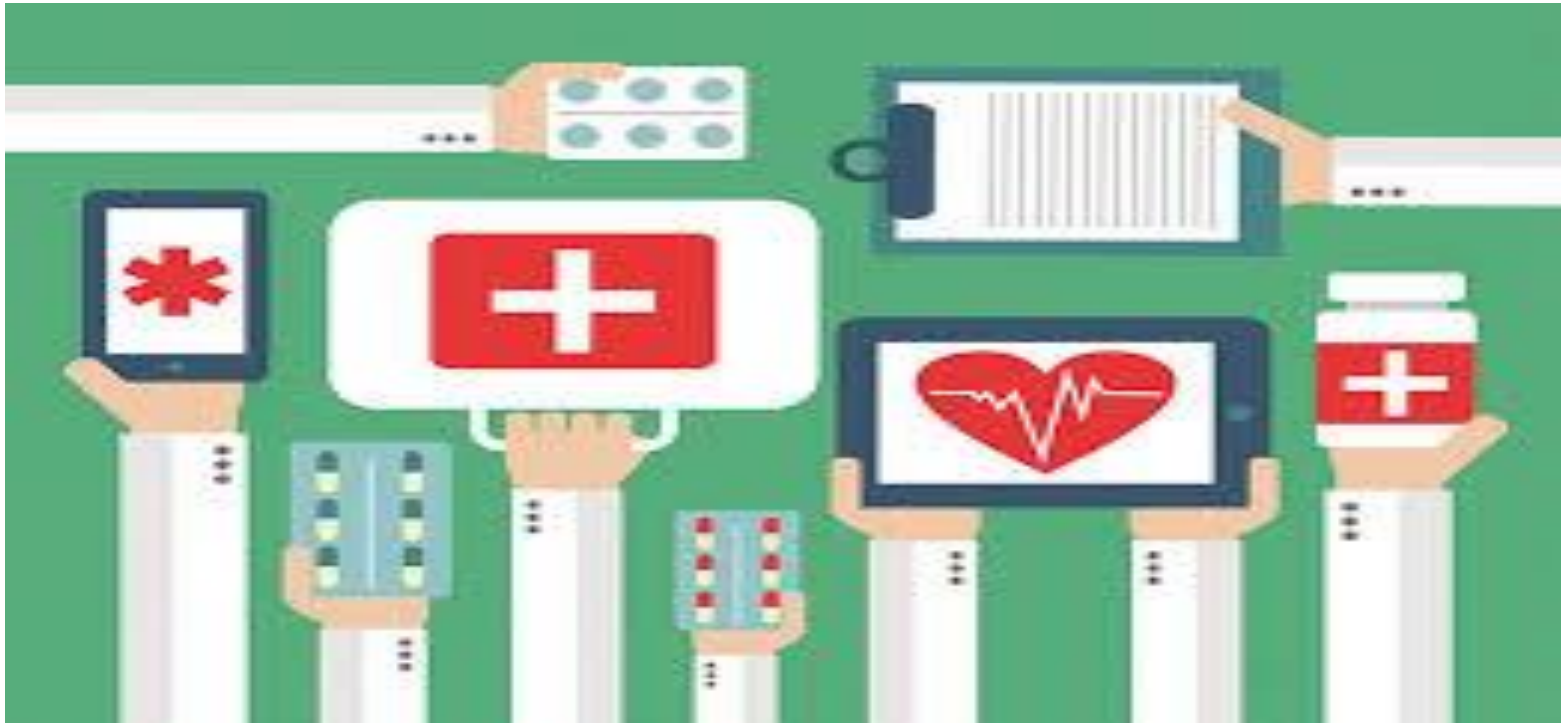
28 February 2019

NHS National Services Scotland

PHILIPS Canon

HEALTH AND SOCIAL CARE CATALYST- Demand Led Innovation Programme

SCOTLAND CAN DO



Examples

I. Diabetes and data enabled in patient care
II. Mental Health AI and triage
III. COPD AI Upscaling
IV. Trauma Network and Ambulance data
V. Create Scotland's Command Centre-Flow
VI. Osteoporosis and DEXA scan data
VII. Falls and Overnight Care
VIII. Pathology Image matching automation
IX. AI and Fracture SBRI
X. Kidney Cancer and Precision Treatments

DIGITAL HEALTH & CARE INSTITUTE

IBM Tunstall

Enabling independent living

Next Generation Service for Healthy Ageing

Next Generation Service for Healthy Ageing

Our aim is to extend healthy independence through delivering new digitally enabled service models addressing key issues such as:

- Frailty
- Long term conditions
- Co-morbidities
- Loneliness

DIGITAL HEALTH & CARE INSTITUTE

DIGITAL OFFICE
Scottish Local Government

We will do this by developing:

1. Blue print for a proactive, personalised, predictive Healthy Ageing service model

2. Foundation for advanced healthy ageing analytics

3. Accelerated market access for SME products

New service model which brings the whole network together

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.

There is growing consumer interest in health and well being applications and services.

Business models are changing with data as the crucial element rather than hardware of software products.

Common Challenges of Ageing

Challenges?

- Loneliness
- Fitness & Physical – muscle degeneration
- Medication adherence / reviews & management
- Nutrition and Hydration
- Frequent Infections – Eg UTI's
- Cognitive Impairment
- Poor Sleep
- Accessible Home
- Personal Security
- Co-morbidities/chronic healt[illegible]nditions

Research opportunity to refine focus?

Potential Solutions?

- Social Connections & Activities
- Rehabilitation / Virtual Coaching / Exercise Groups
- Video Reviews / Automated Dispensing
- ADL / Weight Management / BMI
- ADL/ Temperature Management
- ADL/ Safer Walking Tech
- Wearables / Apps
- Smartlocks / Video Calls/panic alarm/Hive/Ring
- Home & Mobile Health Monitoring

Next Generation Service Model

personalised, proactive & preventative care

Services at home/in community:

- Extensive environmental and personal IoT sensors (inc. wearables)
- Real Time monitoring to define activity patterns and increased predictive capabilities
- Enhanced menu of services for choosers, users & carers – see discussion point slide
- Safe walking with geolocation

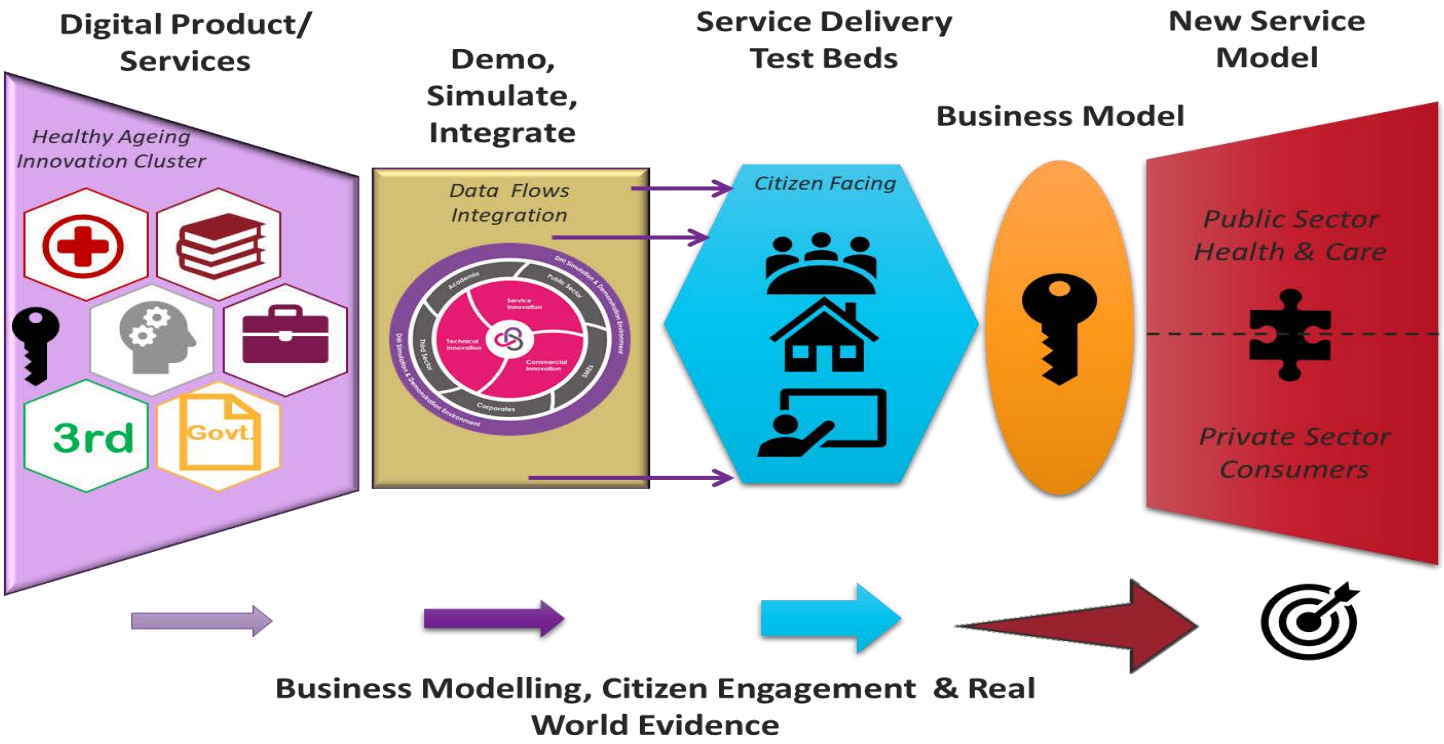
Wellbeing Programmes (Consumer overlay)

- Calendars and Personal Reminders
- 'Vincles' Program – Social & Community Connections
- Life & Fitness Coaching (Relaxation)
- Cognitive Gameification
- Nutritious & Balanced Fresh Food
- Digital Inclusion & Skills Programme

Care programmes (State commissioned)

- Active and Healthy Aging Promotion Program
- Processes and protocols for integrated health and care pathways e.g. falls
- Programs of early detection and prevention of cognitive impairment. Tele Stimulation
- Physical and functional tele-rehabilitation
- Telemonitoring programmes for people with chronic diseases
- Carers assessment & support programmes
- Specialist Skillsets:
  - Psychosocial care program ?? Such as??
  - Abuse prevention.
  - Suicide prevention.
  - Contingency and major disaster management

Integrated and accelerated marketplace



NEIGHBOURHOODS OF THE FUTURE

2019

CREATING A BRIGHTER FUTURE FOR OUR OLDER SELVES

THE CHALLENGE

In an ideal world, what could our homes and neighbourhoods look like in ten to twenty years' time? What should we be doing now to disrupt the status quo and make this vision a reality?

‘Our ambition, as a collective, is to build a prototype Neighbourhood of the Future.’

Bimlendra Jha
Chief Executive Officer, Tata Steel UK

Do I really want to die
before I get old?

Multigenerational Housing is the future

Modern methods of construction

Platform design has transformed
the automotive industry –
Could it do the same for housing?

Mobility

Health + Care

www.h.hospital.com
H HOSPITAL
Home
About Us
Patient Services
Find a Doctor
Our Centers
Contact Us
Search
Hotline Center
Online Services

Technology

Finance

Thank you

Neighbourhoods of the Future 2019
AAA Congress May 14/15 London

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VIEWPOINT

joy in later years

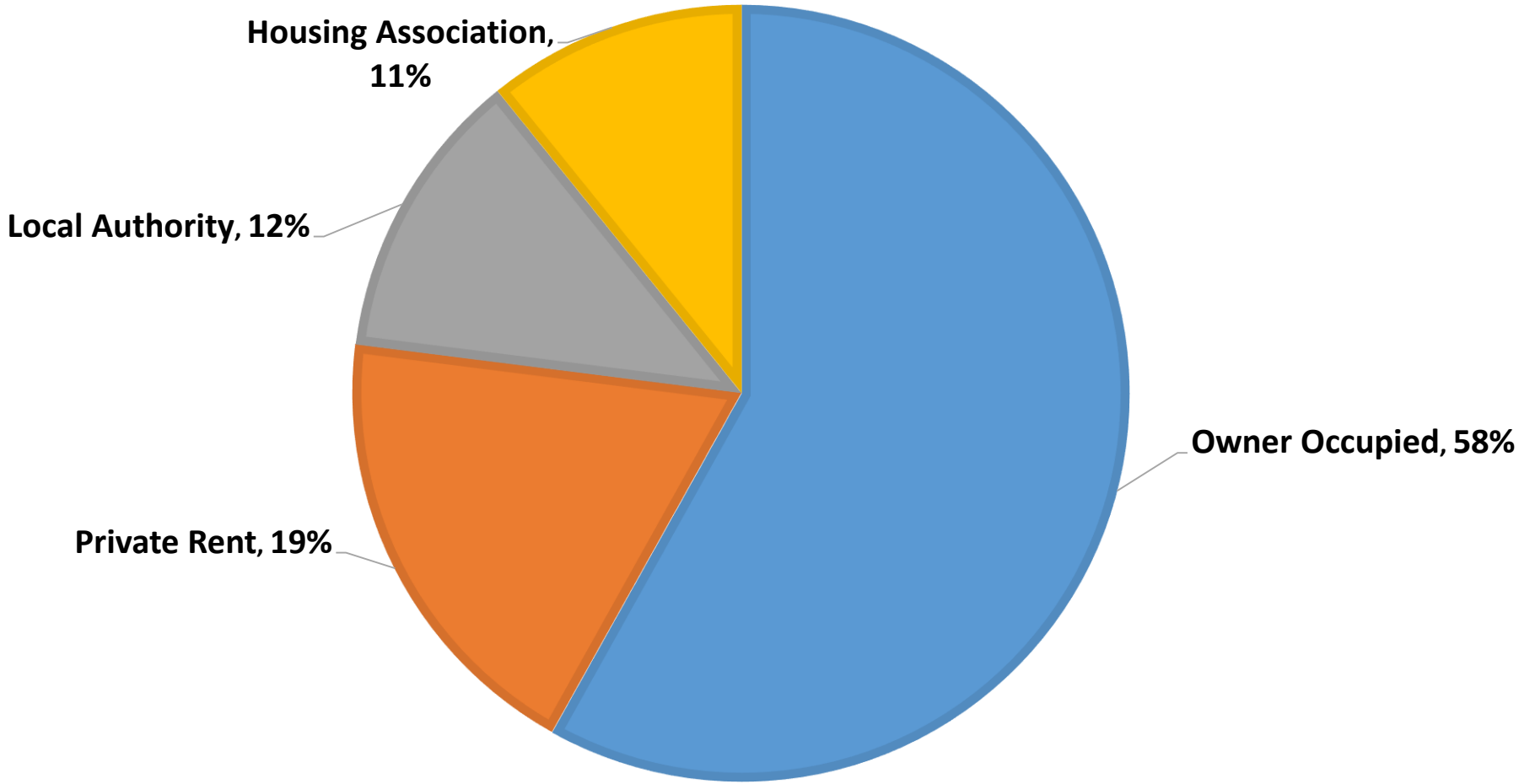
Lyn Jardine

Head of Innovation & Development

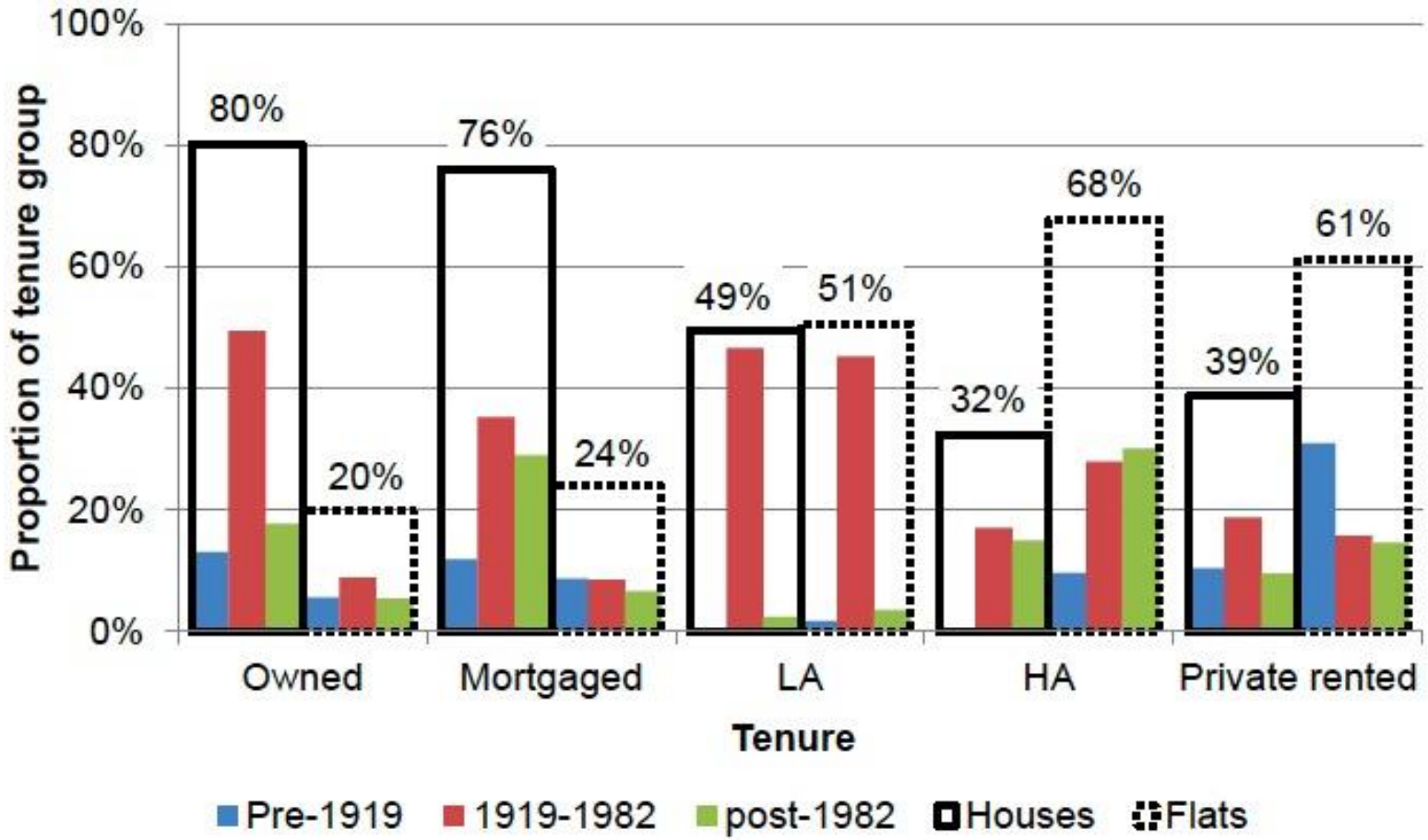
Overview

- Context
- Regulation and compliance
- Policy priorities
- Challenges
- Opportunities

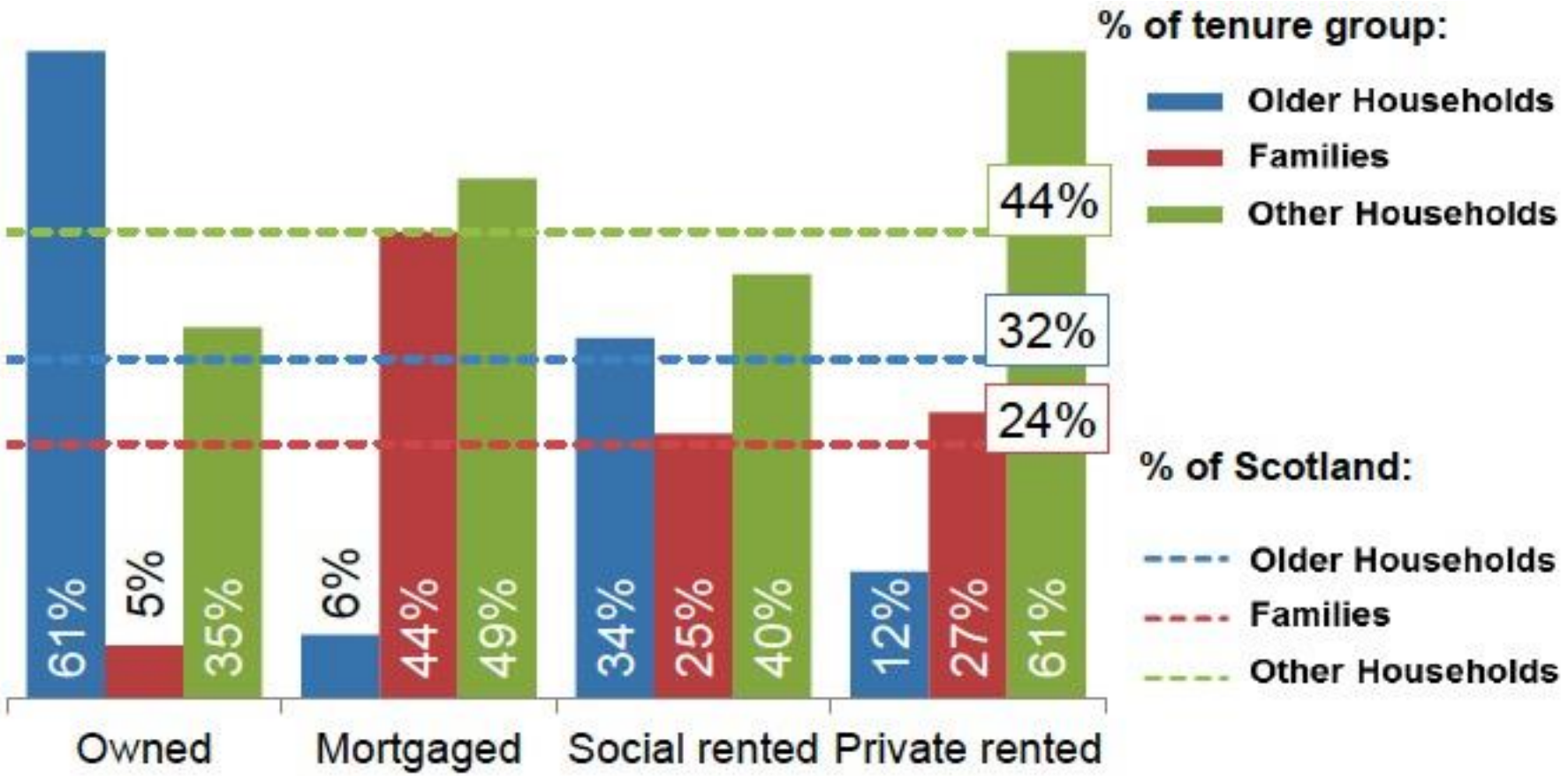
2017 Housing tenure



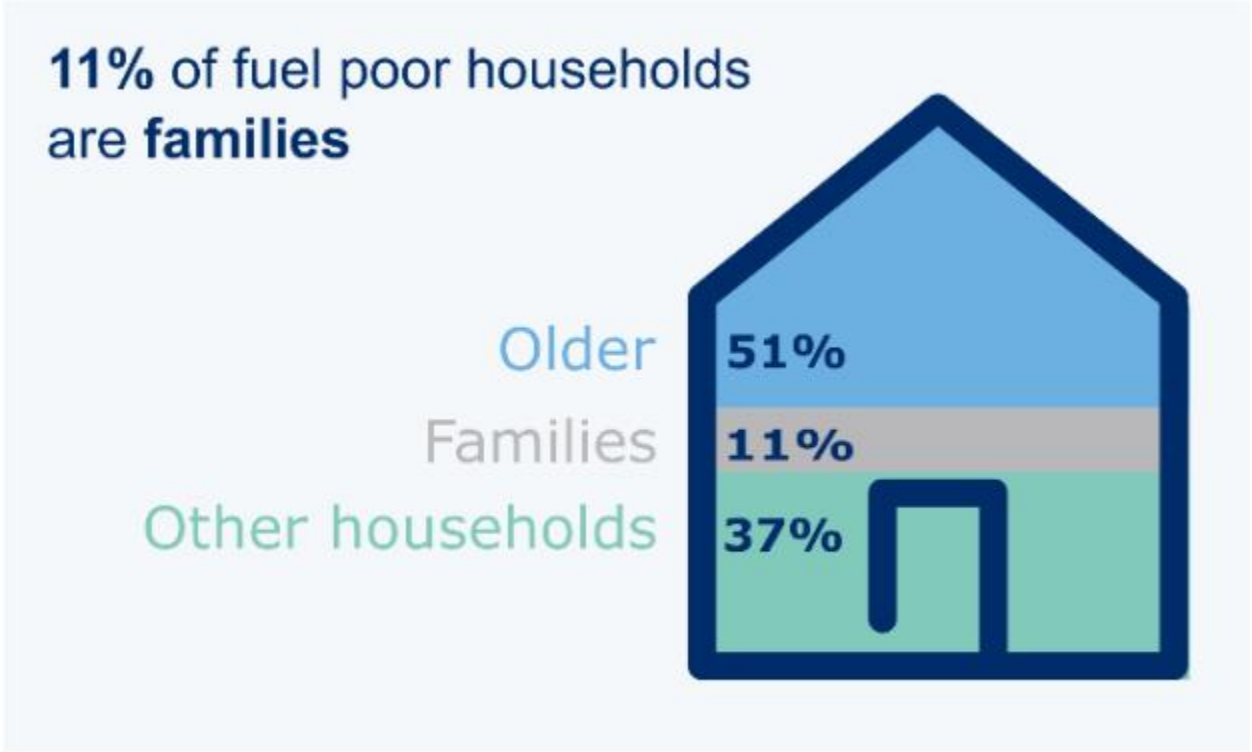
2017 Housing stock by tenure, age and property type

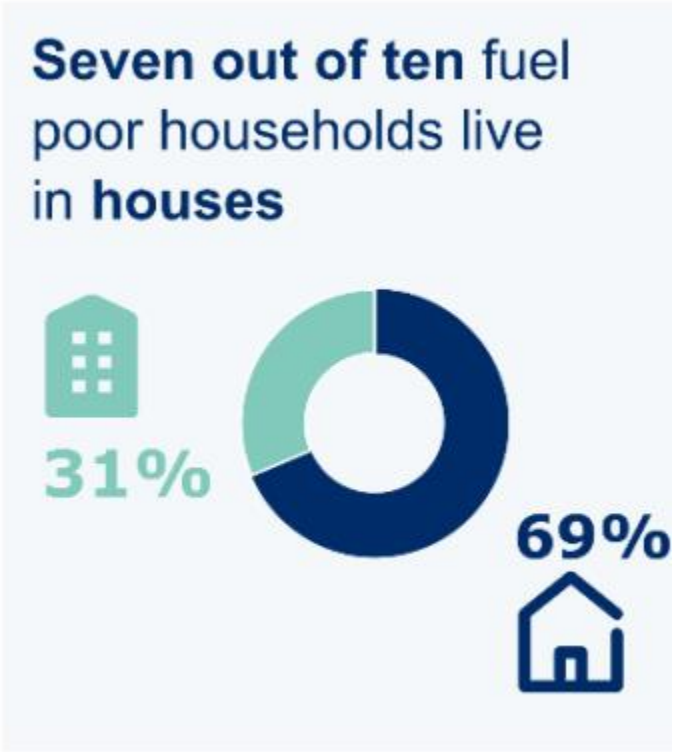


2017 Housing tenure by households



2017 – Scottish House Conditions Survey





Context for ageing population

- More likely to live in owner occupation without a mortgage
  - Asset rich, but capacity to increase income limited/non-existent
- More likely to live in a house over 30 years old
  - Consideration to how fit for purpose their home is in terms of accessibility, size and manageability
- More likely to experience fuel poverty
  - Ex-Right to Buy especially problematic as many did not have capital to make improvements since purchasing

Regulation and compliance

Owner occupied

- Building standards
- Planning requirements
- New build or renovations only

Private rented

- Registration of landlords
- Registration of letting agents
- Licencing of Homes in Multiple Occupation
- Energy efficiency standards
- Tolerable (habitable) standard

Social rented

- Housing Regulator
- Care Inspectorate
- Office of Charities Regulator
- Housing for Varying Needs (new build) Standards
- Scottish Housing Quality Standard
- Energy efficiency standards
- Gas safety compliance
- Electrical safety compliance
- Fire Safety compliance
- Scottish Social Housing Charter
- Homelessness responsibilities
- Tenant Participation
- Public Protection
- Procurement
- Equality & Human Rights

Policy priorities – Resources

- Welfare Reform issues
- Affordability of rents
- Affordable Housing Supply Programme (50,000 by 2021 - £3 billion plus)
- Energy efficiency
- Fire safety – post Grenfell
- B.....

Policy priorities – Service provision

- Housing First – permanent, affordable house ASAP then support services/connections to sustain
- “Age, Home and Community” – national older people’s strategy
- Affordability of rents
- Digital services
- Dementia
- Domestic abuse

Challenges – Social Housing specific

- Universal credit and welfare reform impact on financial health of the sector
- Compliance requirements puts pressure on investment capacity
- Housing development funding – post 2021??
- Housing support funding increasingly vulnerable and Housing 1st a priority but inconsistent strategic direction from IJBs
- Health & social care colleagues not having sufficient understanding of our specific limitations/remit

Challenges – Public & 3rd sector

- Increasing complex care and support needs
- Ageing demographic
  - Impact of service provision
  - impact on workforce planning
- Place making to create healthy places and communities
- Analogue to digital
- Increased focus on technology
- “Municipalism” – public sector entrepreneurship

Opportunities

- Many shared challenges across health, care and housing
- Housing associations are key community anchor organisations
  - Employability
  - Wellbeing
  - Isolation
  - Social enterprise
- Housing's contribution to wellbeing
- Housing and innovation
  - Social rented sector –test bed for innovation for wider market
  - TEC in Housing – Loreburn, Blackwood, Albyn
  - A plug for our own innovation project

Let’s change perception of old age

References

- Housing Tenure statistics available from https://www2.gov.scot/Topics/Statistics/Browse/Housing-Regeneration/HSfS/KeyInfoTables
- Scottish House Conditions Survey: 2017 Key findings available at https://www.gov.scot/publications/scottish-house-condition-survey-2017-key-findings/pages/4/
- Age, Home and Community – available at https://www.gov.scot/policies/housing-and-independent-living/national-strategy-for-older-people/
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- Striking the right balance – Social Return on Investment Study of Very Sheltered Housing (2018) available at https://www.hanover.scot/wp-content/uploads/2018/10/sroi_vsh.pdf

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ViewpointHA

TEC in Housing

Marian Reid

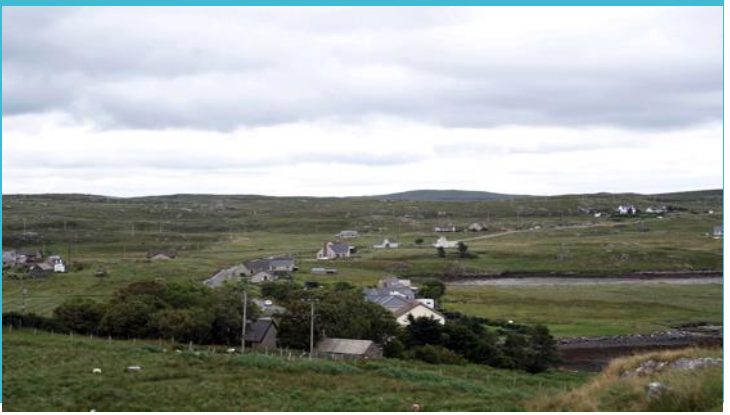
TEC in Housing Project

Healthy Ageing Cluster Meeting
30 May 2019

TEC Ready Project

- **TEC Ready** project - 2 year project, showcased reach and contribution and of housing
- Funded by the Scottish Government's TEC Programme and supported by key partners, SFHA hosting
- Project legacy includes: **www.techousing.co.uk** and **TEC in Housing Charter**

www.techousing.co.uk



- Reflecting the reach of the sector
- Encouraging involvement
- TEC in housing solutions (filmed clips):
- 6 case study examples:

  - **Aberdeen City Council - MyChoice**
  - **Albyn Housing Society – Fit Homes**
  - **Blackwood – CleverCogs**
  - **Loreburn Housing Association – ARMED**
  - **Perth and Kinross Council – TEC Strategy**
  - **Tighean Innes Gall – A Tablet for the Patient**

- Launched March 2019
- Emphasis on engaging customers, encouraging partnership working and review and redesign of services
- Asks for 'top 3 priorities' for TEC in Housing
- Aim for 100 signatories over 2 years

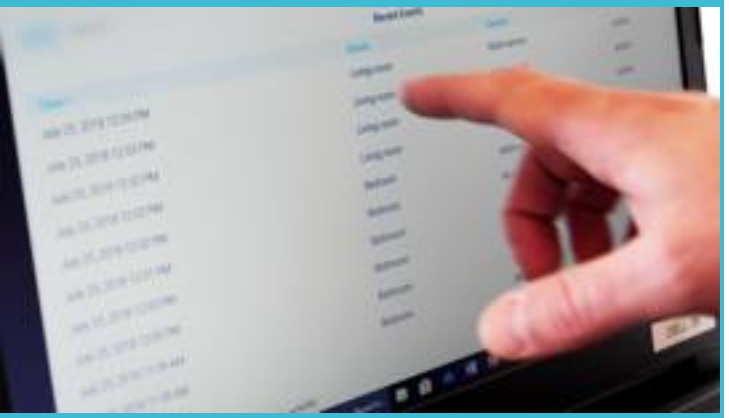
7 Charter Pledges

- Pledge 1 – Opportunity and solution focused
- Pledge 2 – Engaging with the customer
- Pledge 3 – Working in partnership
- Pledge 4 – Preventative analytics
- Pledge 5 – Service redesign
- Pledge 6 – Supporting the workforce
- Pledge 7 – Getting the infrastructure right

Commitment to at least 3 Pledges required

TEC in Housing Next Phase 2019 – 2021

- Builds on work of TEC Ready and Charter – aims to scale up housing contribution
- Focus will be on customer-centred approaches and service redesign
- Will include Customer Forum – to advise and influence
- Two key enablers for project - Internet of Things and Housing Sector Digital Maturity Audit



www.techousing.co.uk

TEC Technology Enabled Care

Digital Health & Care Scotland

sfha Scottish Federation of Housing Associations

CIH

Scotland's Housing Network Your partner in housing

GWSF Glasgow and West of Scotland Forum of Housing Associations

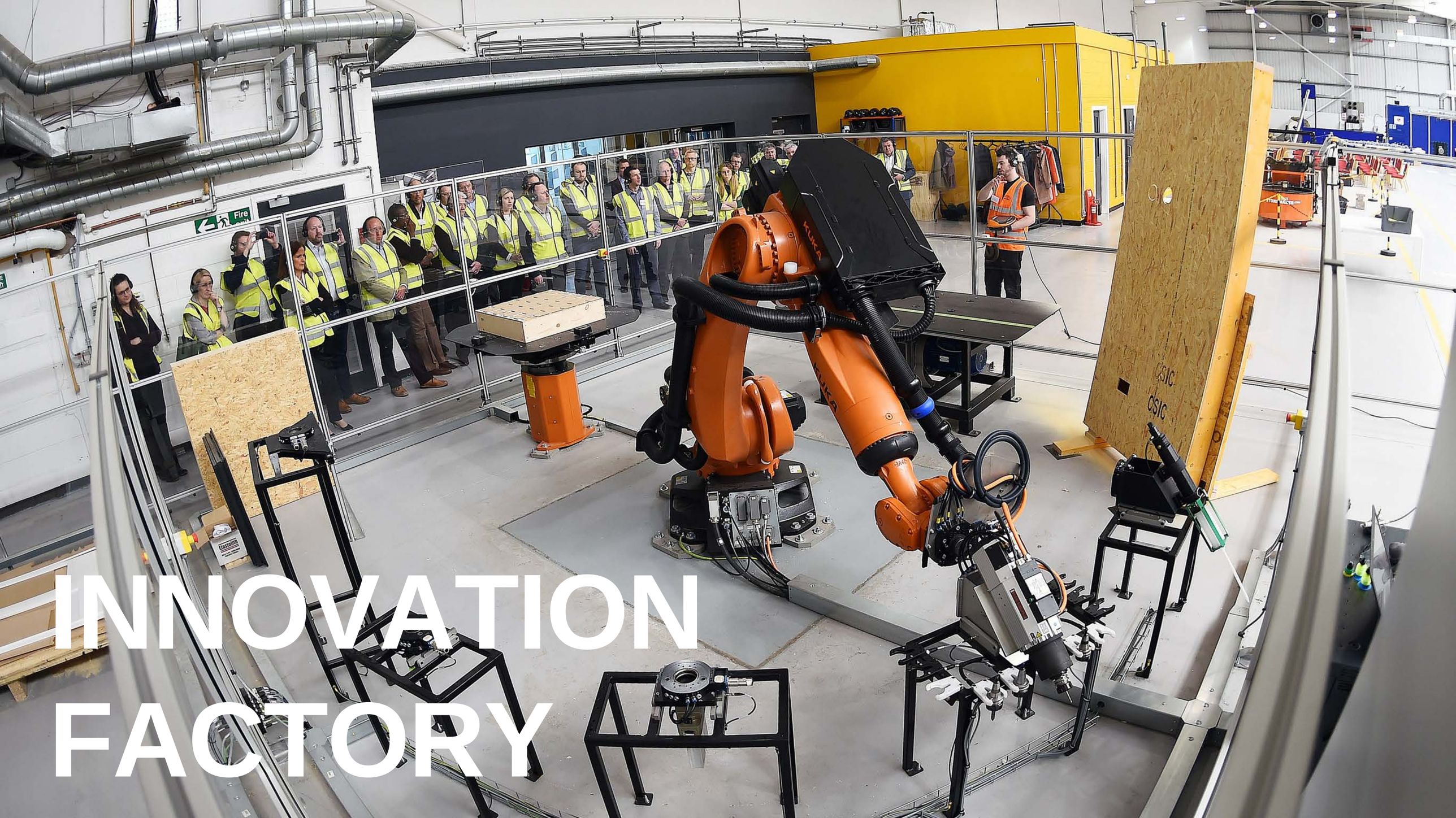
ALACHO Association of Local Authority Chief Housing Officers

People must be at the centre

Inclusive | Secure | Multi generational

Beautiful | Healthy | Multi tenure | Sustainable

We live in an overcrowded world...


INNOVATION
FACTORY

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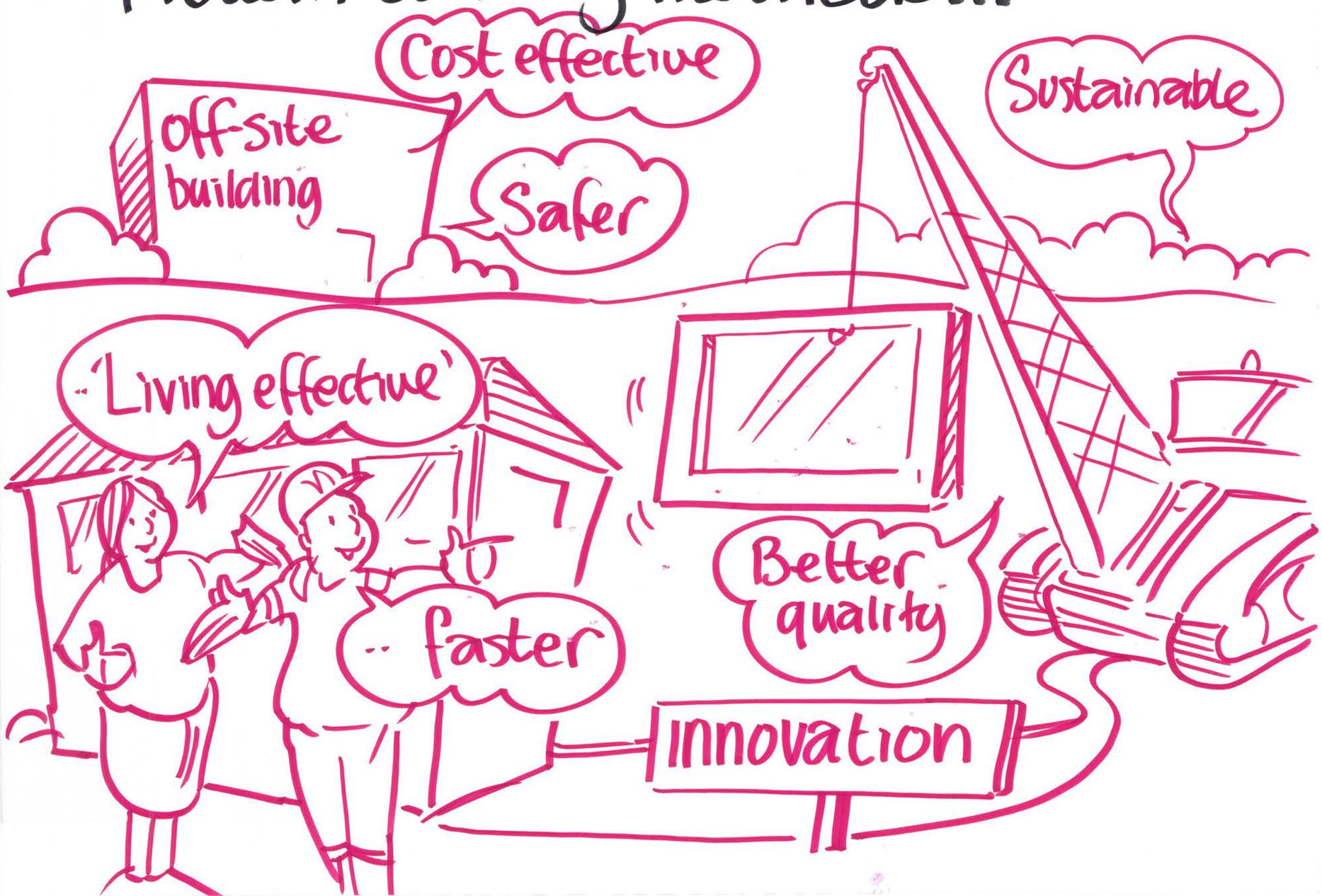
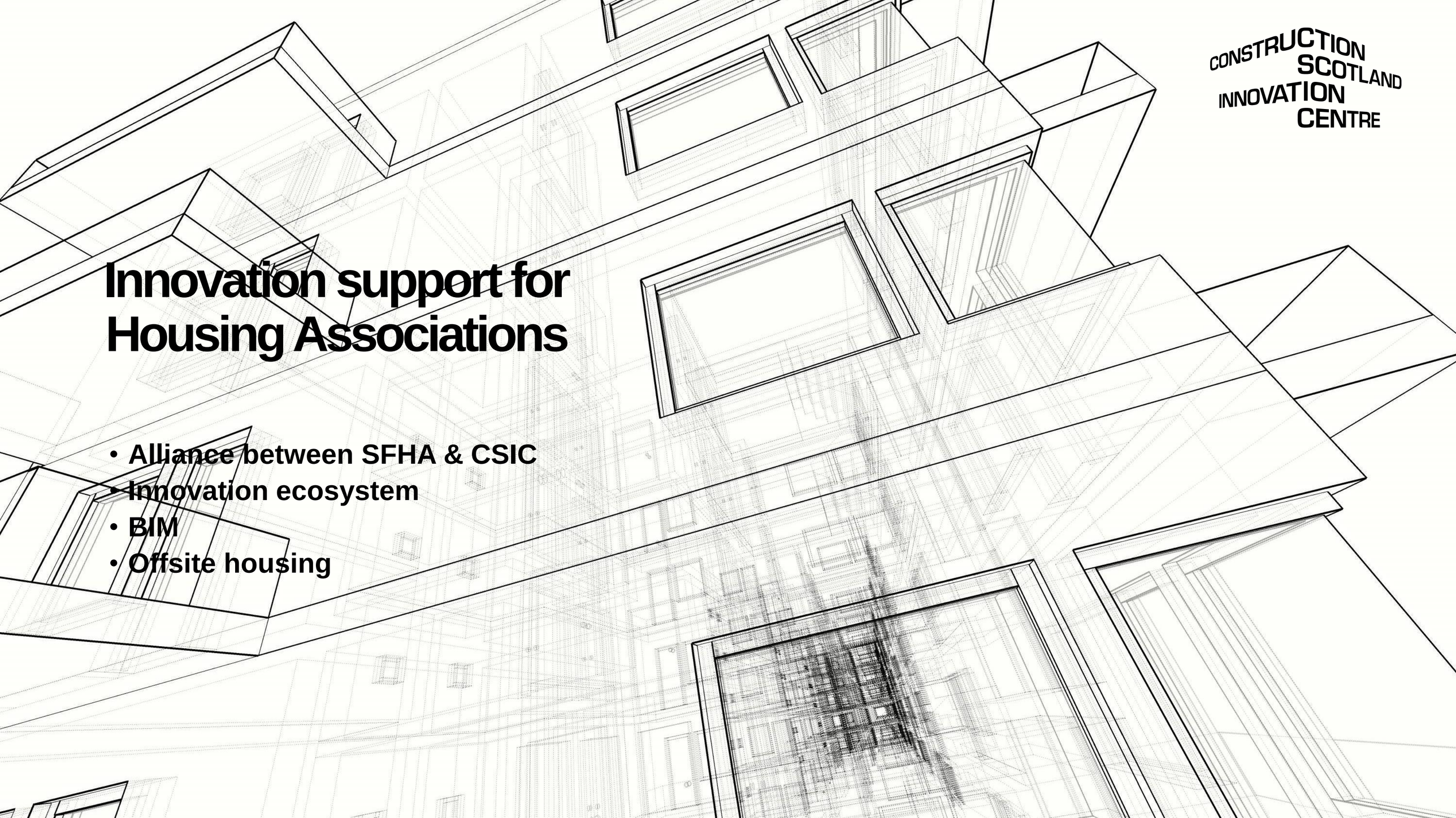
Modern building methods...





CONSTRUCTION SCOTLAND INNOVATION CENTRE

Innovation support for Housing Associations

- Alliance between SFHA & CSIC
- Innovation ecosystem
- BIM
- Offsite housing

13 Nov 2018

CSIC Funding Call to launch at SFHA Development Forum

A funding call for support for Modern Methods of Construction will be launched at the SFHA Development Forum on 22nd November.

Construction Scotland Innovation Centre (CSIC) and SFHA have entered a partnership to increase opportunities and provide support for SFHA members. A funding call for support for Modern Methods of Construction will be launched at the SFHA Development Forum on 22nd November.

Offsite construction for social & affordable housing projects

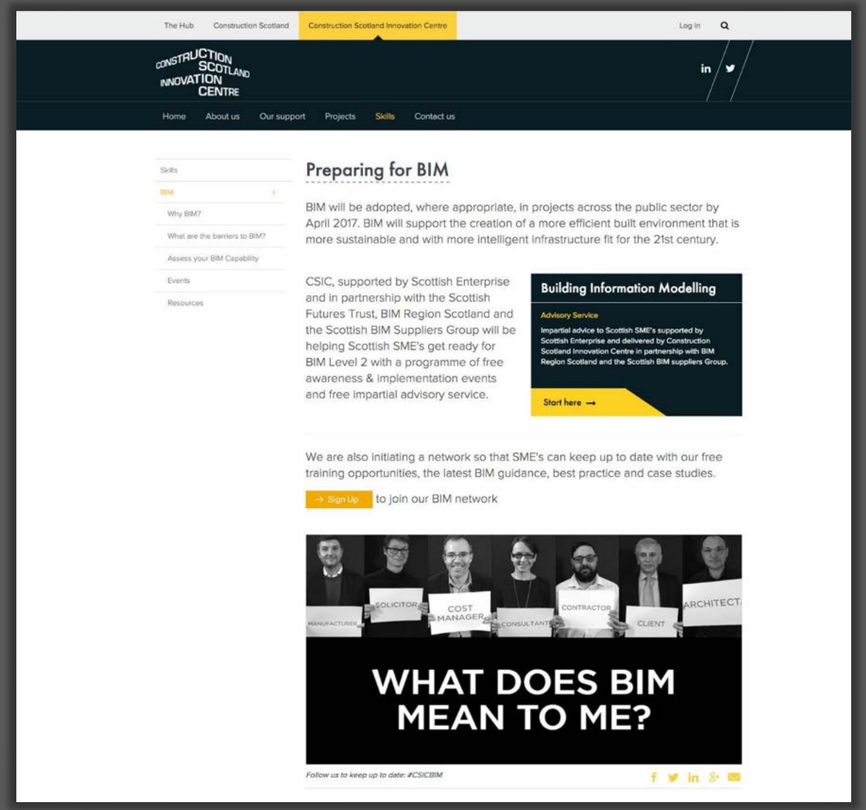
- SFHA, COSLA, Scottish Enterprise, Scottish Government, CSIC
- Evidence base
- Industry capacity to scale
- Co-design of solutions

CONSTRUCTION SCOTLAND INNOVATION CENTRE

Preparing for BIM

BIM 'Offline' Hub

A 'Step by Step' Awareness
& Implementation Programme
with free events, free resources
& free advice.



Scottish Enterprise
CONSTRUCTION SCOTLAND INNOVATION CENTRE
SCOTTISH FUTURES TRUST
BiM regions scotland
the home of digital construction

Join the network today, register at **www.cs-ic.org/BIM**

The Emotional Gym

Challenge

Develop new housing solutions for over 60's that allow residents to live independently in their homes for longer

Project

Pilot the use of building integrated and wearable technology within the retrofit of a high-rise development to encourage ongoing physical and mental stimulation

Outcomes

- Tenants are more active and remain in their homes for longer
- New uses for under utilised spaces within high-rise buildings identified
- Technologies deployed within buildings to support independent living

Support

• Total Project Value	£49,388
• CSIC Funding	£19,755
• Project Duration	January 2017 - July 2017

UWS UNIVERSITY OF THE WEST of SCOTLAND

Wheatley Group

Lorettocare

Future technology strategy for Housing Associations

Challenge

The technology associated with building and operating social housing is going to change dramatically over the next 10 years. How should Housing Associations be thinking about future strategy to prepare for this?

Project

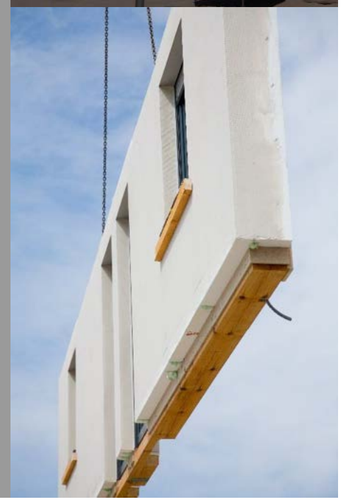
The Property Tech 2025 project will help Wheatley Group understand technology and housing development trends and potential future directions likely to impact their business. This will include: materials and products, digital construction techniques, housing typologies and technology integration.

Outcomes

- An overview of international trends, innovations and opportunities
- Focus groups and interviews using Interaction Design and Design Scenarios
- Provide themes to shape the Technology and Development Strategy for 2020-2025

Support

• Total project value	£98,000
• CSIC contribution	£43,000
• Project Duration	April 2018 – October 2018



Wheatley Group

THE UNIVERSITY of EDINBURGH

Scotland's First Off-site Manufactured Gold Standard Housing Development

Challenge

With Scotland facing an acute affordable housing shortage, the use of volumetric construction lends itself to providing affordable and sustainable homes within benchmark housing association costs

Project

48 new homes were built offsite using volumetric techniques - a first for this scale in the affordable sector. Whole life cycle costing, building performance & post occupancy evaluation

Outcomes

Delivery of Gold Standard sustainable quality housing with high thermal performance built in a significantly reduced timeframe at an affordable cost. Conventional construction times could readily be reduced by 50% a unit

Support

- Total project value £130,000
- CSIC contribution £61,000
- Project Duration November 2015 – April 2017

TIGH GRIAN

LINK GROUP

Edinburgh Napier UNIVERSITY

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www.cs-ic.org

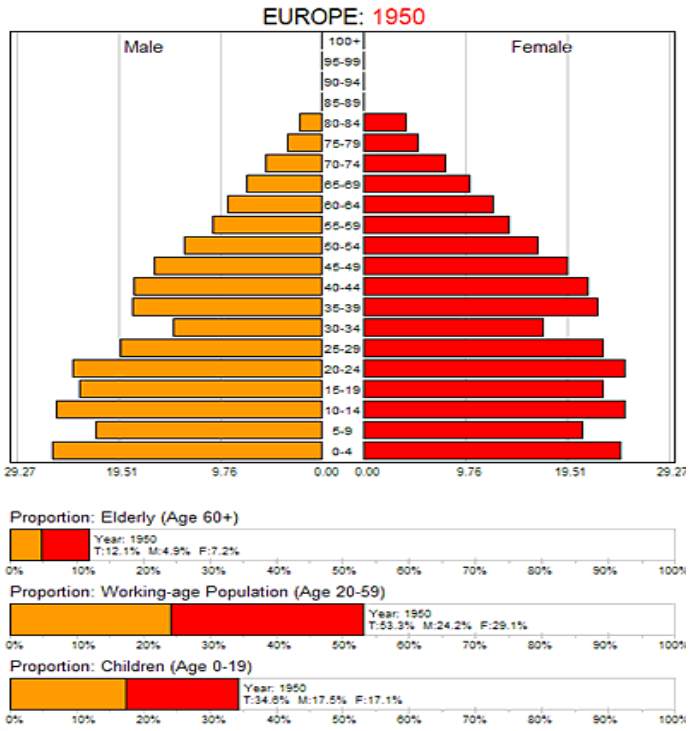
@CScotIC

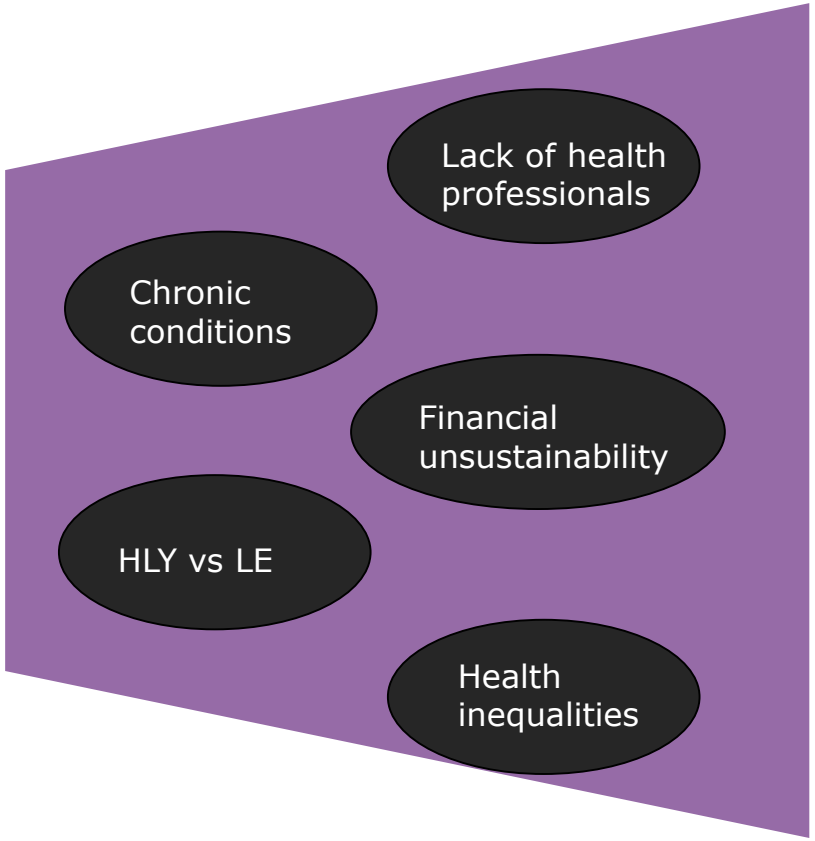
construction scotland innovation centre

HEALTHY AGEING INNOVATION CLUSTER

April 2019

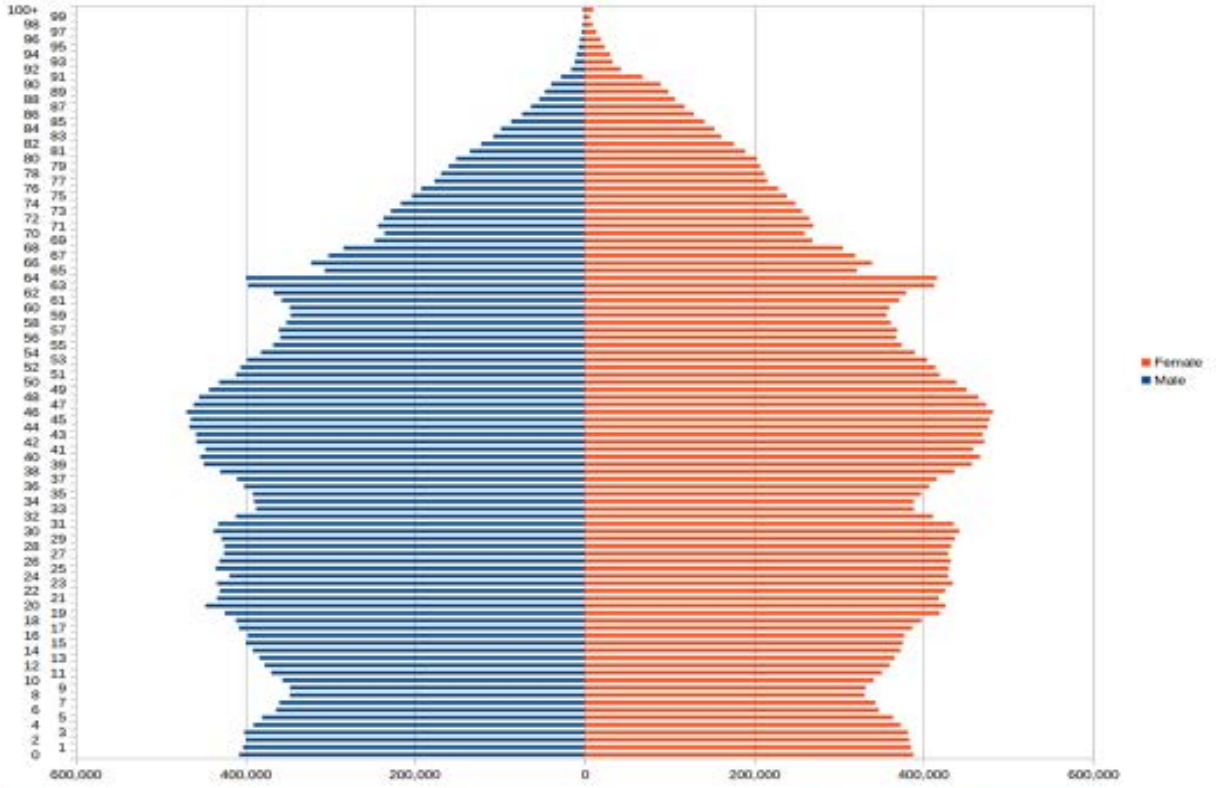
Ageing society





DIGITAL HEALTH & CARE INSTITUTE

Scotland's Demographics - 2012



Scotland Demographics

DIGITAL HEALTH & CARE INSTITUTE

WHO definition of Healthy Ageing: **“the process of developing and maintaining functional ability that enables wellbeing in older age”**

This includes a person’s ability to;

- meet their basic needs
- learn, grow and make decisions
- be mobile;
- build & maintain relationships
- contribute to society

Healthy Ageing Innovation Cluster – '*Success through Collaboration*'

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
- Build Collaborations

Activities

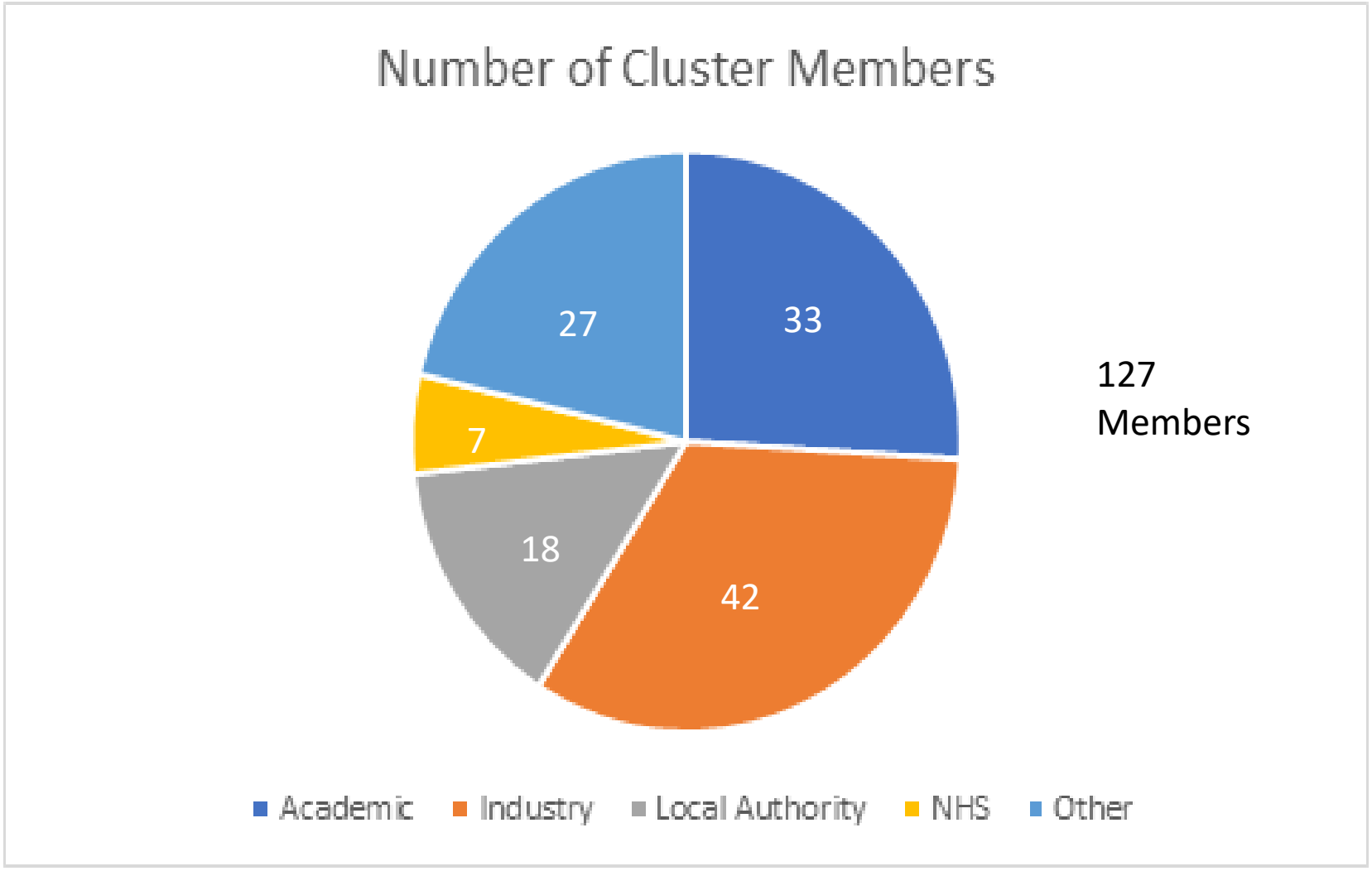
- Current focus on anticipated IUK Grand Challenges – Healthy Ageing but many other funding sources
- Identify key priorities and collaboration opportunities

Facilitated by…..

DIGITAL HEALTH & CARE INSTITUTE

Source: www.millerelect.com/collaboration-creates-construction-project-efficiencies/

HAI Cluster Membership – Feb 2019



127 Members

Healthy Ageing Innovation Cluster

Discussion Session (Feb 2019)

- Vision & Impact – what difference are we trying to make collectively?
- Priorities – what are our key collaboration opportunities?
- Connecting & Integrating – what useful existing assets/links with other activities & organisations?

HEALTHY AGEING COLLABORATION PRIORITIES – Feb '19

COLLECTIVE LEARNING

Awareness of Policy & Guidance

- Scottish & UK Government – Policy Direction
- Relevant Strategic Guidance & Best Practice
- Team Scotland Approach

Awareness of Technology

- Consumer Technology
- Keeping pace with a fast moving market
- Build Trust to Share

Identify Funding Opportunities

JOINT DEVELOPMENTS

Shared Focus on Specific Conditions/Challenges

- Falls,
- Diabetes,
- Physical Activity

Support Independent Living

- Transport
- Housing
- Supporting people to work longer
- Hospital at home
- Care in the Community
- Reducing inequalities

Develop

- Test beds
- Data/Analytics
- Patient/Citizen Journeys

RESEARCH & METHODS

Prevention

- When should interventions best be made?
- Better adoption at earlier stage in life?

Evidence Impact

- Health Economics
- Methodologies
- Real World Impacts

Ensure Citizen at the Centre

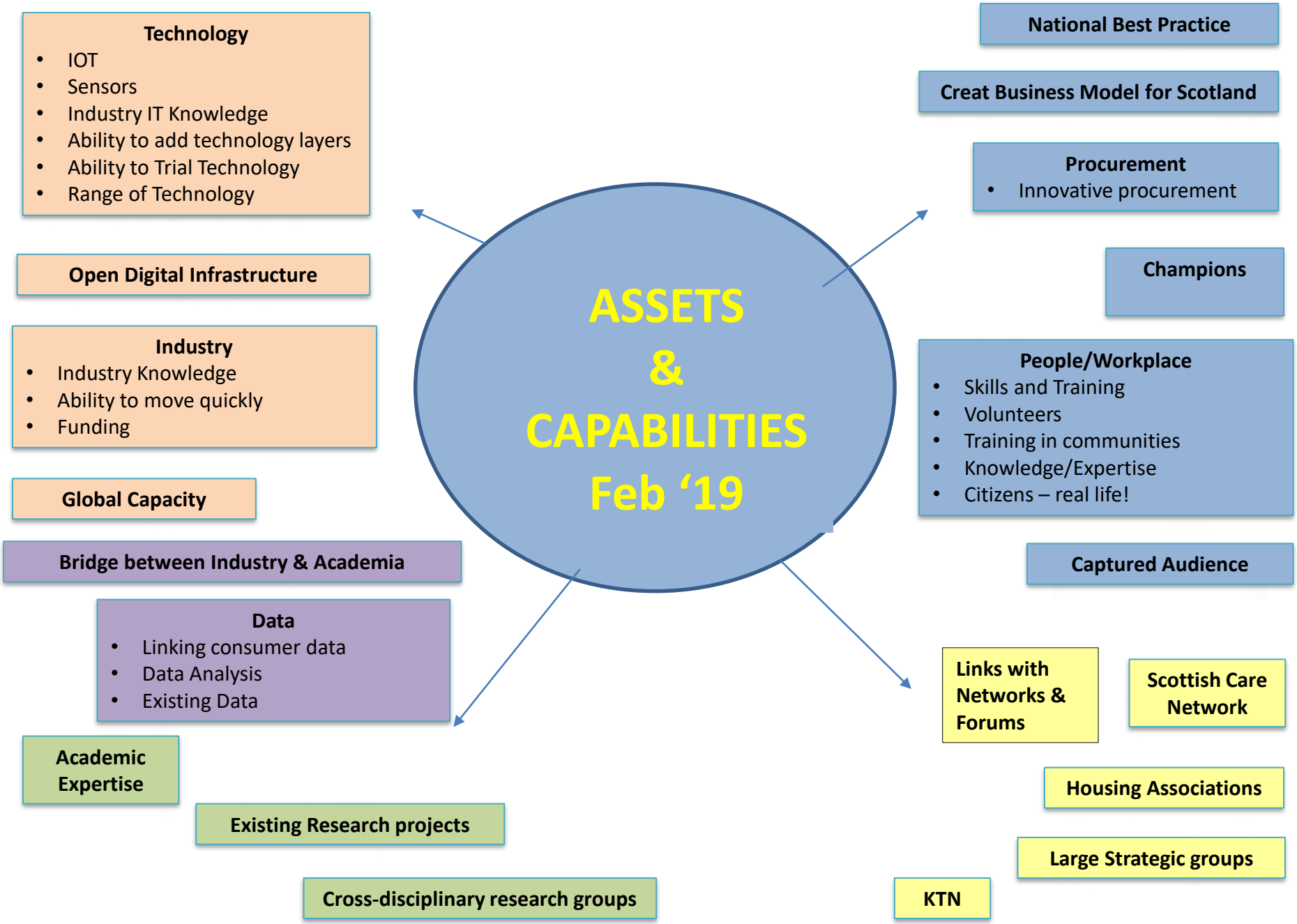
- What does the citizen want?
- How best engage with the end user?
- Co-design
- Build Trust

SKILLS & CAPABILITIES

Skills & Training

- Joint Learning

Business Models for Scotland


Technology
IOT
Sensors
Industry IT Knowledge
Ability to add technology layers
Ability to Trial Technology
Range of Technology
Open Digital Infrastructure
Industry
Industry Knowledge
Ability to move quickly
Funding
Global Capacity
Bridge between Industry & Academia
Data
Linking consumer data
Data Analysis
Existing Data
Academic Expertise
Existing Research projects
Cross-disciplinary research groups
ASSETS & CAPABILITIES Feb '19
National Best Practice
Creat Business Model for Scotland
Procurement
Innovative procurement
Champions
People/Workplace
Skills and Training
Volunteers
Training in communities
Knowledge/Expertise
Citizens – real life!
Captured Audience
Links with Networks & Forums
Scottish Care Network
Housing Associations
Large Strategic groups
KTN

Test Beds
- People
- Public Sector
- Private Sector

Citizen Engagement
- Citizen enabled collaborations

Small commercial/private companies

Hospital to Home (and vice versa)

Forums
Integration of H&C for:
- Testing
- Deployment

Focus Area Specific Forums

Technology Led Innovation Route

LINKS & CONNECTIONS Feb '19

Education & Training
- Digital as part of health courses

Academia – expertise in key challenges

Existing Research projects

Cross-disciplinary research groups

Thinking Space Group

Public Sector Organisations

Scottish Care Network

NHS Health Boards

KTN

Scotland Excel

Housing Associations