Smart and **H**ealthy **A**geing through **P**eople
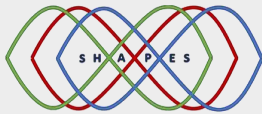**E**ngaging in supportive **S**ystems

Smart and Healthy Ageing: Adaptive Environments for an Ageing Population – The SHAPES project

Dr Michael Cooke   Dept. of Psychology, Assisting Living and Learning (ALL) Institute, Maynooth University
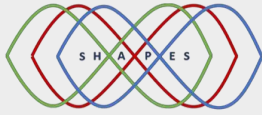
ALL Institute

The Assisting Living and Learning Institute was established to enable people **across their life course** - especially those who have been marginalized - to achieve **well-being** in their preferred ways; through the development and application of appropriate technologies, **person-centred systems** and evidence-based policies and laws, that **empower users** and those supporting them.

Assisting reaches beyond the idea of assistive technology alone; embracing the user, their supporters and where appropriate, their carers. It also embraces the ethos of volunteering and community engagement, especially for marginalized people. **Assisting is about the interface between assistive and related technologies, those who use them, and those who assist the users**.

SHAPES Coordination Team

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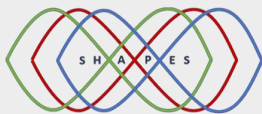
SHAPES Rationale

- Citizens in a rapidly ageing European population are at **greater risk** of cognitive impairment, frailty and multiple chronic health conditions with considerable negative consequences for their independence, quality of life and for the sustainability of health and care systems.

- The SHAPES research aims to foster the large-scale deployment of **integrated digital solutions** which will bring improved quality of life to citizens while demonstrating significant efficiency gains in health and care delivery across Europe.

- The emphasis on providing **quality community and living experiences** which will lead to maintaining people in their homes.

- Many different **technologies** are available to older people and people with disabilities.
  - Someone might have a hearing aid, a wheelchair, home sensors and perhaps a 'smart' pillbox
  - They don't necessarily all work together.
 - SHAPES wants to bring assistive technologies together with connected health
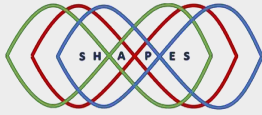
SHAPES Objectives

- To build and deliver the SHAPES **integrated care Platform**
- Create, enlarge and consolidate the **SHAPES Ecosystem** for active and healthy ageing
- To promote the adoption of **EU standards**
- To implement the SHAPES Pan-European **Pilot Campaign**
- To design and implement the Platform according to **the EU Ethical and Legal/Regulatory Framework**
- To achieve successful **market deployment**, uptake of the Platform and digital solutions informed by the results of the SHAPES Open Calls for Innovation and Collaboration
- To produce **Recommendations**, a roadmap and an action plan for the deployment, scale-up and adoption of the SHAPES Platform
- To implement SHAPES wide **dissemination** reach across Europe, and to turn the Platform into a global reference for active, healthy and independent ageing.
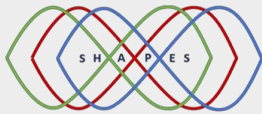
Who is SHAPES?

- 36 partners from 14 countries: Belgium, Czech Republic, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Norway, Portugal, Spain, Sweden, United Kingdom.

- Rich diversity of organisations. 43% consists of businesses:
  - 15 are SMEs (AELTD, CCS, CH, EDGE, FINT, GNO, GEWI, KOM, MedSyn, OMN, PAL, SAL, SME, SciFY, TREE)
  - 1 is a large industry partner (ICOM).
  - 6% are RTOs (FhG and VICOM). 12 universities (MU, AUTH, FNOL, LAUREA, UP, HMU, UCLM, UAVR,UPORTO, UCC, UNRF and ULS),
  - 2 public bodies (NHSCT, DYPE)
  - 4 NGOs (AGE, AIAS, EUD and WFDB)

- 6 EIP on AHA reference sites
  - CCS, GEWI, NHSCT, UPORTO, UCC, AHA
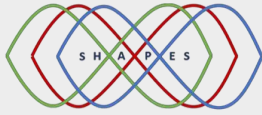
- 5 Organisations from the island of Ireland

Technology

- SHAPES is not about technology, but can be an important enabler and mediator for achieving healthy and happy living
- Integrated Platform
- IoT and sensors
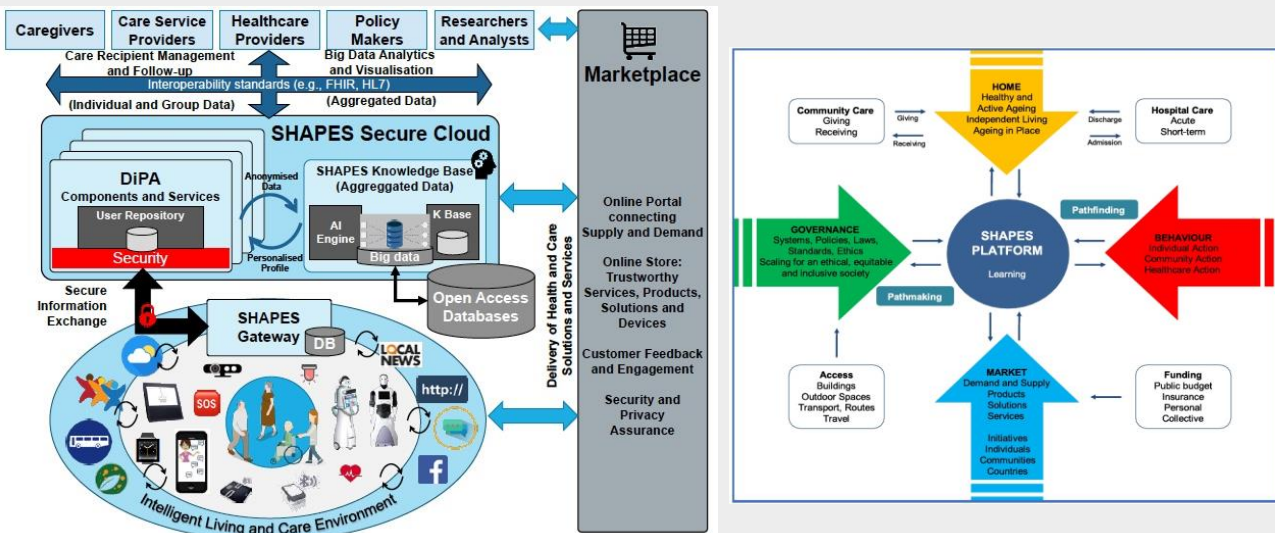- Robotics
- Web and App resources
- Databases and AI

- SHAPES intends to identify the appropriate use of different technology categories link to the ecosystems of users
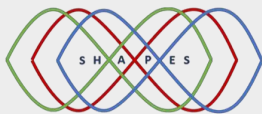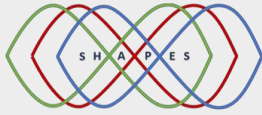
SHAPES Integrated Care Platform

Design and CONOPS

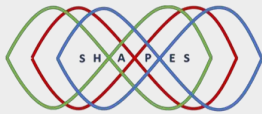- SHAPES will involve co-design between end users, developers, procurers, suppliers, policy makers, and various other stakeholders

- Ethnographic research around Europe to gather data about the **Ecosystems** of users and design around that knowledge

- Development of Activity-Centred Concepts of Operations (CONOPS)

- Iterative design and evaluation process across 6 different pilot campaigns
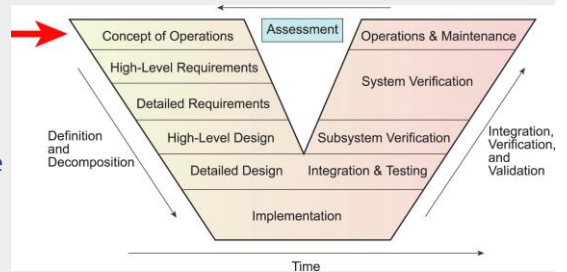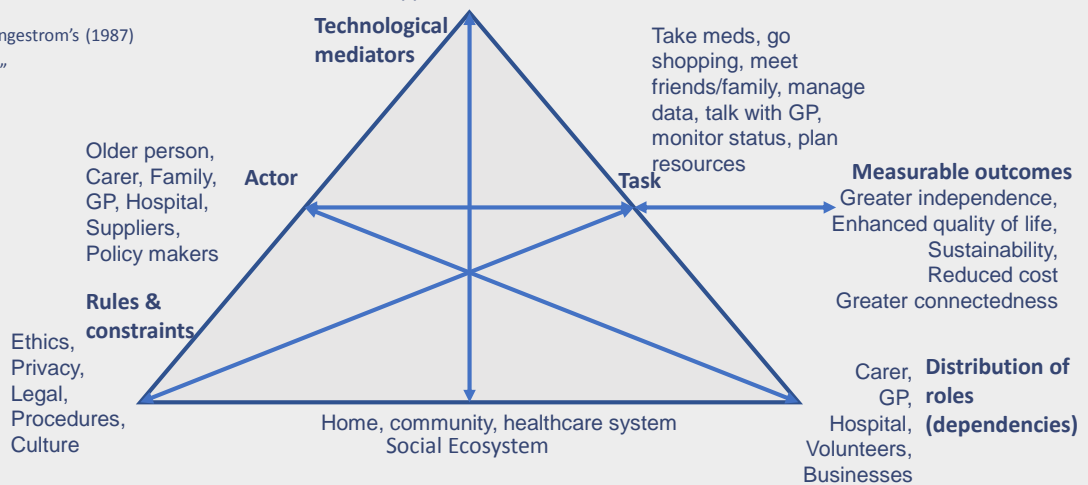
Activity-Centred CONOPS

Adapted from Engestrom's (1987)

"Activity System"

Sensors, Apps, IoT, software, Platform

Technological mediators

Take meds, go shopping, meet friends/family, manage data, talk with GP, monitor status, plan resources

Older person, Carer, Family, GP, Hospital, Suppliers, Policy makers

Actor

Task

Measurable outcomes
Greater independence,
Enhanced quality of life,
Sustainability,
Reduced cost
Greater connectedness

Rules & constraints

Ethics, Privacy, Legal, Procedures, Culture

Home, community, healthcare system
Social Ecosystem

Carer, GP, Hospital, Volunteers, Businesses

Distribution of roles (dependencies)
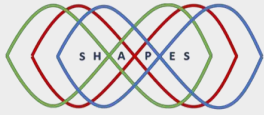
SHAPES Pilot campaigns

- Pilot Theme 1: Smart Living Environment for Active Ageing at Home
- Pilot Theme 2: Improving In-Home and Community-based Care Services
- Pilot Theme 3: Medicine Control and Optimisation"
- Pilot Theme 4: Psycho-social and Cognitive Stimulation Promoting Wellbeing
- Pilot Theme 5: Caring for Older Individuals with Neurodegenerative Diseases
- Pilot Theme 6: Physical Rehabilitation at Home
- Pilot Theme 7: Cross-border Health Data Exchange Supporting Mobility and Accessibility for Older Individuals
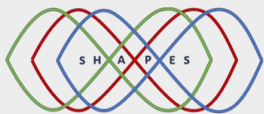
SHAPES work packages

- WP1 - Project Management
- WP2 - Understanding the Lifeworld of ageing individuals and Improving Smart and Healthy living
- WP3 - Organisational, Structural and Sociotechnical Factors for the SHAPES Ecosystem
- WP4 - SHAPES Technological Platform
- WP5 - SHAPES Digital Solutions
- WP6 - SHAPES Pan-European Pilot Campaign
- WP7 - Market Shaping, Scale-up Business Models and Socio-Economic Impact
- WP8 - Ethics, privacy, legal, and human rights protection
- WP9 - SHAPES Ecosystem Building
- WP10 - SHAPES Outreach and Awareness Generation
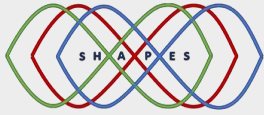
Key challenges for SHAPES

- Technology will be part of the solution but the key challenge is understanding and **representing the ecosystem** through CONOPS

- Engagement across Europe and managing **diversity**

- Market-Shaping for **sustainability**

- Learning from todays older people to benefit our **ageing population**

- **Legal and ethical** considerations - privacy
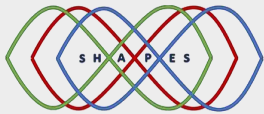
Thank you

- Prof. Mac MacLachlan Mac.MacLachlan@mu.ie
- Dr Michael Cooke
- Michael.Cooke@mu.ie

- ALL Institute https://www.maynoothuniversity.ie/all-institute