CASE STUDY
ALBYN HOMES

Introducing FitHome

Under the banner of social business Sunnd, Highland-based Albyn Housing Society is leading a unique initiative with NHS Highland and a modular construction expert, Carbon Dynamic, which could enable people with complex health needs to live independently in their communities for longer, create jobs and support public services.

Developed through co-design, the technology-enabled 'FitHome' will host various levels of interactive technology and ambient sensors, enabling unobtrusive data capture and associated predictive health analytics. Prevention of episodes or events leading to ill health and hospital admissions is the driver for the project, enabling health and care services to support more people at home and potentially enable earlier hospital discharge.

Project Development

Albyn's project origins go back to 2008 when a tenant was found dead in his home, having lain unnoticed for over a year. Vowing to minimise the chances of this ever happening again, Albyn commissioned new research exploring potential solutions, only to find the ideal fix did not yet exist. Identifying both a need and opportunity to minimise this occurrence, Albyn developed its own system for fall prevention - one which could be adopted across its growing portfolio of homes.

Consultation

Albyn gained insight into what tenants wanted and needed, to influence the approach taken by health providers and developers. Collaborating with NHS Highland and Carbon Dynamic, together they developed an entirely new customer-led concept of living, encompassing not just the actual home but also cutting-edge assistive technology. A pilot phase of 16 homes being built at Dalmore in Alness, Ross-shire will provide proof of this concept.

Collaboration

Project concepts are supported by the Scottish Government through the Inverness-Highland City Deal, associated research is being conducted by the University of the Highlands and Islands and Robert Gordon University is developing the artificial intelligence. Three Scottish Government Innovation centres support the project: The Digital Health and Care Institute, The Data Lab and Censis. Ongoing business support is also being provided by Highlands and Islands Enterprise.

The Technology

Technology being developed by the RGU research team is called FITsense. FITsense is a falls prediction system that will help residents live independently in their homes for longer, prevent hospital admissions and enable early discharge.

Data will be captured by a range of sensors installed in each FitHome. Targeting specific activities identified as pre-cursors to falls, it will analyse data derived from these sensors to identify patterns and changes of activity that are linked to increased risk of falling. Evidence-based alerts should enable families and agencies to intervene with preventative measures before incidents occur.

Two areas of data science innovation are present in this project: (1) testing the boundaries in human activity recognition (HAR) from sensors and (2) developing an event driven case-based reasoning (CBR) approach to identify the signs of potential risk of falling.

Impacts

Positive social impacts within the community will be that people can live at home for longer in houses that are adapted to suit individual needs and lifestyles. It is hoped early regular health monitoring and the benefits of early intervention will reduce the need for long hospital and care home stays, allowing people to continue to live independently in their community.

In the longer term, this project will contribute to low carbon efficiency as the new homes will have efficient, low cost heating, powered from sustainable sources.

As a model for innovation, collaboration has resulted in an affordable, sustainable and successful option for the future. Developed as a social enterprise, it is a model driven by need, rather than commercial gain. A large and growing market exists for this type of system in Scotland, UK and internationally, particularly driven by the world's ageing population.

With falls costing NHS Scotland £471 million a year, there is potential for substantial economic benefit to health and social care services as well as significant direct commercial return through sale or licensing of the product.

Individuals, care providers, social landlords and a range of health professionals could be adopt this system to reduce the health impact of falls and target intervention resources more efficiently.