

SCDIP Discovery Phase – Essex County Council

The team plans to utilise ‘smart socks’, worn during virtual strength and balance classes. The socks collect feedback on the user's balance and gait which is sent to the app and reports data to the user, instructor, service providers and others.

Minimising the risk, impact and number of falls by encouraging people to stay active through technology

The context

Nationally, the cost of falls to health and social care systems is over £2.3bn and rising. It is the leading cause of accident-related mortality and the cause of 10% of all ambulance call-outs. The impact and cost to the Essex health and social care system is that there is an estimated 371,000 people at risk of falls with an estimated cost of £46.1m a year. Essex County Council partnered with an innovation partner, PA Consulting, to address this issue.

The challenge

Initially, the team were looking into a solution that would facilitate detection of falls. However, following an innovation workshop with over 30 senior stakeholders, the team decided to broaden their problem statement to: “How can we minimise the risk, impact and number of falls by encouraging people to stay active and live life to the full through use and take up of technology?”

What did the project involve?

The project team explored 3 core areas: who are the possible users of a solution, what are the users' needs and what solution is best suited to meet those needs. The work was organised into five workstreams:

1. **Problem understanding:** exploring and better understanding the current impact of falls within Essex and to identifying key user groups who could benefit from such technology.
2. **Requirements gathering:** for developing wearable technology for the lower limb designed to detect changes in gait and balance and alert to an increased risk of falling.
3. **Initial technology scoping:** identification of potential commercial off the shelf (COTS) technologies that could be used to develop the wearable technology.
4. **Use case creation:** based on the primary and secondary research conducted in previous stages, the use cases formed the basis for concept ideation and creation.
5. **Summary findings and benefits case:** capturing the summary findings from the discovery phase including the insights from the observation exercises, the requirements, and prioritised use-cases; along with detailing the benefits framework, benefits case, and implementation plan.

Stakeholder engagement and user research

A number of techniques were used to effectively engage with a broad range of stakeholders across the health and social care system in Essex:

- **innovation ‘art of the possible’ workshop:** a facilitated ideation workshop to create a large number of ideas for how technology can be used to address the impact of falls
- **observations:** three observations at healthy balance classes and in care homes
- **1-2-1 service user interviews:** five 1-2-1 interviews with existing service users - conducted through a combination of telephone and face to face
- **focus groups:** two focus groups, consisting of a service provider and a healthcare professional cohort, were held to test 64 desk-based research requirements and gather new insights and possible requirements for wearable technology

Benefits of the proposed solution

The council has identified the following benefits as having resulted from the discovery phase (note that most of the benefits at this stage have been non-financial/non-quantifiable):

- the project can be used as a case study to aid the council in their thinking about roles, engagement with the public and the self-management agenda

In the implementation phase, the council proposes to achieve the following benefits:

For service users:

- reduced likelihood of falling due to improved strength and balance
- improved quality of life and the potential to continue living independently for longer
- improved confidence from regularly engaging in an exercise regime
- increased motivation - the digital solution can provide features such as league tables of local service users that encourage healthy competition
- reduced social isolation as the app connects people through features such as league tables

For informal carers:

- peace of mind as they can follow the cared for person's exercise progress and be less worried about them falling

For healthcare professionals:

- reduced pressure on the system, meaning professionals can both direct their attention to those people deemed at risk of falling and maintain contact to encourage continuation of exercises after the short run of prescribed classes
- freed up resource that can be directed to adopting a preventative approach to reduce further likelihood of falls

For service providers:

- a strong business case for continuing and expanding the programme. Service providers will be able to show the value and success of their program via the data captured by the digital solution

Local health and social care economy

- positive financial benefits case as a result of reduced falls related activity across the system.

Key strengths of the project

1. **System-wide engagement:** The solution is founded on insights from extensive user research and engagement from the health and social care system
2. **Positive feedback:** The team have received positive feedback from early usability testing with paper prototypes
3. **Comprehensive benefits:** The digital solution has multiple benefits for a range of stakeholders including: users, informal carers, healthcare professionals and service providers
4. **Leading edge:** the digital solution will allow the local authority to position itself at the pinnacle of leading-edge technology developments in this field
5. **Engagement with other local authorities:** there has already been engagement with and interest from other local authorities regarding the next phase of work to develop, implement and test the solution in different settings.



The potential impact

The team believe that the discovery phase of the project has been more beneficial than they had originally hoped as they allowed their research to modify the project's focus and developed a more user-centred solution.

During the implementation phase, the team plan to recruit 30 users to participate in the 'smart sock and app' group and 30 users who will form the control cohort. To test the success of the solution, the team plan to collect output data on completion of the app's strength and balance classes and at six months post-completion of the classes for the following outcome metrics:

- Berg Balance – a 14 item scale designed to measure balance of older adults
- Timed up and go test – a test to determine fall risk measure balance (sit to stand and walking)
- Falls Efficacy Scale – a tool that measures a person's concern about falling in 16 scenarios

The team have identified the following success factors:

- improved strength and balance for service users, measured by increased average Berg Balance scores
- a reduction in the number of self-reported falls
- a reduction in the number of ambulance call-outs

Challenges to delivery and lessons learned

1. System-wide questions need system-wide answers. The involvement of others and other organisations, including those affected by the issue or with different perspectives is essential. The answer will be better and ownership in the answer will be built easing implementation.
2. It is essential to commence and establish engagement with key users/stakeholders at the beginning of the project by organising a kick-off meeting so vision can be shared and to seek feedback at this very early stage.
3. Collaboration with other councils who are interested in addressing the same issues will enhance the final outcome and potential reach of the project.
4. It is important to invite more stakeholders to engagement events than you think as engagement uptake can be variable, especially in the summer.
5. Be prepared for the initial hypothesis to change – emphasis changed from detection of falls in the original problem statement to a solution framed around supporting strength and balance classes, as a result of conducting the user research.
6. The problem question needs to clearly articulate both the issue and desired outcome. Once developed it is important to stay focussed on it.

Next steps, including sustainability and spread

There is potential for scalability and replicability. The council is planning to develop the first version of the digital solution to be used with service users. There is an accompanying development road-map that will introduce additional features and functionality over time in response to initial feedback. Whilst development of the digital solution is important, the accompanying service design is critical. When scaled to other areas, localisation will be an important factor i.e. a rural locality with physical access issues may require a slightly different service model to more urban areas with better transport links and closer classes. Going forward, the team plan to test the prototype and develop the digital solution iteratively, allowing multiple opportunities for feedback and redesign. The council has already established good links with other interested councils.

Contact

- Stephen Nash: stephen.nash@essex.gov.uk

Link to relevant documents

Essex County Council Discovery Phase review report:

<https://www.local.gov.uk/sites/default/files/documents/Essex%20Discovery%20Phase%20Review.pdf>