



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:

Discovery phase review

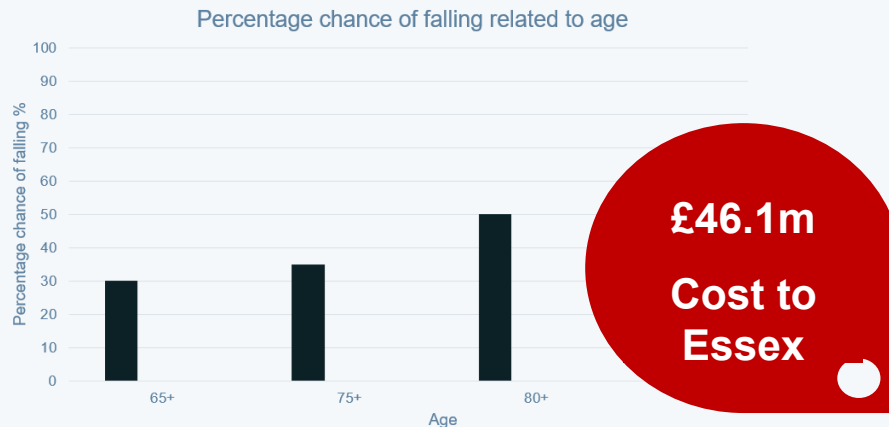
September 2019

Funded by NHS Digital

Bringing Ingenuity to Life
paconsulting.com

Background: Falls

- Leading cause of accident related mortality
- 400+ risk factors associated with falling.
- 30% chance of fall if 65+ years, 35% chance over 75 years, 50% chance of falling if 80+ years
- If you fall once you are 2-3x more likely to fall again
- Leads to loss of confidence, decreasing activity levels and social isolation



Evolution of problem statement

To explore and understand users' requirements for a wearable technology for the lower limb to capture real-time information on gait and balance enabling detection of an increased risk of falling



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?

Research methodology



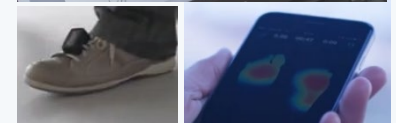
Observations: Healthy balance classes and care home (3)



Interviews (5)



Focus groups (2)



Example socks to promote discussion

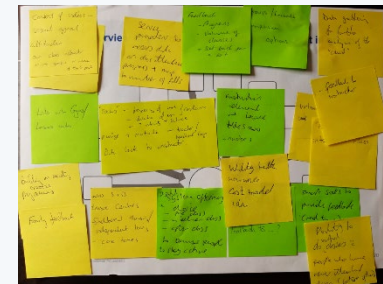
Wearable and sensor requirements prioritisation results from focus groups



Testing of desk-based research requirements (64) in focus groups

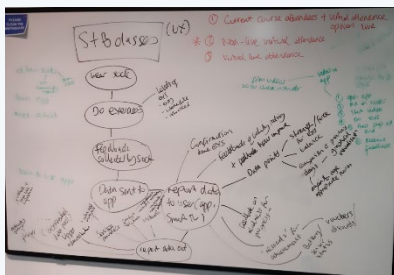


Workshop

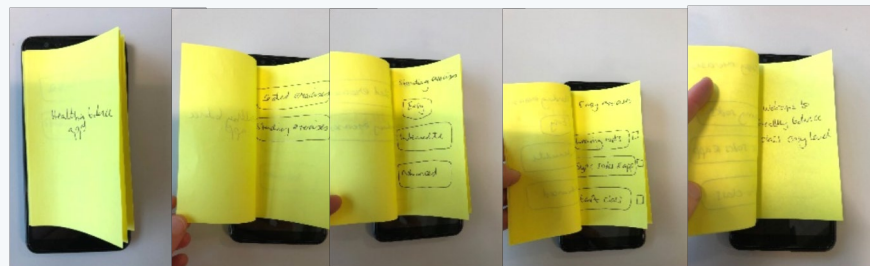


Idea generation

Horizon scanning (4)



Post workshop discussion



Paper prototyping of solution

Exploring the problem to solve

"We don't just want to identify people (at risk of falling) and do nothing with it (support them)."

(Service provider focus group)

"Going into hospital took away my independence."

(Resident interview)

"It would be useful to have the figures – know where the highest number of fallers are coming from, you could target the resources here."

(Service provider focus group)

"Exercises are boring."

(Resident interview)

"I would do anything to help my walking."

(Resident interview)

"People don't want to see themselves as getting old."

(Service provider focus group)

"Increased fear is associated with increased risk of falls."

(Professional carers and Healthcare professionals focus group)

"I can't see any progression (doing the exercises)."

"I see what I can't do but not what I can do!"

(Resident interview)

User journey map for being referred to and attending the healthy balance class

Step 1: Identify person

- History of falls
- Poor score on Berg Balance tests, Timed up and go (TUAG) tests
- Observation from carers, family
- Self awareness of declining balance

Step 2: Referral

- Referrals from GP, physio, healthcare professionals, self referral

Step 3: Assess suitability for class

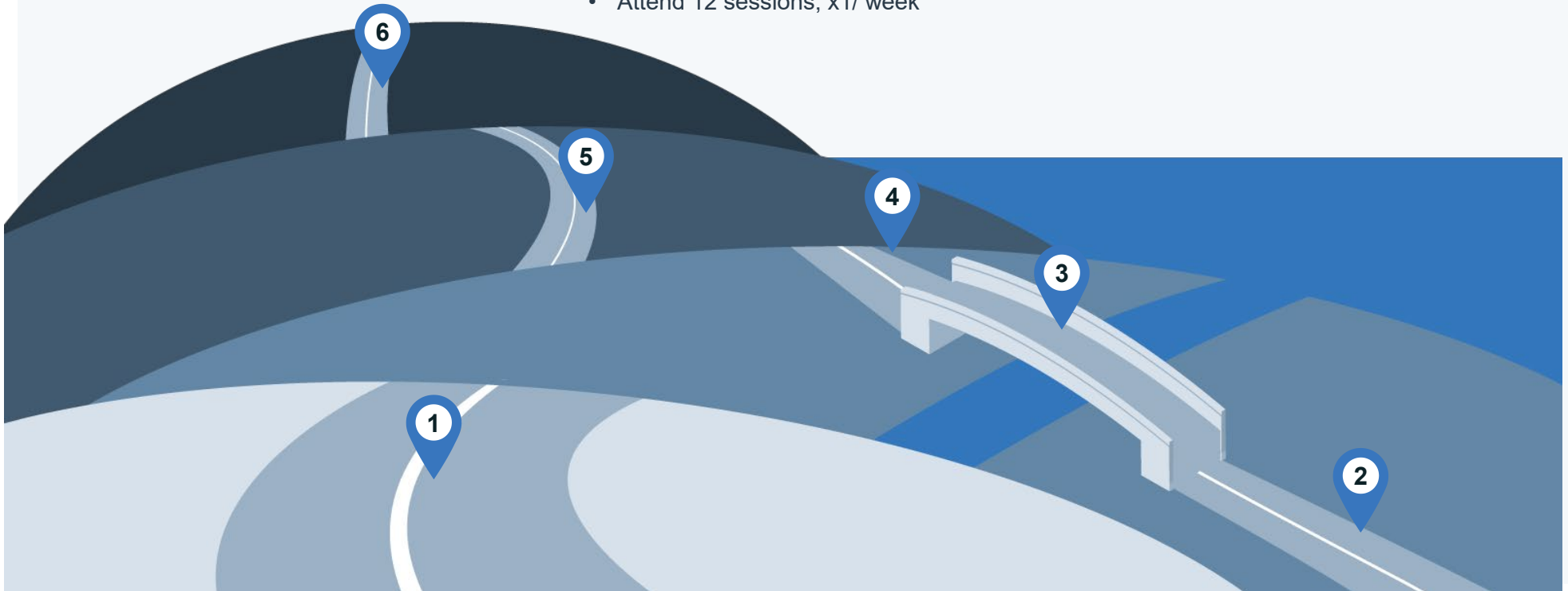
- Based on referral data, inclusion and exclusion criteria

Step 4: Attend class

- Attend designated/ chosen class location
- Attend 12 sessions, x1/ week

Step 5: Discharge from class

- Discharged following 12 sessions with exercise plan to continue with
- Option to continue via self-funded progression class



Insights derived from user research were used to formulate user needs

As someone who should be doing my exercises

I need to see the benefit of the exercises I do

So that I am motivated to continue with them.

As someone who needs encouragement to do exercises

I need to be watched doing my exercises

So that I am motivated to do my exercises.

As an exercise instructor for falls patients

I need classes/ exercises to not label people as fallers

So that people are encouraged to attend/ participate.

As someone who has been given exercises

I need exercises to be creative

So that I want to do the exercises.

As someone who used to play league tennis

I need to have a goal to work towards

So that I am motivated to continue **my exercises**.

As a healthcare professional assessing and treating patients who fall

I need to be able to offer a solution that is equivalent to Apple Tech on a Careline budget

So that it is effective and affordable.

As someone who needs to do my rehab exercises

I need to exercise in a group

So that I am motivated and can socialise.

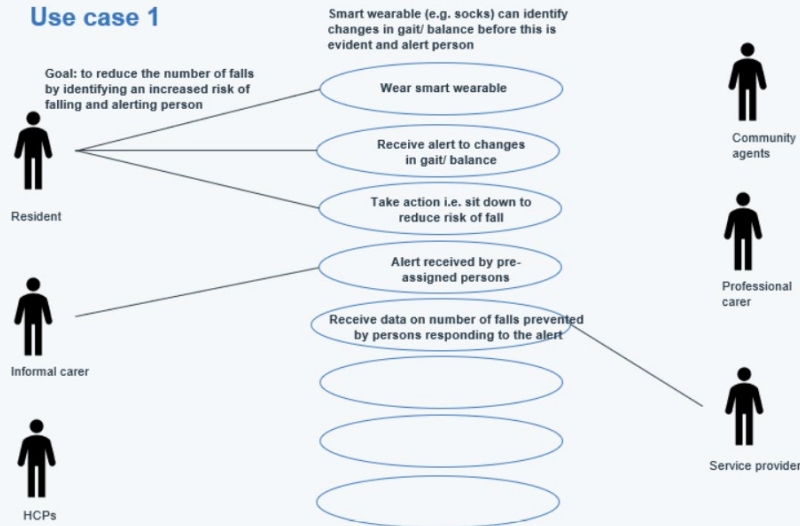
As a service provider

I need to provide a rehabilitation service that is effective and promotes adherence

So that I can demonstrate a reduction in the number of people falling.

Solution ideas

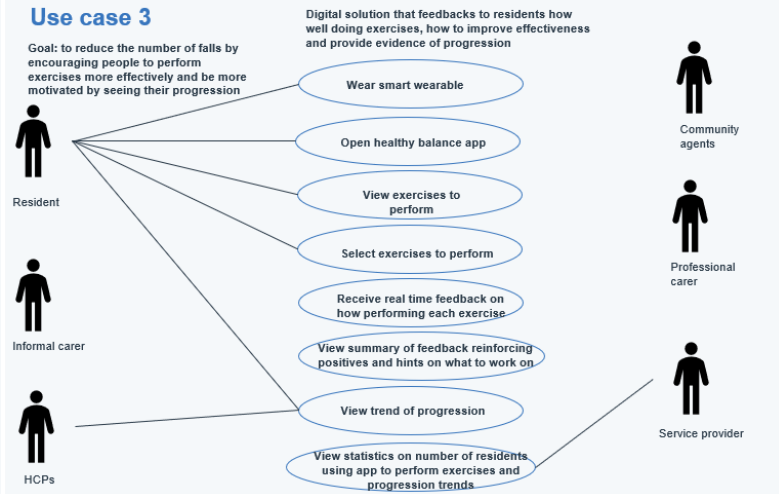
Use case 1



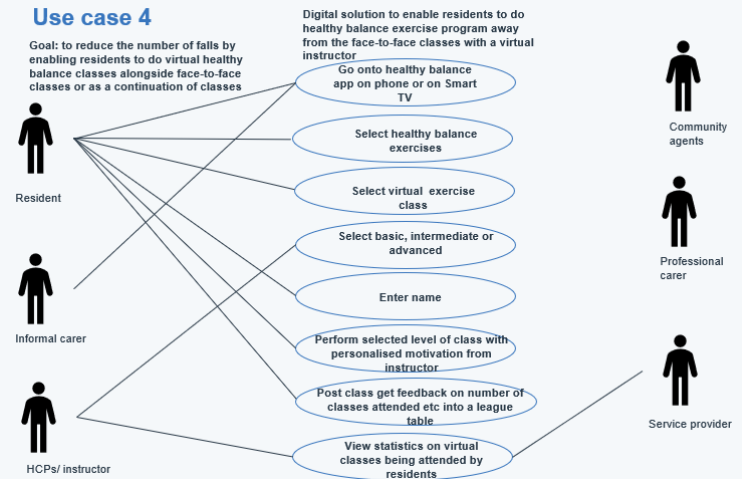
Use case 2



Use case 3



Use case 4



Solution ideas

Use case 5

Goal: to reduce the number of falls by understanding where falls occur within Essex so can target resource to these areas



Resident

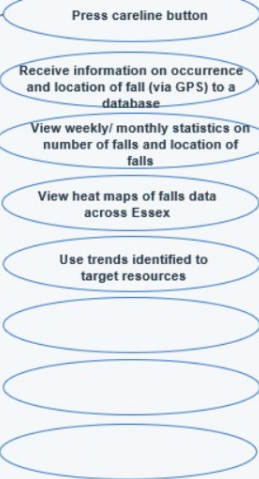


Informal carer



HCPs

Digital solution that can record the occurrence and location of a fall when someone presses their careline button



Community agents



Professional carer



Service provider

Use case 6

Goal: to reduce the number of falls by reducing social isolation (known to increase risk of falls)



Resident

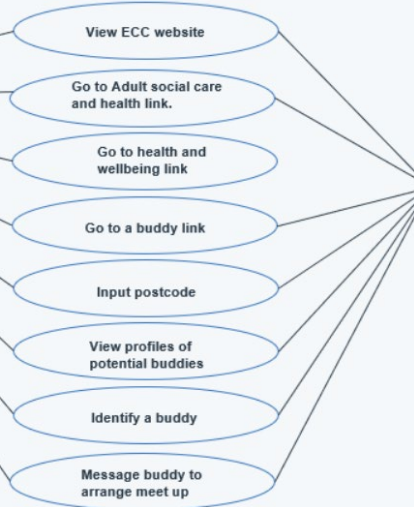


Informal carer



HCPs

Digital solution to enable residents to find 'buddies' who come into the care home.



Community agents



Professional carer



Service provider

Insight:

“It would be useful to have the figures – to know where the highest number of fallers are coming from, you could target the resources here.”

(Service providers focus group)

Solution rejected in the workshop due to requirement to provide a solution that directly helps to reduce the number of falls

Insight:

In a care home there was a poster advertising school children coming into care homes and buddying up with residents.

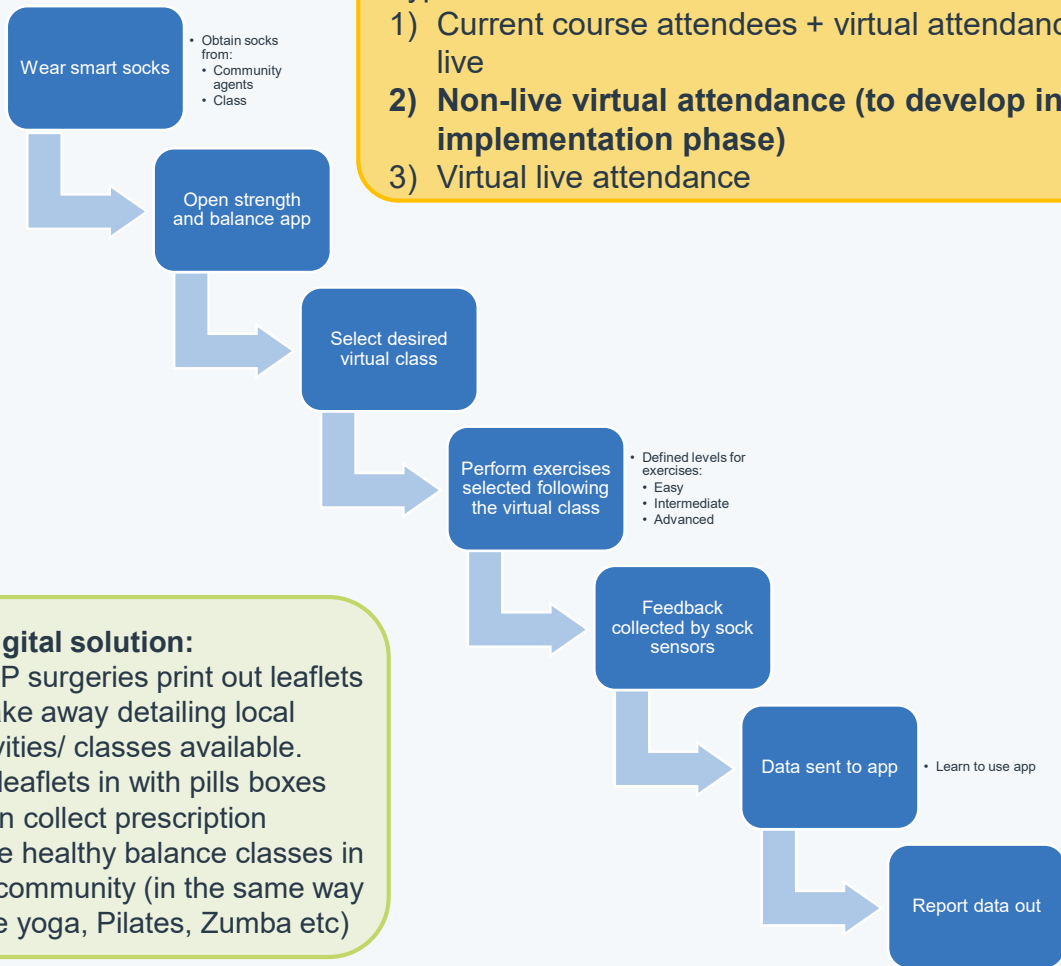
(Observation in care home)

Solution rejected in the workshop due to requirement to provide a solution that directly helps to reduce the number of falls (isolation is only indirectly related to falls risk)

Digital solution to improve adherence and motivation to perform Strength and Balance exercises away from face to face classes based on an amalgamation of use cases 1-4

Types of attendance:

- 1) Current course attendees + virtual attendance option live
- 2) **Non-live virtual attendance (to develop in implementation phase)**
- 3) Virtual live attendance



Non-digital solution:

- In GP surgeries print out leaflets to take away detailing local activities/ classes available.
- Put leaflets in with pills boxes when collect prescription
- Have healthy balance classes in the community (in the same way have yoga, Pilates, Zumba etc)

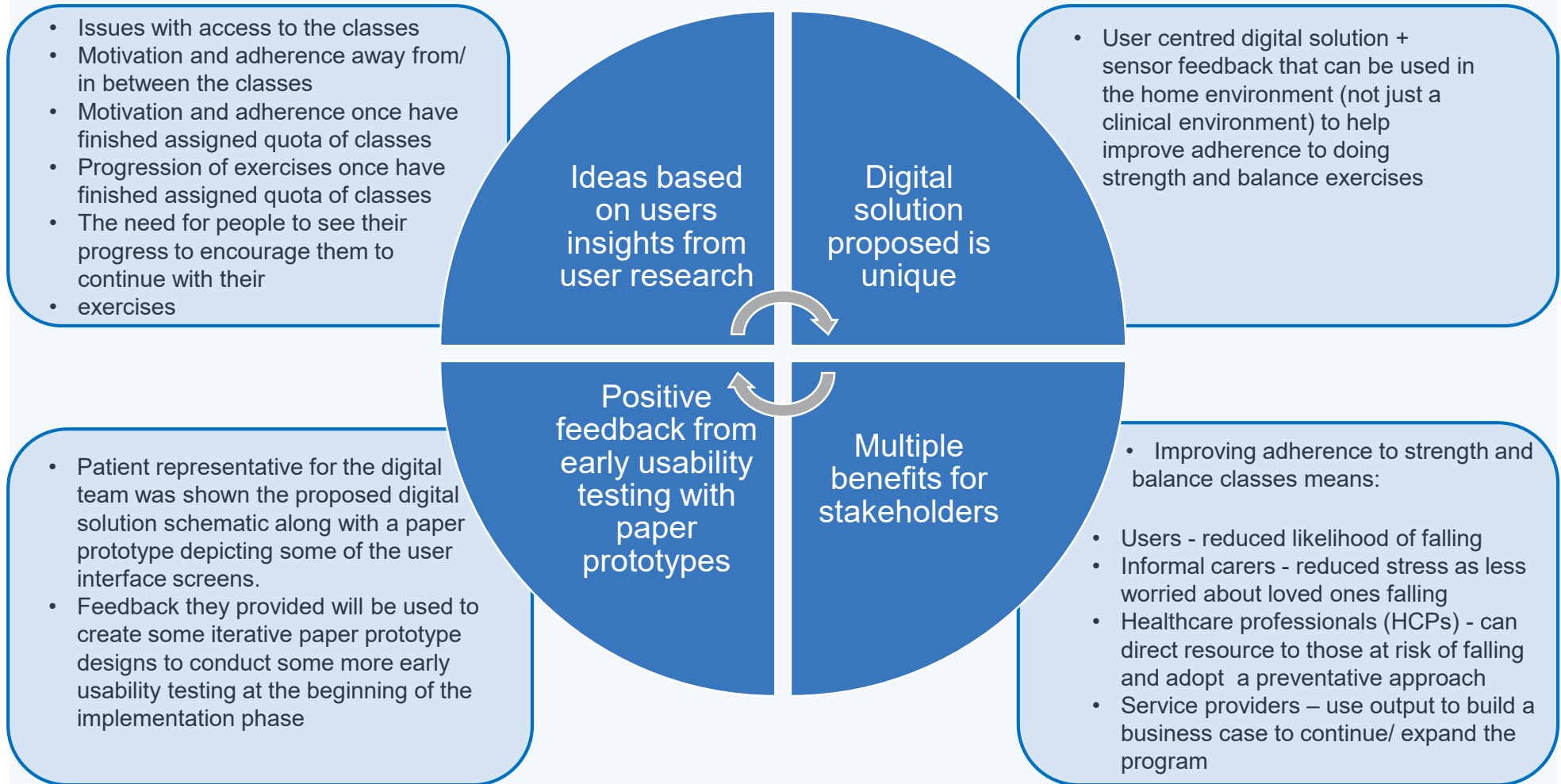
Data provided by app:

- Confirmation exercises done
- Feedback quality rating
- Data points:
 - Strength/ force produced whilst performing exercise
 - Balance %
 - Comparison with previous days data
 - Comparison against age appropriate norms
- Feedback how to improve
- Feedback on readiness for exercise progression
- Group messaging or 1:1 messaging
- Rewards for achievement (vouchers/ discounts)
- League table competition
- Battery/ sensor status

To:

- Exercising user
- Instructor
- Family and relatives
- Friends/ activity group
- Service providers
- Upper administration

Rationale for selected digital solution



Learnings from discovery phase process

- Commence and establish engagement with key users/ stakeholders at the beginning of the project/ pre beginning of the project by organising a kick off meeting with all stakeholders so vision can be shared and can seek feedback at this very early stage**
- Explore what other councils are doing and seek to collaborate where shared topics/ visions exist to enhance activities, outputs and potential reach of the project**
- Cast the net wide as engagement uptake can be variable, especially in the summer**
- Be prepared to be flexible mid field work**
- Be prepared for 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.**
- Be prepared to be surprised by findings!**
- Keep referring back to and refining the problem statement**
- Think about outcome measures throughout the discovery phase**