

BIGMOTIVE



Technology Enabled Care (TEC) Discovery



Overall Findings

Project Background , Key Insights and Recommendations

May 2024

This report details the **overall findings** of the TEC discovery research, for exploration specific reports please visit the [DHCNI website](#).



Overall Findings



Hypertension



Care Homes



Long-term Conditions



Hospital at Home



Telecare

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Overall Findings

Background

Project Background

BIGMOTIVE



Digital Health & Care NI (DHCNI) and Big Motive embarked on a Technology Enabled Care (TEC) Discovery Project to explore the potential of leveraging technology in healthcare delivery in Northern Ireland.

The project aimed to understand the opportunities and challenges to using TEC to improve patient care, streamline processes, and enhance overall healthcare outcomes.

Challenge Landscape



A need for a whole-system understanding and stakeholder buy-in to the concept of TEC.



A need to match the collection, analysis and presentation of data with the required review of the data and corresponding action / intervention.



A need to define the different types of TEC interventions, their objectives, and to understand how benefits can be realised within our health and social care system.



A need to ensure that incentives and cultures are aligned to facilitate effective collaboration across teams and organisations using TEC.



A need to identify the resources & changes required to enable TEC implementation.



A need to identify the impact that encompass might have on TEC, and opportunities to integrate/ optimise through My Care.

What is Technology Enabled Care?

- The use of technology (e.g. telecare, telehealth, telemedicine) to help manage health and sustain independence.
- Enables remote exchange of information between a patient and a healthcare professional to assist in diagnosing or monitoring health status.
- Enables a modern model of continuous, coordinated care centred on the individual.






Overall Findings

Approach


Sprint Process

The project followed a sprint process. Sprints are short, time-boxed periods of focus on a particular area of interest. The sprint process was repeated for each of the five explorations, adhering to agile principles including iterative development, flexibility to adapt to new information, and continuous collaboration with stakeholders to ensure alignment and relevance of the deliverables.

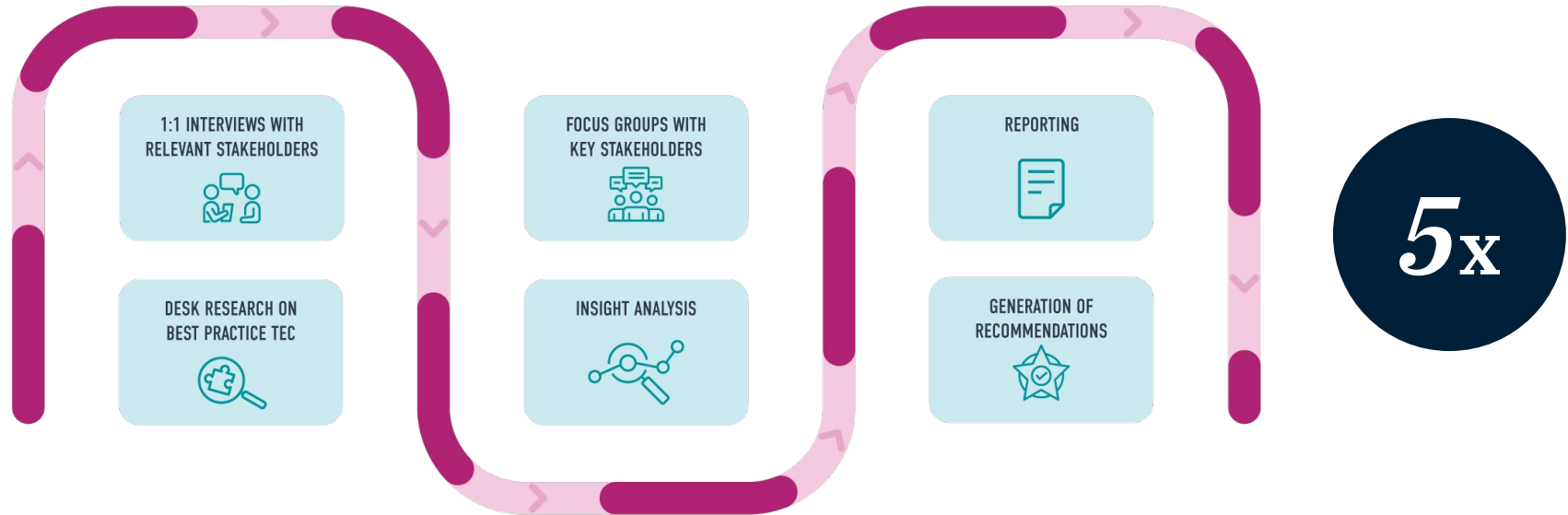
 Care Homes

 Hospital at Home

 Hypertension

 Long-term Conditions

 Telecare



Overall Research Engagement

203

Participants
contacted

33%

Response
rate

68

Total
engaged

26

1:1
interviews

42

Participants at
focus groups



- Service Users
- Health & Social Care Professionals

- Policy Makers
- Housing Association Officers
- Care Home Managers

- Carers
- Charity & Voluntary sector

Focus groups and interviews

1. Sarah has three children, but only her daughter, Olivia, who resides closely participates in her care planning during regular visits.

3. Sarah recently had a hospital stay for 2.5 weeks due to COVID exacerbation, receiving IV and oral antibiotics.

6. During the evening shift, a care assistant reports to the nurse in charge his concerns about Sarah's condition.

9. The clinical professional directs the nurse to use TEC kit for vital sign measurements.

12. A decision is made to continue remote monitoring for 12 hours. The nurse informs Sarah's daughter Olivia about her condition.



Desk based research imagery

Lifelight

Tablet or smartphone based hypertension monitor

- Can take an accurate blood pressure reading by a patient looking into any smartphone or tablet
- Contactless, with no additional hardware needed
- Can also take pulse and breathing rate readings

How it works

Advanced light sensors and reflect off blood vessels in the eye.

Hold the camera over a coronary artery, glenoid and the AFM takes 10 scans per second and sends the best 100 frames are averaged.

Lifelight technology is a reading without contact to the eye.

Enables non-invasive, contactless and non-invasive monitoring.

Lighting technology is a reading without contact to the eye.

Enables non-invasive, contactless and non-invasive monitoring.

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How it supports care

- Allows patients to take BP readings at home
- Uses tech which is already used
- Simple and supported by research
- Enables for remote consultations and monitoring
- Allows for use in all skin types
- Enables being used in all settings

BigMOTIVE

FreeSty

Continuous Glucose

- Real-time gluco smartphone
- Direction of glu
- Real-time repto smartphone an

How it works

Uses a thin, flexible sensor that is inserted just under the skin to measure glucose in

Small and discrete

How it supports care

Increases data in

Optional alerts readings for pre hypogly

100% Central Research

1. Central research

2. Clinical research

3. Therapeutic research at home

To Review

Empatica

Health Call

PainChek

Remote Monitoring for ARI

Dichner Connected Mom

Post-Operative RPM

Andi

Sensio365

Anthropos Pro

Artefacts Created

Created for research stimulus
and inspiration

- Current-state journey maps
- Future-state journey maps
- Lightning demos of TEC examples
- Current-state storyboards
- Future-state storyboards
- Framework prototype
- Micro-site prototype



Overall Findings

Insights

INSIGHT 1

Participants were positive and enthusiastic about the potential impact of TEC.


Participants throughout the 5 explorations expressed positivity and enthusiasm regarding the potential impact and benefits of TEC to improve service delivery and maximise patient outcomes.

Examples of the existing successful application of TEC in areas such as hypertension management provide motivational case studies which should be further publicised to leverage additional support.

Participants believed that TEC could help address challenges such as capacity issues, complex patient pathways, and support patient and carer empowerment.

“The cost of people having to use care services is massive. Keeping people independent for longer [through the use of TEC] would save the Trusts money, that's a big encouragement.”

“It would be a big mistake to ignore tech advancements.”



The biggest motivator is if TEC improves patient outcomes and keeps them out of A&E or waiting in ambulances.

- Care Home Manager

INSIGHT 2

Despite the positivity surrounding TEC, recruitment was challenging.

Despite the enthusiasm and support offered by the individuals who participated in the project's research activities, recruitment proved to be a challenge.

Of the 210 individuals who were identified and offered the opportunity to participate in the research, only 33% participated in a research session. Whilst a small proportion of these individuals could not attend due to diary limitations, the majority were non-responders.

Further work must be undertaken to understand ways to encourage a greater range of stakeholders to participate in future research activities in this area.

Patients and carers expect TEC in their health and care journey.


With the extensive use of smartphones, tablets, watches, and other devices for managing work and life, digital natives [1] naturally anticipate technology playing a significant role in their health and care journeys.

Research participants saw TEC as a way to empower patients, enabling them to assume greater control over their health while fostering transparency and facilitating access to their data.

A 2023 report by the NHS Confederation and Google Health found that 72% of over 1,000 UK adults surveyed would use technology to avoid a hospital admission [2]. The report stated that a similar proportion would support the use of technology to monitor their health and share data with their doctors.

[1] [Digital Immigrants vs Digital Natives: Closing the Gap, Unicheck.com, September 2015](#)

[2] [Patient empowerment: what is the role of technology in transforming care?, NHS Confederation, June 2023](#)



*It's my dream to see tech used
more in health and social care*

- *Service User, Southern Health & Social Care Trust*

INSIGHT 4

Successful TEC implementation will require change management to enable a culture shift.

Integrating TEC will require a shift in work processes, requiring staff to retrain and redesign current services.

Additionally, it will change decision-making processes, given the substantial data generated by technology that requires analysis and feedback to patients.

There is a concern that the HSCNI workforce is under significant pressure and the integration of TEC could add to workload, which has resulted in resistance to change.

No matter what way the tech and its management is rolled out, it will all need extra resource, training and processes.

“Staffing is a huge problem for us at the moment, have we got the resources to cover this technology?”



We need to promote a culture of change, self-management and education

- Focus Group Participant, TEC for long term conditions

INSIGHT 5

The current system is not ready for TEC. Capacity, infrastructure and strategy need addressed.

Participants described pressures facing their services and impacting their ability to provide care. They could see the potential for TEC to help meet needs however, were wary that current system pressures would impact their capacity to implement solutions.

Design supports organisational reform and system change. Considering the perspectives of the four orders of design (Fig. 1) ensures that products and services are integrated into a system designed for success.

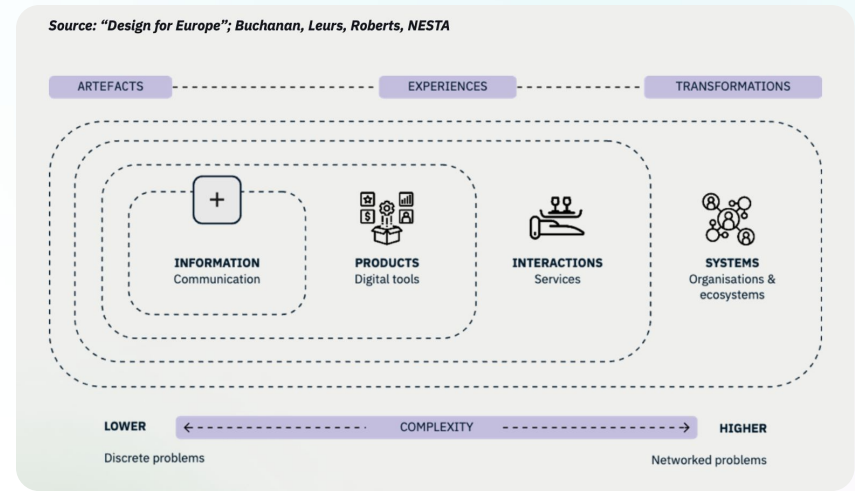


Fig 1. Four Orders of Design



*We need confidence in the
system and ongoing IT and
physical support*

- Department of Health

INSIGHT 6

There was uncertainty about TEC's impact on human interactions and, ultimately, health inequalities.

Some research participants were concerned that implementing TEC could lead to more significant health inequalities and increased social isolation (this was most prevalent in the Telecare and Hospital @ Home explorations).

There was also potential confusion about the differences between TEC and digital health tech.

Some research participants highlighted examples where TEC had failed to work correctly, such as personal alarms not raising alarms correctly. However, they also spoke about the number of successful cases in which TEC resulted in more rapid human intervention.

Some research participants also felt that TEC would positively promote self management and patient independence.



*There's a big concern of tech
replacing people and care
homes filled with tech*

- Commissioner for Older People for
Northern Ireland

INSIGHT 7

There were contrasting views on whether TEC should be standardised and centralised and/or provide room for innovation and be decentralised.

Establishing clear policies and procedures is essential for overseeing the implementation of TEC.

Research participants asked for a balance, as strict processes can stifle creativity, experimentation and innovation.

Some participants wanted to see a centralised hub for TEC monitoring but others wanted ownership of TEC implementation and monitoring.



*Trying to get standardisation in
is like pulling teeth*

- *Regulation and Quality Improvement Authority (RQIA)*

Closing Remarks

I'm excited, there's massive potential... it needs to happen.

- Hypertension interview participant

Asking if you can use TEC should be the new normal.

- Hospital at home interview participant

Where do we start?

- Care homes focus group participant

Please keep me in the loop.

- Long term conditions interview participant

The ideal output of this work is that it happens.

- Care homes focus group participant



Overall Findings

Challenges and Opportunities

Challenges

Processes Challenges:

- Lack of regional policies and procedures for implementing TEC
- Variation in Trust processes emphasising the need for a standardised approach
- Lack of funding
- Too many pilots & lack of evaluation
- Complexity in patient pathways impacting capacity (see next slide)

Technology Challenges:

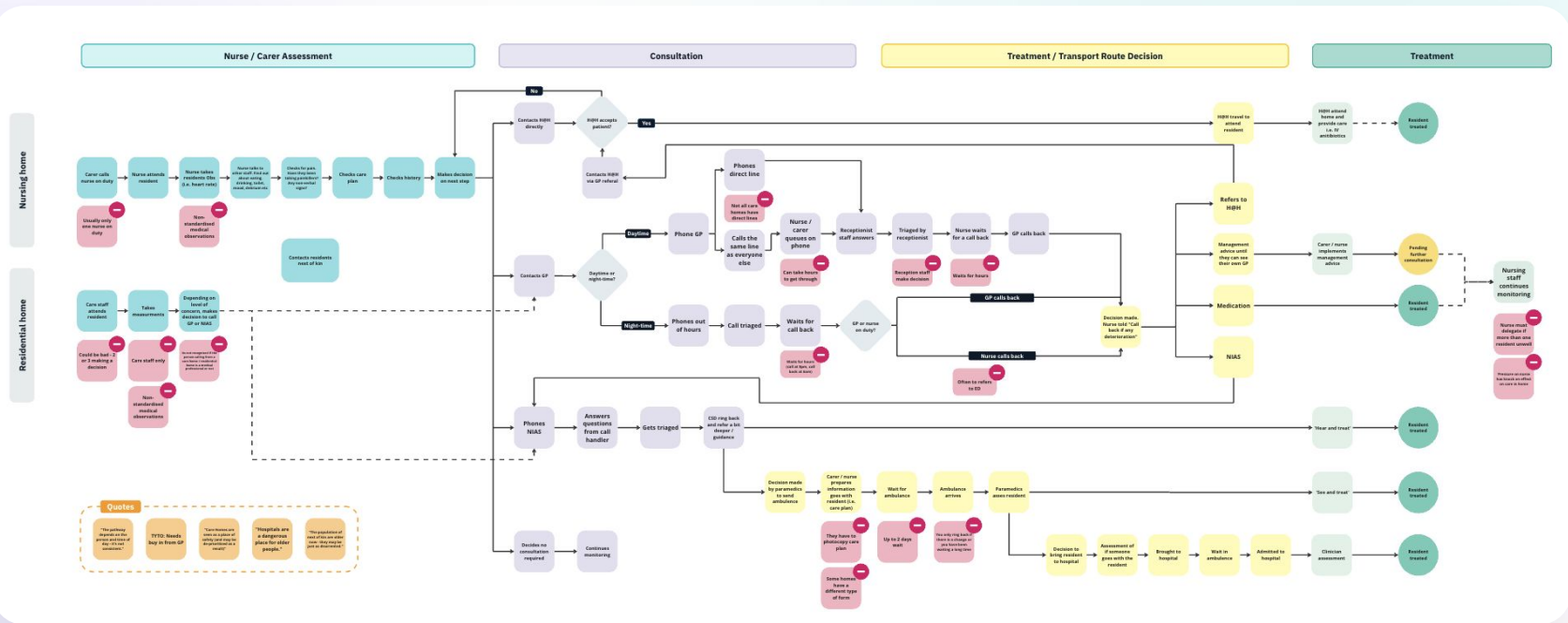
- Lack of basic connectivity (i.e. Wi-Fi infrastructure)
- Lack of connected health and care (primary, secondary and community)
- Concern about the accuracy and reliability of TEC

People Challenges:

- Capacity for future planning
- Concern around consent, data capture, use and storage
- Lack of TEC awareness including definition, examples and benefits
- Teams lack a digital mindset

Challenges

Complexity in patient pathways impacting capacity



Opportunities

- Using TEC assessments to improve patient pathways and engagement with appropriate HCP
- Improve capacity resource management challenges through remote monitoring
- Address gaps in health and social care
 - ◆ LTC - remote monitoring between acute episodes
 - ◆ H@H - remote monitoring for less acute patients
- Improve awareness and ownership of patient health and care
 - ◆ Ability for users to monitor their health and learn how best to manage care
- Connected and more informed health and care through shared patient data (this will be achieved through encompass)
- Collection of population health data to identify trends and inform future services

 Overall Findings

Recommendations

RECOMMENDATION 1

Policy co-design

Commit to a TEC policy co-design project that engages cross-departmental leaders, stakeholders and the public.

The policy should include guidelines for the safe and responsible use of health technologies, procedures for safeguarding patient data, protocols for quality assurance, and the promotion of interoperability/data sharing and cost/resource allocation.

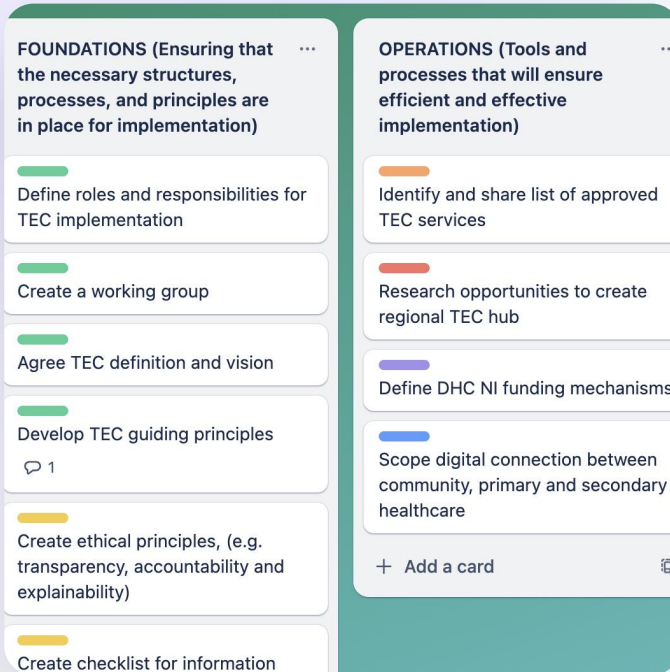


***TEC POLICY
CO-DESIGN***

Development of TEC Implementation Framework

Including:

- Put foundations and processes in place for successful TEC implementation
- Support teams with education, training and infrastructure challenges
- Facilitate Collaboration & Communication between Team
- Focus on Continuous Evaluation and Improvement



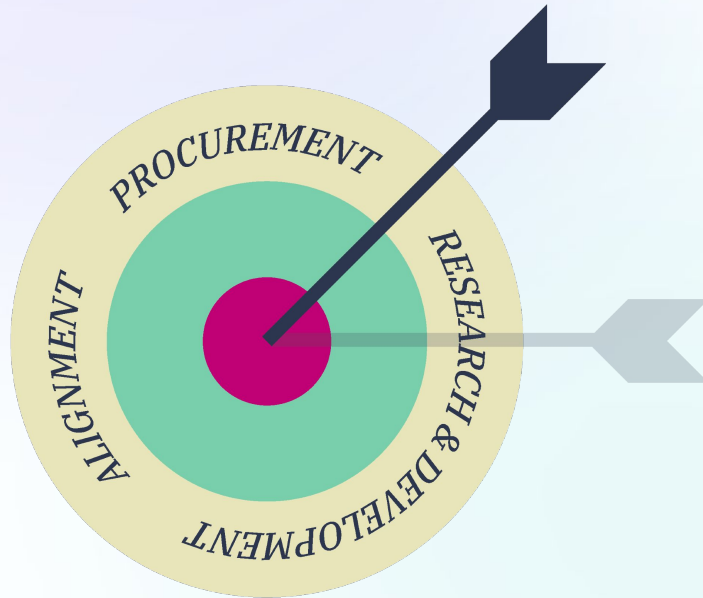
RECOMMENDATION 3

Focus on Awareness and Education

Raise awareness of what is available and potential benefits of TEC through workshops, lunch & learns, community engagement.

Understand the gaps in education and define a training programme to upskill teams in the successful commissioning and implementation of TEC.





Understand and communicate funding models

- Define funding models for TEC implementation and share with commissioning leads.
- Improved procurement, increased involvement in R&D and better alignment with Universities would improve the funding of TEC.

RECOMMENDATION 5

Create TEC support and implementation teams

Research participants described a lack of support for the implementation of TEC and many did not know who was ultimately responsible for TEC within the Trusts or the Department.

The creation of support teams and champions (similar to the QI initiative) would improve standardisation and successful implementation.



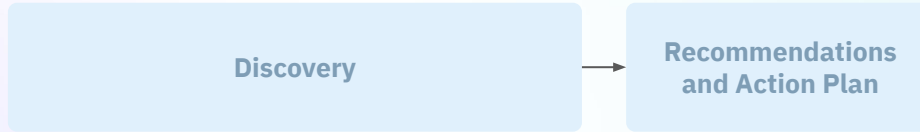


Overall Findings

Next Steps

Next Steps

Phase 1



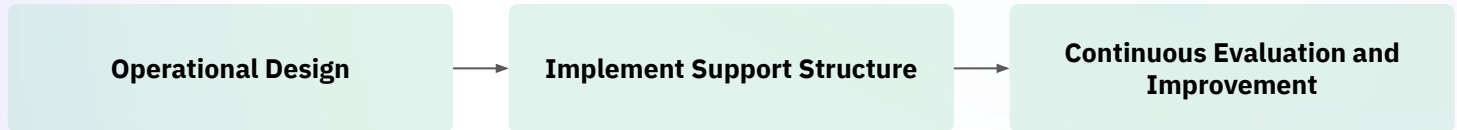
Phase 2



Phase 3



Phase 4



Moving Forward

This discovery has provided a better understanding of TEC appetite, challenges, implementation requirements and opportunities for adoption.

In the next steps of this work, DHCNI are seeking to address key challenges raised across this discovery through implementing the recommendations detailed in this report.

If you are interested in keeping up to date with ongoing work, please visit the [DHCNI website](#).

If you would like more information about this work please contact: Linda.McRandle@hscni.net or DHCNIContact@hscni.net

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