

Delivering Innovative eHealth Services at Scale: Implementers' Views on Achieving 'Buy-In'

Ruth Agbakoba,
Nick Watson,
Frances S. Mair,
Institute of Health & Well-Being
University of Glasgow
r.agbakoba.1@research.gla.ac.uk
FirstName.LastName@glasgow.ac.uk

Marilyn McGee-Lennon,
Matt-Mouley Bouamrane
Dept. of Computer &
Information Science,
University of Strathclyde,
Scotland,
FirstName.LastName@strath.ac.uk

The Living It Up project (LiU) is part of a £37 million UK-wide programme entitled Delivering Assisted Living Lifestyles at Scale (dallas). LiU aims to empower the people of Scotland to improve their health and well-being whilst enhancing their quality of life through innovative inter-connected technologies and services at scale. This study sets out to understand the experiences of 'implementers' and determine their views on the factors which can promote or inhibit successful implementation of a large-scale innovative eHealth deployment. N=6 semi-structured interviews have been conducted to date, and a further 12 are being conducted in order to capture how the views of implementers change over time. Normalisation Process Theory (NPT) is being used as the underpinning conceptual framework for the study. In this case-study, we focus on the NPT domain of 'Cognitive Participation'. Initial findings highlight the difficulty of innovating at scale. For example, it became clear throughout our interviews that 'co-designing' innovative products and services takes time. This means that 'polished' end-products are not available immediately which in turns makes it more difficult to sustain enthusiasm and engagement from co-design activities participants. Also, personal communication has been a key driver of enrolment. However, this approach is difficult to sustain at scale. Further follow up of the implementation journey will allow us to gain valuable insights into the barriers and facilitators in the deployment of large-scale eHealth initiatives.

eHealth, Digital Health, Wellbeing, Engagement, Recruitment, Participation, Large-Scale, Implementation

1. INTRODUCTION

It is hoped that recent advances in the field of digital healthcare will provide a streamlined 'care journey' for patients, with reduced hospital admissions and cost savings to health services [1]. However, an important translational gap remains between the implementation and evaluation of localised pilot studies and generalisation to large-scale, main-stream services [2].

Our study seeks to understand the views and experiences of 'implementers' of large-scale eHealth initiatives and identify the factors which promote or inhibit successful implementation. In particular, the study aims to shed light on the varying factors affecting 'buy-in' (*engagement, recruitment and participation*) and how these impact on normalization (*embedding, integration and sustainability*) of an intervention [3].

2. BACKGROUND

2.1 The Living-It-Up Programme

Living It Up (LiU) is one of 4 large-scale consortia funded through the innovate UK Delivering Assisted Living Lifestyles at Scale (dallas) [4,5]. LiU is a collaborative consortium of over 30 organisations led by NHS 24, The Scottish Centre for Telehealth and Telecare (SCTT), Scotland's National Health Service telehealth and telecare organisation.

LiU activities span across 5 NHS health boards across Scotland: West Lothian, Forth Valley, Highland & Islands, Moray and the Western Isles. It aims to enrol participants from both rural and urban areas.

The programme is deployed according to four implementation phases:

- 1) *Solution Exploration* which focuses on eliciting requirements from potential users, including health professionals, patients and carers
- 2) *Prototyping*. This phase focuses on the iterative 'co-designing' and 'co-producing' of eHealth solutions
- 3) *Development of new Products and Services*
- 4) *Scaling up Commercialisation of Products and Services*.

As the result of phases 1 & 2, four key services are now being offered to consumers:

- **Shine:** aims to enable people to identify their skills and talents and are encouraged to 'give-back' to their local community in order to build stronger more cohesive communities.
- **Discover:** is an information resource supported by A Local Information Systems for Scotland (ALISS) a national database which provides users with 'trusted' information about a range of organisations, services, events in their local area.
- **Connect:** is a video-conferencing service which enables users to remain connected to their 'circles of care' as well as providing remote clinical consultations between patients and health professionals.
- **Flourish:** is a service targeted at the over 50's and people with a long term condition (specifically Coronary Obstructive Pulmonary Disease, COPD and Heart Failure, HF). The use of a text messaging service and telehealth / home remote-monitoring service are some of the key tools provided to help people manage their own conditions.

2.2 Normalisation Process Theory

To facilitate understanding of the factors affecting implementation we used Normalisation Process Theory (NPT) as a means to explain the social processes and actions that frame the 'work' of implementation [6,7]. NPT is a sociological theory widely used to understand 'change processes' involved when implementing, embedding and integrating new technologies and services in practice [8-12].

NPT makes reference to four distinct generative mechanisms namely *Coherence*, *Cognitive Participation*, *Collective Action* and *Reflexive Monitoring* [6,7]. Each NPT construct consists of four sub-domains which highlight the necessary social actions involved in achieving sustainability and integration into routine practice.

For the purpose of this report, we specifically focused on the NPT domain of the *Cognitive Participation*. The second domain *Cognitive Participation* relates to the relational work of 'engagement' and how to ensure participants 'buy-in' and sustain an intervention. The introduction of a different set of practices due to a new intervention may require individuals to re-organise themselves in order to collectively contribute to the new set of practices.

The components of this domain are

- 1) *Initiation* which places emphasis on the key individuals engaged and participating in implementation and whether they are willing to drive it forward.
- 2) *Enrolment* which looks at whether participants actively participate and 'buy-in' (are recruited) to the new intervention.
- 3) *Legitimation* is a very important component which looks at whether participants believe it is right for them to be involved, and equally if they feel that they can make a valid contribution.
- 4) *Activation* specifically focuses on whether people sustain their involvement in the new intervention or simply eventually withdraw.

3. MATERIALS AND METHODS

3.1 Study Design, Participants & Data Collection

Ethical approval for this study was provided by the University of Glasgow, MVLS Ethics Committee to carry out this study (ref: 200130029). Semi-structured interviews were held with n=5 local level implementers of LiU (the project managers of each participating health-board) and one further interview was conducted with the national strategic lead for the project. Each interview lasted approximately 60 minutes and were transcribed verbatim. The interview questions were designed in line with the NPT framework [6,7].

Each transcript was subject to theory-led qualitative analysis with reference being made to the Ritchie & Spencer (1994) thematic framework for data interpretation (*familiarization; identifying a thematic framework; indexing; charting, mapping and interpretation*) [13].

We drew upon the published material concerning NPT to develop the coding framework which accords to the core components of this domain. Researchers within the team were consulted to validate the coding of data during 'coding sessions', each session running approximately 2 hours in duration.

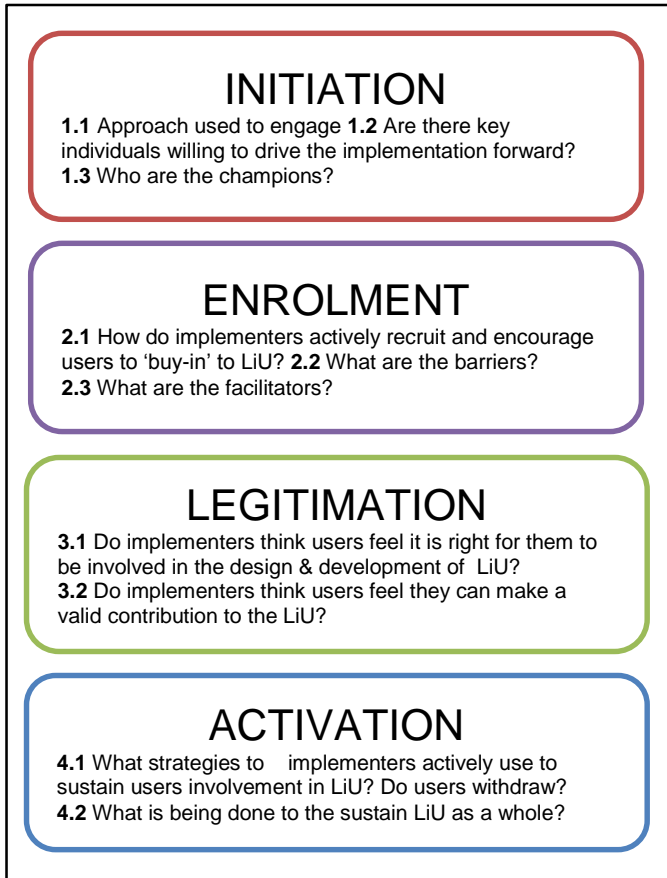


Figure 1: Coding Framework used for Data Analysis

4. RESULTS OF THE CASE STUDY

Figure 1 illustrates the cognitive participation subset of the coding framework developed for the purpose of this study.

4.1 Initiation

In the first phase of the implementation ('*Solution Exploration*') local implementers used a two-fold approach, consisting of holding user engagement 'pop-up' events and using *co-design* as a way to ascertain the needs of the intended users.

Co-design can be defined as 'a set of tools used by designers to engage non-designers by asking, listening, learning, communicating and creating solutions collaboratively'¹.

The aims of this strategy are to 1) *Engage* with potential users and stakeholders from the outset in order to 2) *Design* collaborative solutions that are more likely to be adopted by end users.

Over the course of the implementation this strategy has emerged as a key driver in the design of the core LiU services. However, until a finished product is

rolled-out, LiU remains for many outside the implementation just a 'brand' or 'concept'. Achieving buy-in at this stage can be a challenge. For example, the fact that the LiU portal is not yet a finished, polished product is a source of confusion for visitors:

"That's the whole point of it! But I think they struggle with that concept because everybody is so much easier to criticise something that is developed than it is actually to influence the development of it so people are very good at criticising ideas that are you know somebody has taken the risk in developing...If you are sitting in your living room and you show your mum that she'll be like oh that doesn't work you know so trying to get the message to the end user that it's not meant to work, it's not meant to be finished, is actually a key challenge because in end user world 'prototype' means nothing"

[Implementer 6]

4.2 Enrolment

Each project manager during the initial phases of implementation is responsible for recruiting users in their respective areas. The approach commonly used has been face-to-face communication which seems to have been an effective approach to begin with. However there seems to be a challenge in trying to scale-up this recruitment approach.

"We gave a lot of flyers away, we sent a lot of emails out but that isn't where we get our numbers, where we get our numbers are definitely where we have a conversation with someone...it's the approach that works best..."

[Implementer 1]

In addition a Community Engagement Team (CET) was established at the beginning of the programme in order to elicit ground-level requirements from potential users using a variety of traditional and innovative tools and techniques such as prototyping and a recruitment tool newly designed to recruit local champions. However although these tools are readily available to be used, not all project managers have used them due to a lack of time to operationalise them.

"To be honest we haven't pursued that in great detail...I think sometimes within trying to implement the services and actually get the digital services up and running there is so many different ideas that sometimes these can get lost so you know good ideas like that can just end up getting de-prioritised with other ideas taking precedence"

[Implementer 6]

¹ <http://www.offbureau.com/co-design/>

4.3 Legitimation:

An important factor when users assessed whether to join LiU was the influence of branding. LiU is being led by NHS 24 in partnership with 5 NHS regional health boards and therefore in the eyes of implementers, this provided an ideal platform to promote services to potential users to potential users:

“As soon as you fit something within NHS, under the NHS banner people assume that it's trusted”

[Implementer 5]

Early indications suggest that an important factor promoting user 'buy-in' relates to what intended users can gain by joining, and to what extent they feel that they can ultimately benefit in terms of improvements to their current lifestyles. Implementers' felt it was important for users to perceive the benefits of being involved in the new services on offer.

“I think their expectation is that they'll get added value you know... they'll get something out of living it up that will either make their life easier or make the process faster or you know bring more clarity to some of the challenges that we have and they find themselves in on a day to day basis.”

[Implementer 6]

Implementers felt that all users had a potential contribution to make in shaping the new services. However, this message was sometimes difficult to get across due to people having a lack of understanding on how they could actively contribute:

“The first step is making people understand that they have got something useful to give back...and I believe that everybody has but if you ask people directly they would say ...oh I haven't got anything...”

[Implementer 3]

4.4 Activation:

Up-scaling has emerged to be a key factor for implementers in creating a sustainable project that will continue to run far beyond the official end date of the official programme. However tensions are beginning to emerge between meeting the projected aims of the project vs. the target numbers to be recruited to demonstrate scalability.

“I think the challenge is trying to scale and innovate at the same time...you know when you are innovating and you actually don't have a service and you are trying to co-design a service at the same time recruitment becomes a big challenge because people are thinking oh what am I being recruited too?”

[Implementer 6]

“I think so far just about all of the recruitment has been through face to face and that's not sustainable and...across the five areas, 55,000 people aren't going to be recruited by face to face contact”

[Implementer 2]

Further to this, it seems that *time* is a crucial factor and there is a general consensus that the use of co-design has been a rich but lengthy process; greater than originally anticipated due to sheer scale of co-design on this level. Recruitment has now been outsourced to a third party so that local implementers can focus their efforts and resources on meeting the program aims rather than (numerical) recruitment targets.

“Right...they will do these roadshows so they'll go, I think they do it for like lots of different health campaigns, they'll go to different shopping centres and they'll have their film, their video that they will play on their loop [...] So they will be out and about so and really doing a whole sort of sales things of getting people recruited and signed up...they will have their targets”.

[Implementer 2]

5. DISCUSSION

Although the deployment of LiU services is still in the early phase, implementers are able to gain a rich understanding of the factors affecting service implementation and the initial challenges concerning user 'buy-in'. The use of a conceptual framework such as NPT has provided us with a lens to assess the preliminary barriers, facilitators and risks to implementation at scale.

While getting extensive user input and involving stakeholders from the outset has the potential to increase the likelihood that the final products meet user requirements, the sheer scale and complexity of LiU means that the LiU portal and services are still being iteratively co-designed and thus the final product is not yet fully operational.

This means that potential users and stakeholders remain uncertain about exactly what they are enrolling into and thus the likely benefits for any given individual remains uncertain. The extensive co-design activities can slow the development of tangible end products making it difficult for potential users to see what they are going to gain.

There is therefore a risk to sustainability here as there are some early indications that some users that were initially recruited may be losing interest.

The challenge here will be for implementers to successfully sustain enthusiasm, motivation and involvement of users in future.

6. ACKNOWLEDGEMENTS

This research is funded through a Medical Research Council / University of Glasgow Doctoral Studentship.

7. REFERENCES

- [1] Ekeland, A G., A. Bowes, and S.Flottorp. Methodologies for assessing telemedicine: A systematic review of reviews. *International Journal of Medical Informatics* 2012; 81(1):1 -11
- [2] Steventon A et al. Effect of telehealth on use of secondary care and mortality: findings from the Whole System Demonstrator cluster randomised trial. *British Medical Journal* 2012; 344: e3874.
- [3] Bouamrane, M.-M.; Osbourne, J. & Mair, F. Understanding the implementation and integration of remote tele-health services; an overview of Normalization Process Theory. *Pervasive Computing Technologies for Healthcare (PervasiveHealth)*, 2011 5th International Conference on, 2011, 300-307, IEEE
- [4] McGee-Lennon M, Bouamrane M-M, Barry S et al. Evaluating the Delivery of Assisted Living Lifestyles at Scale (dallas) Proceedings of Design & Implementation of Independent & Assisted Living Technology, 26th BCS Conference on Human Computer Interaction, HCI2012 - People & Computers XXVI, UK,2012, eWic: <http://ewic.bcs.org/content/ConWebDoc/48790>, 2012
- [5] Agbakoba R, McGee-Lennon M, Bouamrane M-M, Watson N, Mair F. Implementing a National Scottish Digital Health & Wellbeing Service at Scale: A Qualitative Study of Stakeholders' Views. In Proceedings of 15th World Congress on Health and Biomedical Informatics - MEDINFO 2015, Sao Paulo, Brazil (in press).
- [6] May C, Finch T. Implementation, embedding, and integration: an outline of normalization process theory. *Sociology* 2009;43:535-54
- [7] Mair F, May C, O'Donnell C et al. Factors that promote or inhibit the implementation of eHealth systems: an explanatory systematic review. *WHO Bulletin* 2012, 90: 357-64.
- [8] Bouamrane, M.-M.; Osbourne, J. & Mair, F. Understanding the implementation and integration of remote tele-health services; an overview of Normalization Process Theory. *Pervasive Computing Technologies for Healthcare (PervasiveHealth)*, 2011 5th International Conference on, 2011, 300-307, IEEE
- [9] Bouamrane, M.-M. & Mair, F. A study of general practitioners' perspectives on electronic medical records systems in NHSScotland. *BMC Medical Informatics and Decision Making*, 2013, 13:58.
- [10] Bouamrane, M.-M. & Mair, F. A qualitative evaluation of general practitioners' views on protocol-driven eReferral in Scotland. *BMC Medical Informatics and Decision Making*. 2014; 14: 30
- [11] Bouamrane, MM and Mair, F. A study of clinical and information management processes in the surgical pre-assessment clinic-The Experience of the Dumfries & Galloway Royal Infirmary Preoperative Clinic. *BMC Medical Informatics and Decision Making* 14 (1), 22
- [12] Bouamrane, MM and Mair, F. Implementation of an integrated preoperative care pathway and regional electronic clinical portal for preoperative assessment. *BMC Medical Informatics and Decision Making* 14 (1), 93
- [13] Ritchie, J. and Lewis, J. 2003. *Qualitative research in practice: A guide for social science students and researchers*, London: Sage.