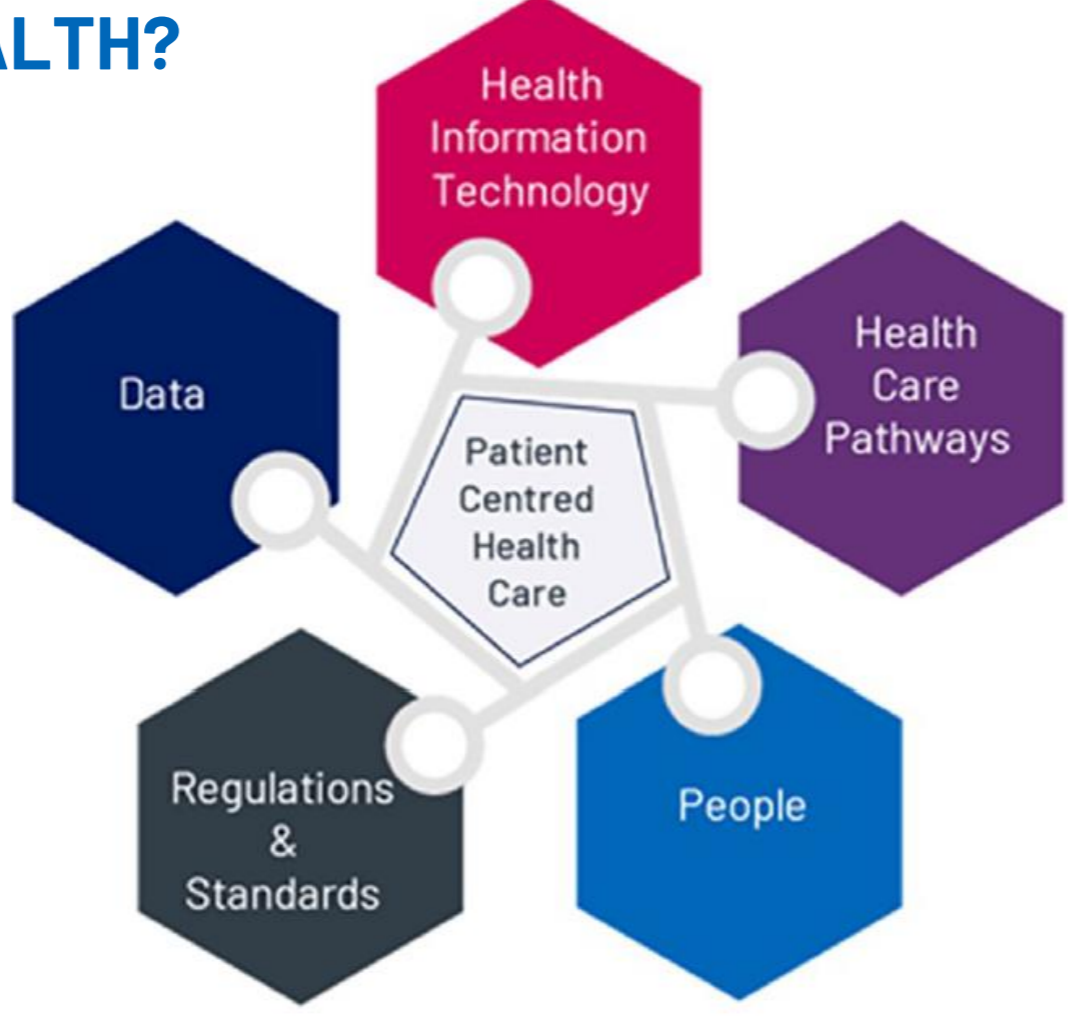


Connected Health Research

1 WHAT IS CONNECTED HEALTH?

"Connected Health is where patient-centered care results from following defined healthcare pathways undertaken by healthcare professionals, patients and/or carers who are supported by the use of health information technology (software and/or hardware), regulated when used as a Medical Device, and facilitating appropriate health data sharing".



Each of Lero's Connected Health research projects, some of which are illustrated on this poster, takes at least 2 of these factors into account.

Healthcare collaborators

Our collaborators include the Health Research Institute, Ageing Research Centre, Limerick Digital Cancer Research Centre and the All-Ireland eHealth Hub for Cancer.

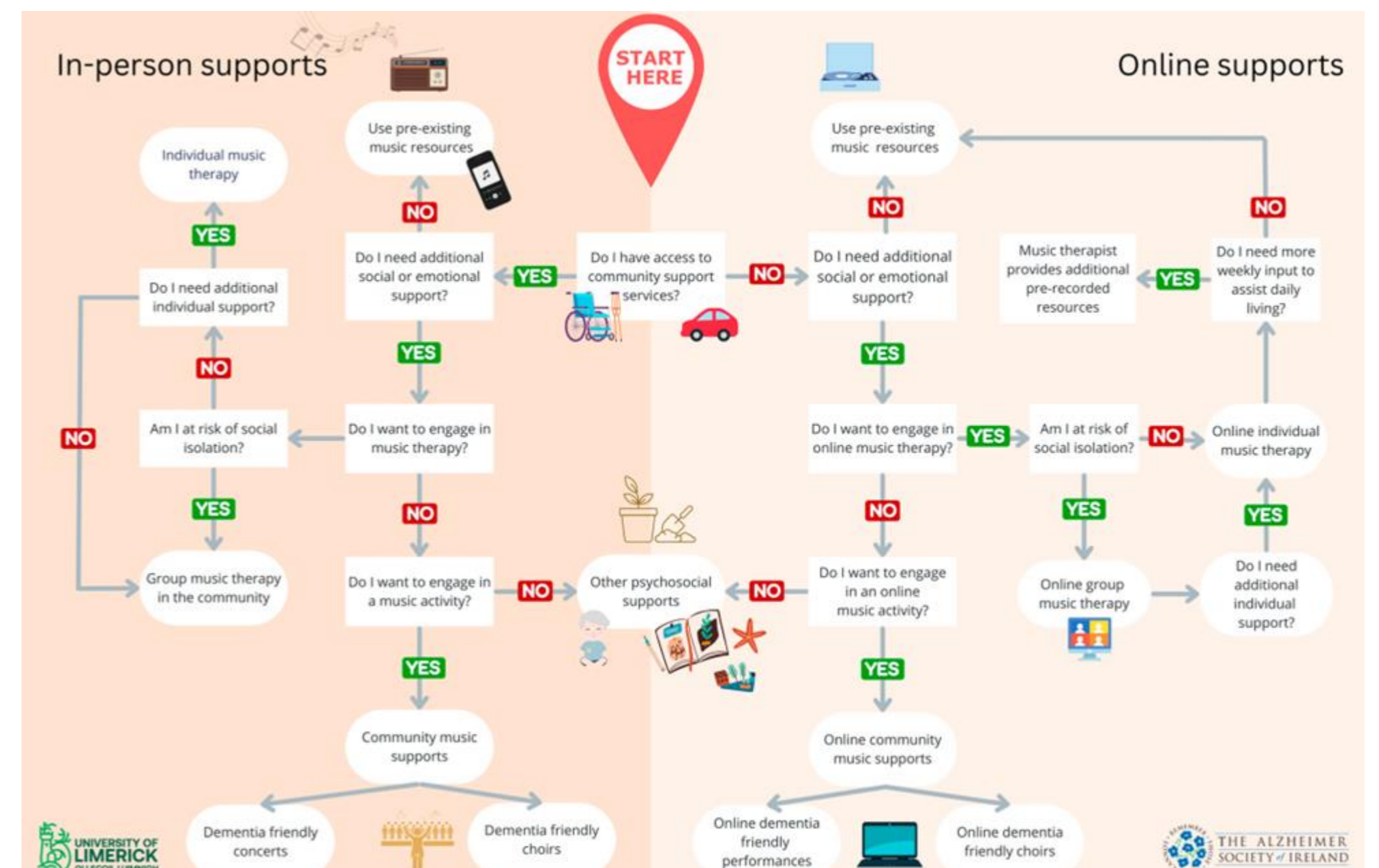


MacMahon, S.T. and Richardson, I., 2023. Pathways, technology and the patient—connected health through the lifecycle. *Frontiers in Digital Health*, 5, p.1057518.

Lero authors are noted in bold text.

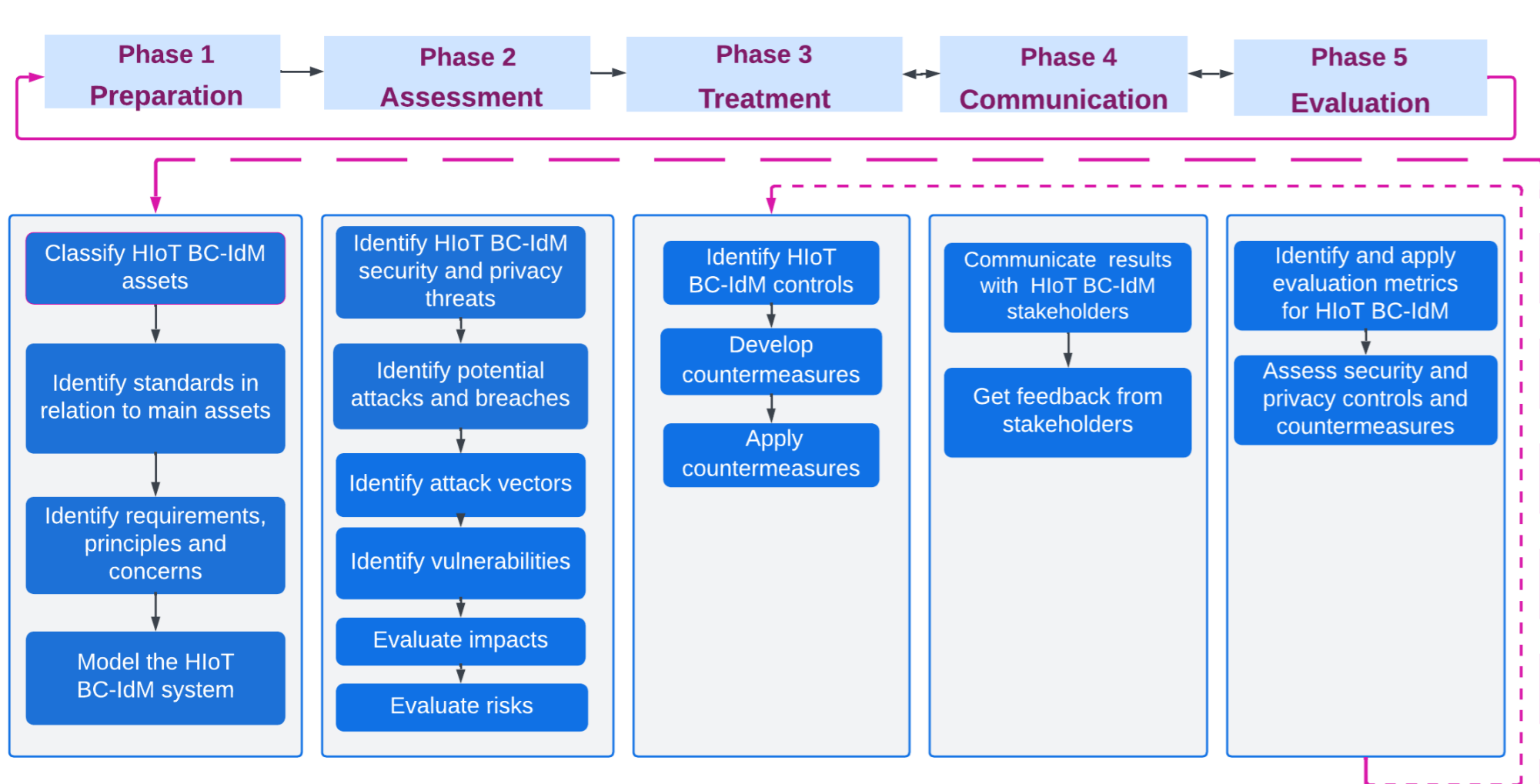
2 FOLLOW THE MUSICAL ROAD: A GUIDE TO CHOOSING A MUSIC EXPERIENCE FOR PEOPLE WITH DEMENTIA LIVING AT HOME

This research highlights that by harnessing the functions of pre-existing technologies and delivering synchronous music experiences online, we can provide an all-inclusive model of music experiences for people with dementia living in the community.



Kelly, L., Clements-Cortés, A., Ahessy, B., Richardson, I. and Moss, H., 2023. "Follow the Musical Road": Selecting Appropriate Music Experiences for People with Dementia Living in the Community. *International Journal of Environmental Research and Public Health*, 20(10), p.5818.

3 CYBERSECURITY RISK MANAGEMENT FRAMEWORK FOR BLOCKCHAIN IDENTITY MANAGEMENT SYSTEMS IN HEALTH INTERNET OF THINGS



Long-term repetition process
Short-term repetition process

Novel Cybersecurity Risk Management Framework

A framework plays a role in standardizing the application of Blockchain Identity Management (IdM) systems in HIoT. It will assist developers, researchers, and organizations in developing secure and functional IdM systems. Also, it will help in selecting the most suitable IdM solution to ensure HIoT users' data privacy and security.

Alamri, B., Crowley, K. and Richardson, I., 2022. Cybersecurity Risk Management Framework for Blockchain Identity Management Systems in Health IoT. *Sensors*, 23(1), p.218.

4 IDENTIFYING REQUIREMENTS FOR VULNERABLE GROUPS

Through literature review, focus groups, prototype evaluation, surveys and interviews we developed:

44 requirements for Older Adults including:

- Provide and make sure that the back button behaves predictably
- Show the right keyboard at the right time e.g. numbers when entering telephone number
- Concentrate information mainly in the centre of the application

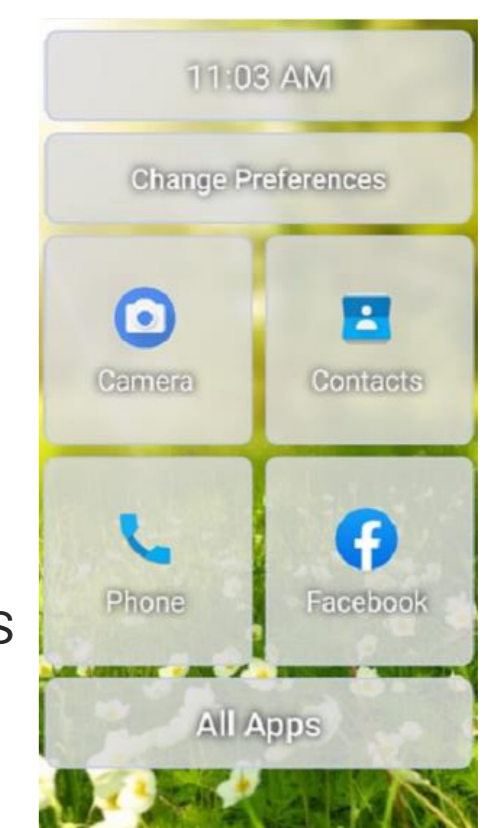
46 requirements for Persons with mild IDD including:

- Control number of choices available for the user when they are progressing through the application
- Notify the users when the device works and when the task starts
- Never convey information by colour alone. Ensure sufficient contrast so that it is easier to distinguish items, both visual and auditory

These are available as Lero Technical reports (2021_TR02, 2023_TR02)

Requirements in action: development of Android Launcher

We identified that 33 of the requirements for Older Adults were relevant for inclusion in a Launcher app. However, the 'best' app we reviewed had only implemented 21 (64%) of the requirements. Based on the requirements that we had established, we developed Launcher50+ as shown.



Leamy, C., Ahmad, B., Beecham, S., Richardson, I. and Crowley, K., 2023. Launcher50+: An Android Launcher for Use by Older Adults. In *HEALTHINF* (pp. 248-256)

Alshammari, M., Doody, O. and Richardson, I., 2020. Health Information Systems for Clients with Mild Intellectual and Developmental Disability: A Framework. In *HEALTHINF* (pp. 125-132).