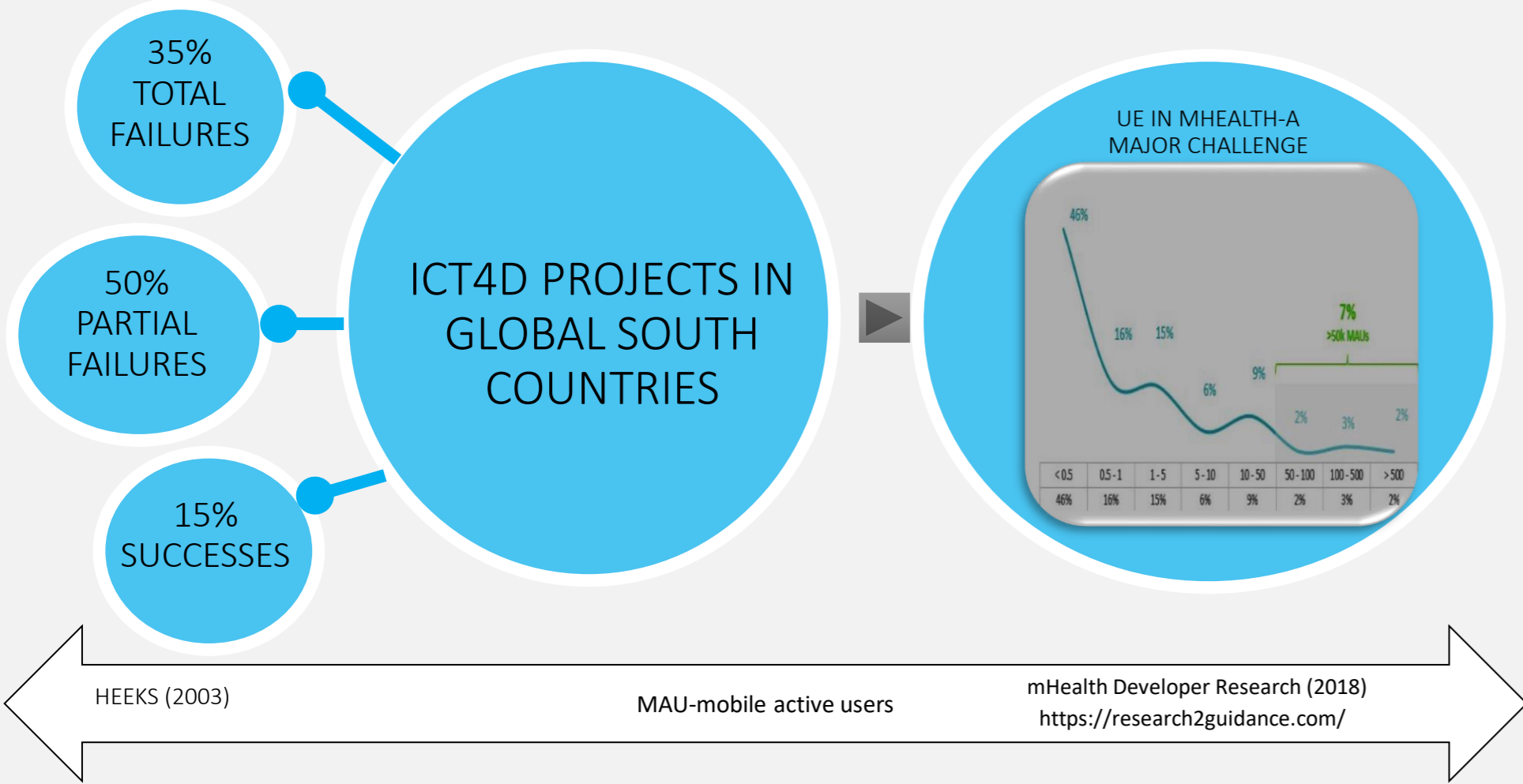# DESIGNING FOR BETTER USER ENGAGEMENT WITH MOBILE HEALTH
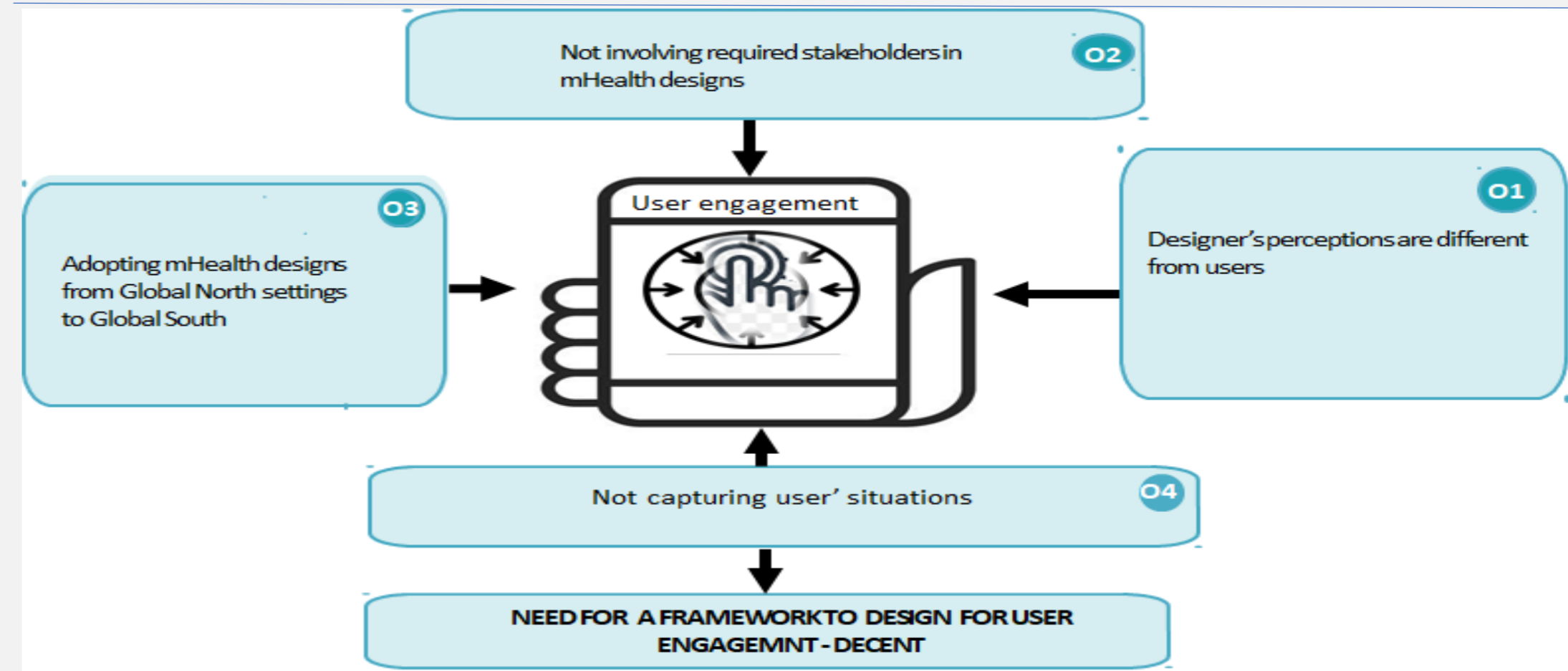
Tochukwu Ikwunne, Lucy Hederman, P. J. Wall
ikwunnet@tcd.ie , hederman@scss.tcd.ie, pj.wall@tcd.ie

ADAPT Centre, School of Computer Science & Statistics,
Trinity College Dublin

## 1. Research Background



- 35% TOTAL FAILURES
- 50% PARTIAL FAILURES
- 15% SUCCESSES
- ICT4D PROJECTS IN GLOBAL SOUTH COUNTRIES
- UE IN MHEALTH-A MAJOR CHALLENGE

HEEKS (2003)    MAU-mobile active users    mHealth Developer Research (2018) https://research2guidance.com/

## 2.Motivation



- O2 Not involving required stakeholders in mHealth designs
- O3 Adopting mHealth designs from Global North settings to Global South
- User engagement
- O1 Designer's perceptions are different from users
- O4 Not capturing user' situations
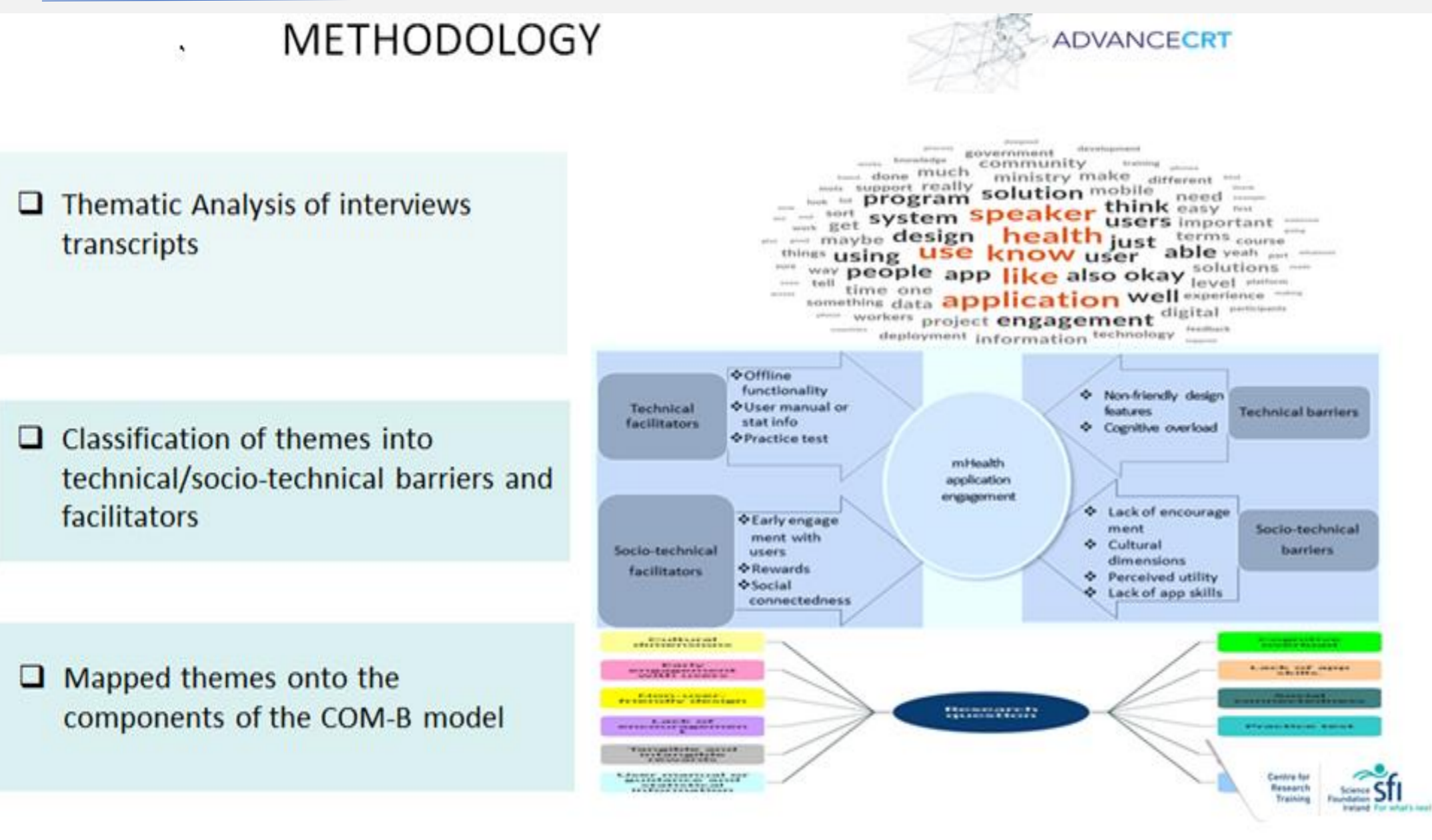- NEED FOR A FRAMEWORK TO DESIGN FOR USER ENGAGEMNT - DECENT

## 3. Research question

❖ How can a user centric design process be developed to positively influence user engagement in mHealth technologies?
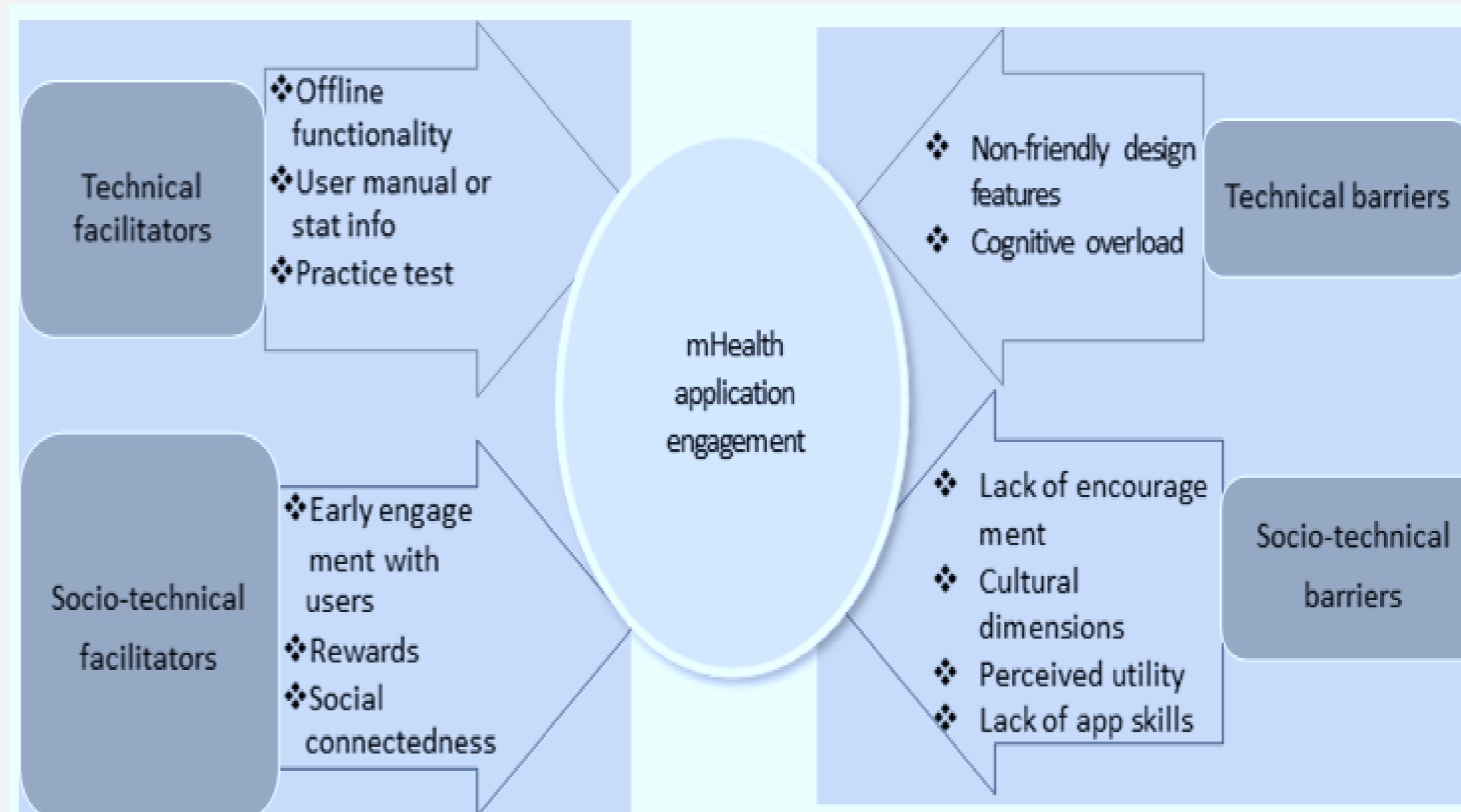
## 4. Research objectives

❖ (R1)Qualitative study (interview analysis) to understand what drives users to engage/disengage in the use/disuse of mHealth
❖ (R2)Development and validation of a theoretical and methodological framework built around activity theory and the communicative ecologies framework.
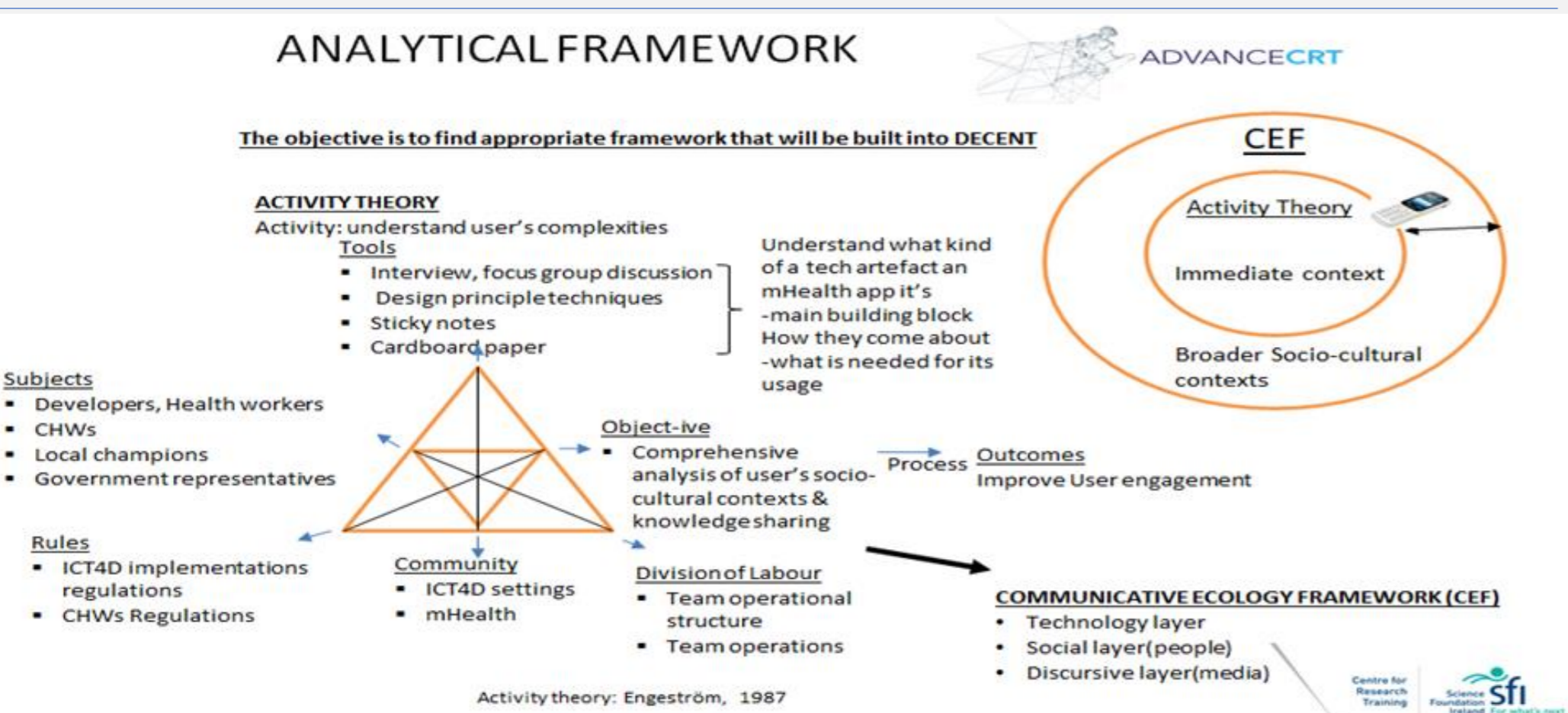❖ (R3)**De**sign Pro**c**ess **E**ngagement **En**hancement Sys**t**em (DECENT) design approach

## 4. R1(i) METHODOLOGY



METHODOLOGY   ADVANCE**CRT**

- ❑ Thematic Analysis of interviews transcripts
- ❑ Classification of themes into technical/socio-technical barriers and facilitators
- ❑ Mapped themes onto the components of the COM-B model

## 4.R1(ii) THEME CLASSIFICATIONS



- Technical facilitators
  - ❖Offline functionality
  - ❖User manual or stat info
  - ❖Practice test
- Socio-technical facilitators
  - ❖Early engagement with users
  - ❖Rewards
  - ❖Social connectedness
- mHealth application engagement
- Technical barriers
  - • Non-friendly design features
  - • Cognitive overload
- Socio-technical barriers
  - ❖ Lack of encouragement
  - ❖ Cultural dimensions
  - ❖ Perceived utility
  - ❖ Lack of app skills

## 4. R2 ANALYTICAL FRAMEWORK



ANALYTICAL FRAMEWORK   ADVANCE**CRT**

The objective is to find appropriate framework that will be built into DECENT

**ACTIVITY THEORY**
Activity: understand user's complexities
Tools
- Interview, focus group discussion
- Design principle techniques
- Sticky notes
- Cardboard paper

Subjects
- Developers, Health workers
- CHWs
- Local champions
- Government representatives

Rules
- ICT4D implementations regulations
- CHWs Regulations

Community
- ICT4D settings
- mHealth

Object-ive
- Comprehensive analysis of user's socio-cultural contexts & knowledge sharing

Process → Outcomes
Improve User engagement

Division of Labour
- Team operational structure
- Team operations

CEF
- Activity Theory
- Immediate context
- Broader Socio-cultural contexts

Understand what kind of a tech artefact an mHealth app it's -main building block How they come about -what is needed for its usage

**COMMUNICATIVE ECOLOGY FRAMEWORK (CEF)**
- Technology layer
- Social layer(people)
- Discursive layer(media)

Activity theory: Engeström, 1987

## 4. R3 DECENT DESIGN APPRAOCH



- Timeline
- Activity theory
- Socio-cultural Context of user group
- Communicative Ecology Framework
- Design Research Approach
- Relevance Cycle — Empathise mode, Define mode
- Design Cycle — Ideate mode, Prototype mode
- Rigour Cycle — Test mode
- Design Thinking Approach
- DECENT