MANCHESTER 1824
The University of Manchester

Research IT

Introducing the Mobile Application Development Service

Adrian Harwood

Mobile and GPGPU Application Lead

Research Software Engineering, Research IT

What is it?

- Would your research benefit from using mobile devices?
  - **Data Collection** (Surveys)
  - Interventions
  - Interactive **Games** for Outreach
  - Visual Computing
  - **Simulation**
  - **Teaching** Companions

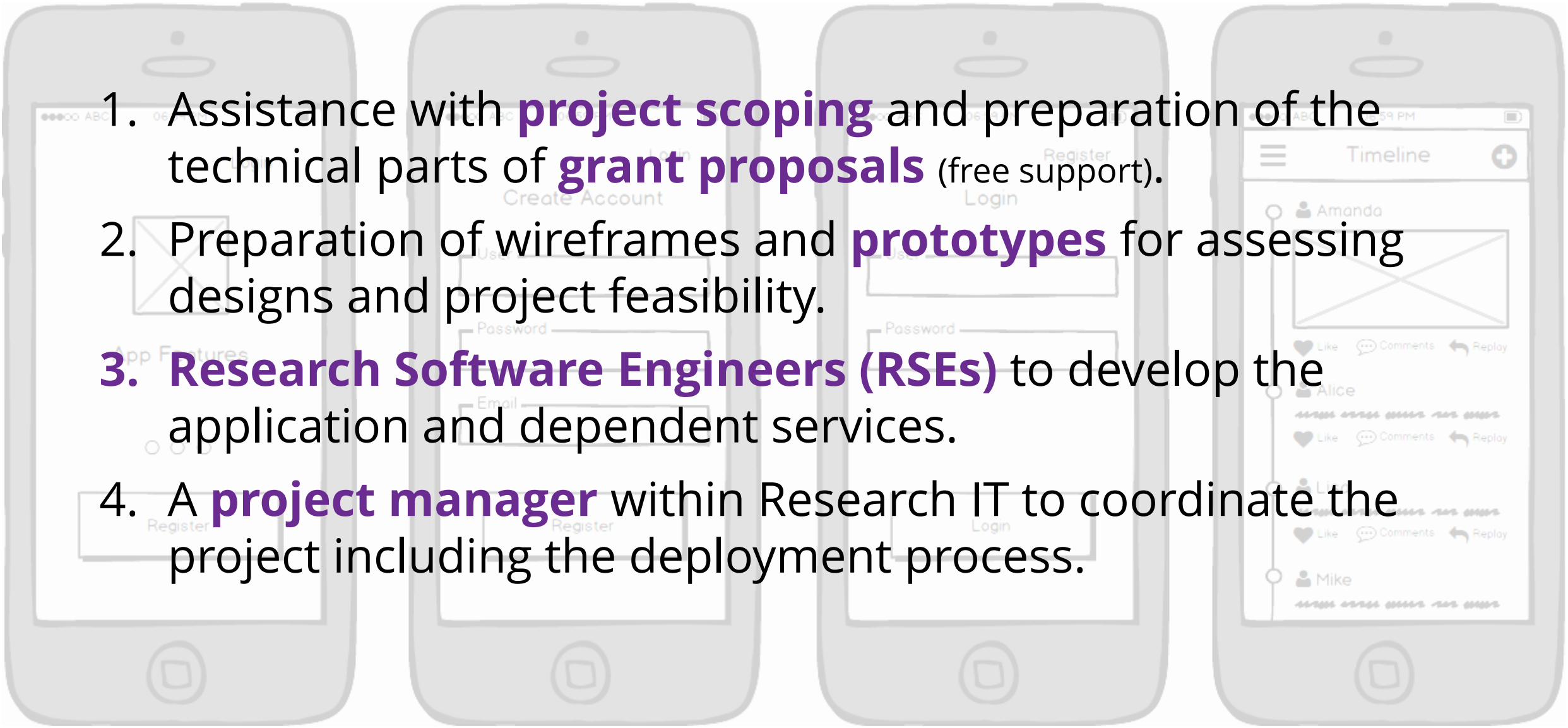
What is it?

- Research IT has seen an increase in requests for support developing mobile applications.

- We are now providing a **dedicated service** to researchers to provide a consistent, quality service:

Research IT Mobile Application Development Service

What does it include?



1. Assistance with **project scoping** and preparation of the technical parts of **grant proposals** (free support).
2. Preparation of wireframes and **prototypes** for assessing designs and project feasibility.
3. **Research Software Engineers (RSEs)** to develop the application and dependent services.
4. A **project manager** within Research IT to coordinate the project including the deployment process.

Why do I need it?

Wouldn't it be easier to ask a student to develop an app for me?

- Not always the best option, especially if:
  - Application is **critical to project success**.
  - Mistakes could be **costly**.
  - Application needs **releasing publicly under the university name**.
  - Application needs to satisfy data security **regulations**.
  - Application needs **other IT services to function**.

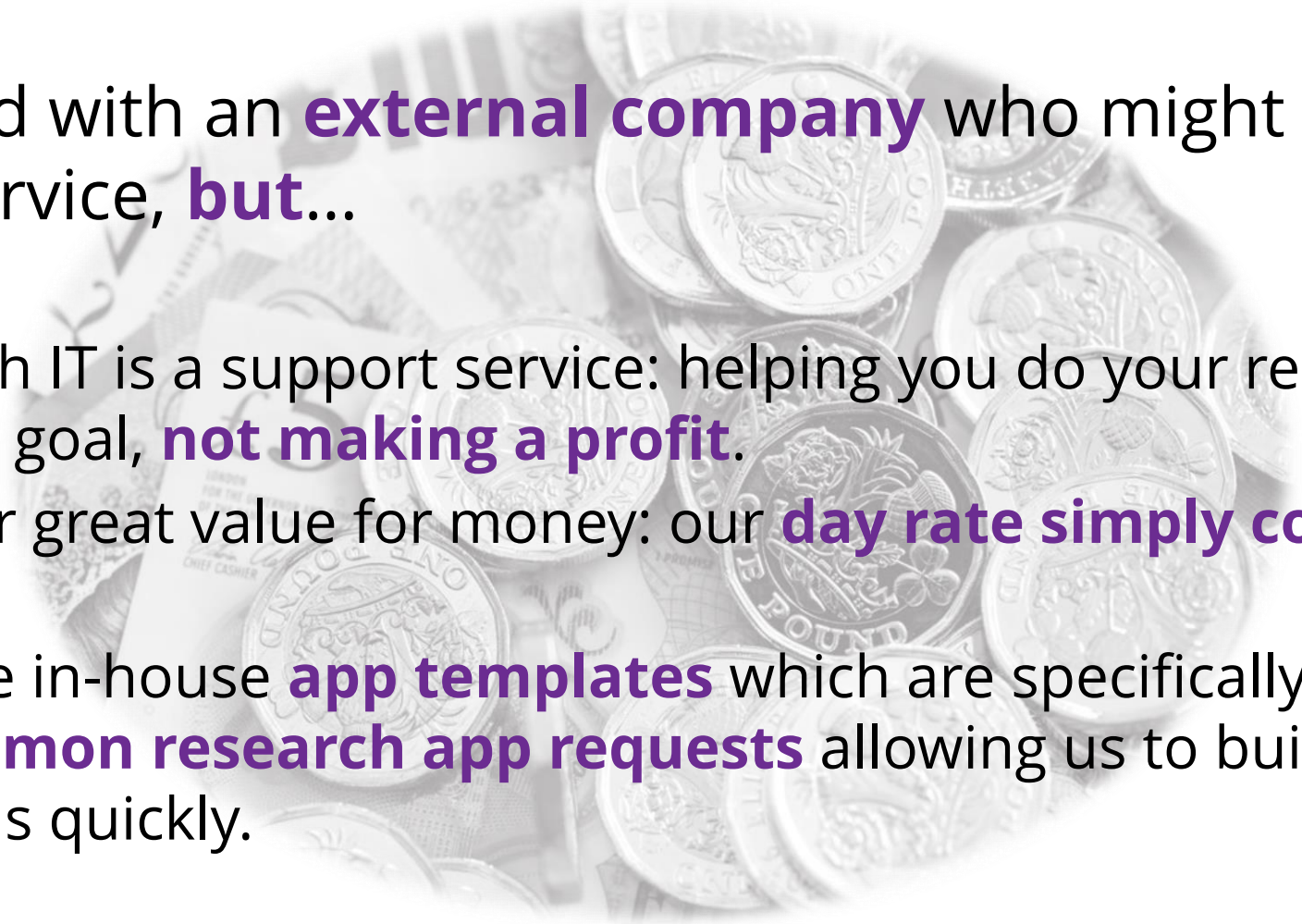
Why do I need it?

- Mobile applications are **not easy coding projects** and present **unique challenges**:
  - Knowledge of different platforms and **specialised APIs** required.
  - Parallel, **multi-threaded programming** paradigm.
  - Experience needed to make decisions on **native vs hybrid vs web**.
  - Performance-critical applications need **careful implementation**.

Why do I need it?

- There are also benefits to using a **professional IT service** to deliver an app for you:
  - Research IT couples both software engineering and research infrastructure services: apps **link in with replicated storage systems** for your data.
  - We will help you with the data security procedures to ensure **information governance compliance**.
  - Most of our RSEs have been researchers and even PIs themselves so **we "get" the research environment**.

Why do I need it?



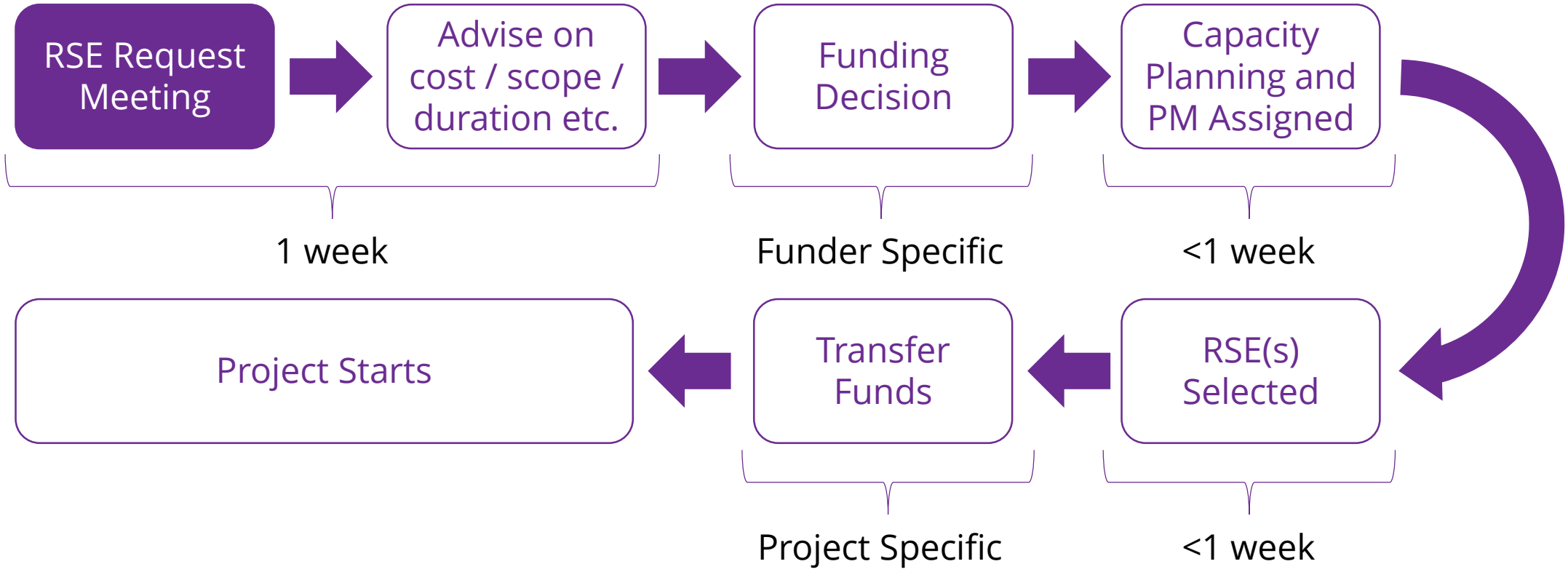
- Compared with an **external company** who might offer a similar service, **but**…
  - Research IT is a support service: helping you do your research is our primary goal, **not making a profit**.
  - We offer great value for money: our **day rate simply covers our costs**.
  - We have in-house **app templates** which are specifically designed for **common research app requests** allowing us to build your solutions quickly.

How do I get access?

- There are 3 methods to request this service:

1. Raise a Service Desk **ticket** through The Support Portal
2. Contact your **faculty lead**
   - **Ian Cottam** (FSE Lead)
   - **Andrew Jerrison** (FBMH Lead)
   - **Theresa Teng** (Humanities Lead)
3. Contact **me** (Adrian Harwood) directly

How do I get access?



How much does it cost?

- In general, RSEs are permanent staff and are treated as a **support service**.

- We are currently in the process of **setting up official guidelines** for costing RSE support with the University's Director of Research Finance.
  - In the meantime, there are two approaches at present:

How much does it cost?

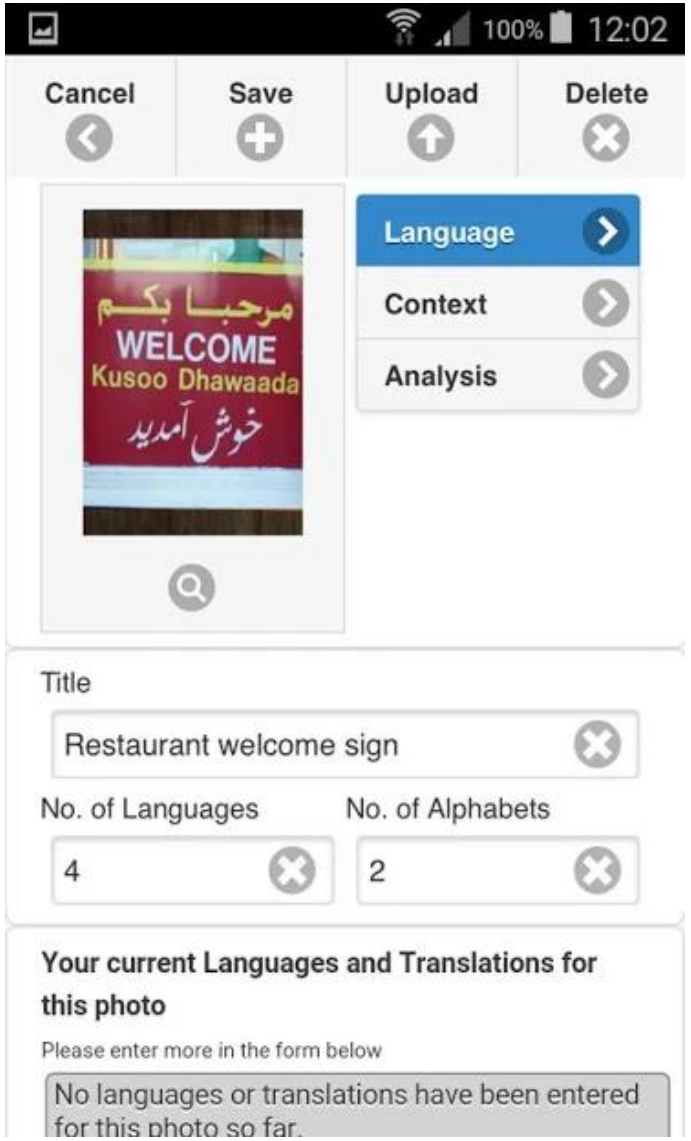
1. To cost RSEs on **proposals** (FEC funding not yet secured):
   - RSE services are costed as a **Grade 7.1 support service**.
   - Your Research Support Office can advise.

2. To pay for RSEs from an **existing university account**:
   - RSE services are charged at a **day rate of £250 / day**.
   - This can be authorised as an **internal transfer** through our finance team.

Example Projects

LinguaSnapp

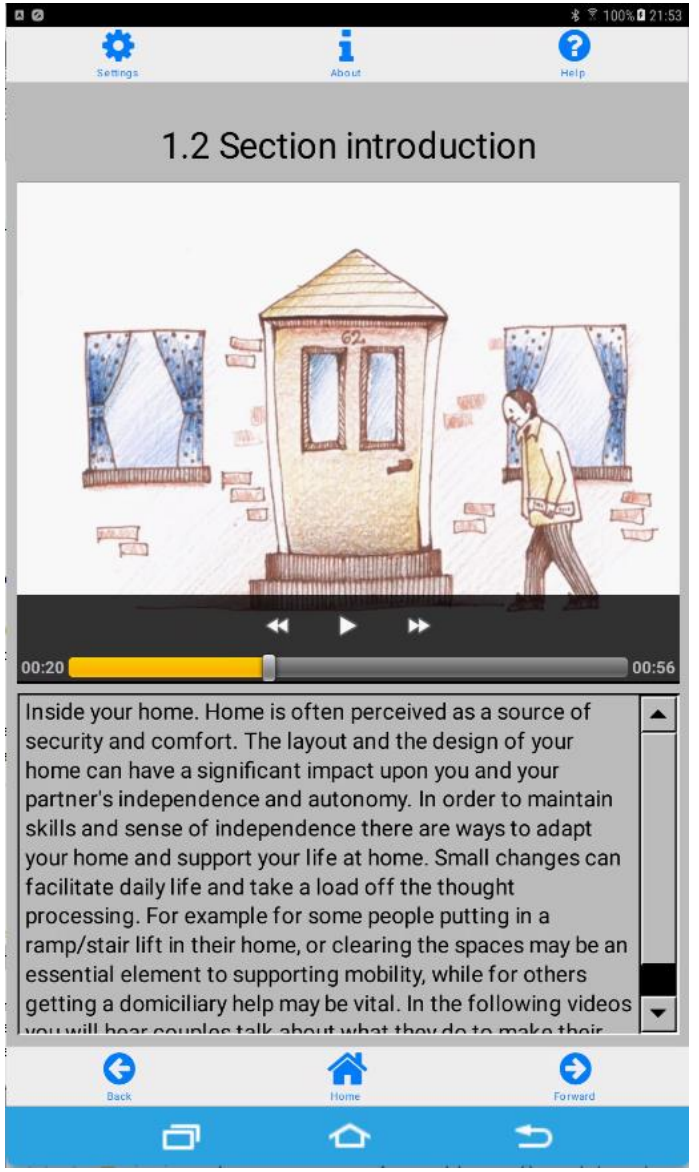
- A project to develop a multi-lingual landscape of Manchester.
- App is a **crucial data collection tool**.
- Cross-platform, web-based application, live on Google Play and Apple App Store.
- Melbourne and Jerusalem variants.



Example Projects

- **DemPower**

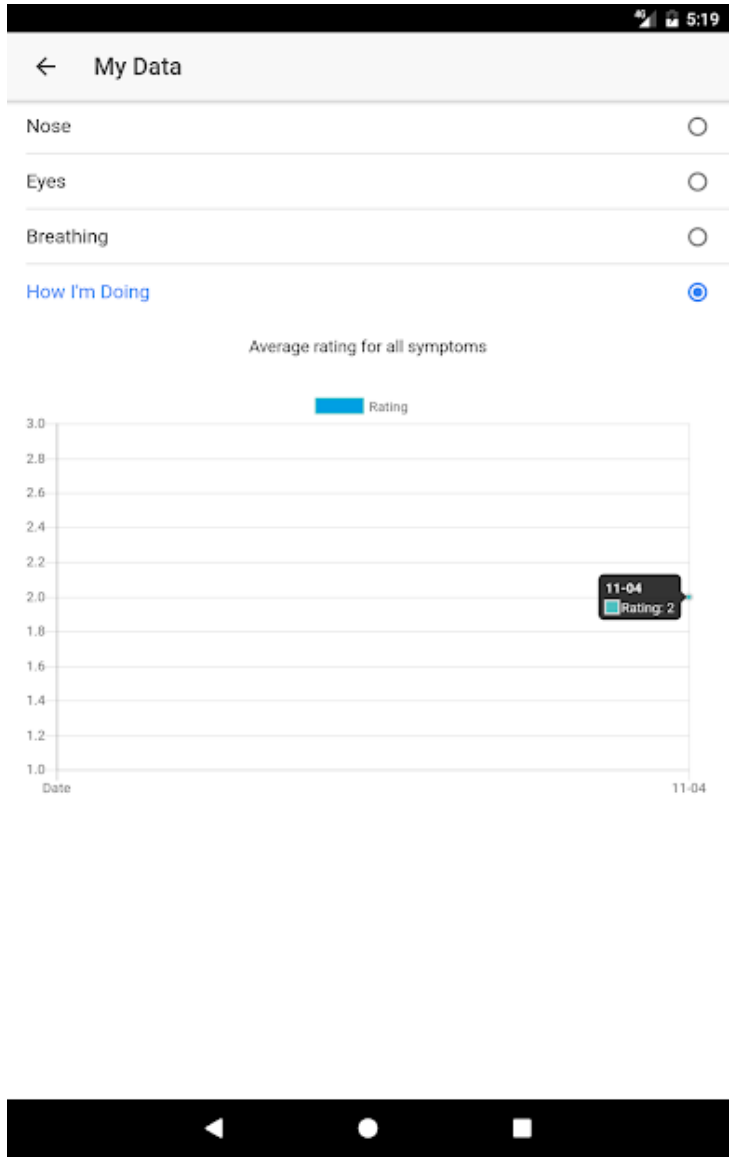
- A dementia **support, self-help app** for couples where one of the pair is living with dementia.
- Developed as part of a 5 year ESRC/NIHR project.
- Scripted **videos**, **activities**, **music**, **writing**, exercises and links to further information.



Example Projects

- **Britain Breathing**

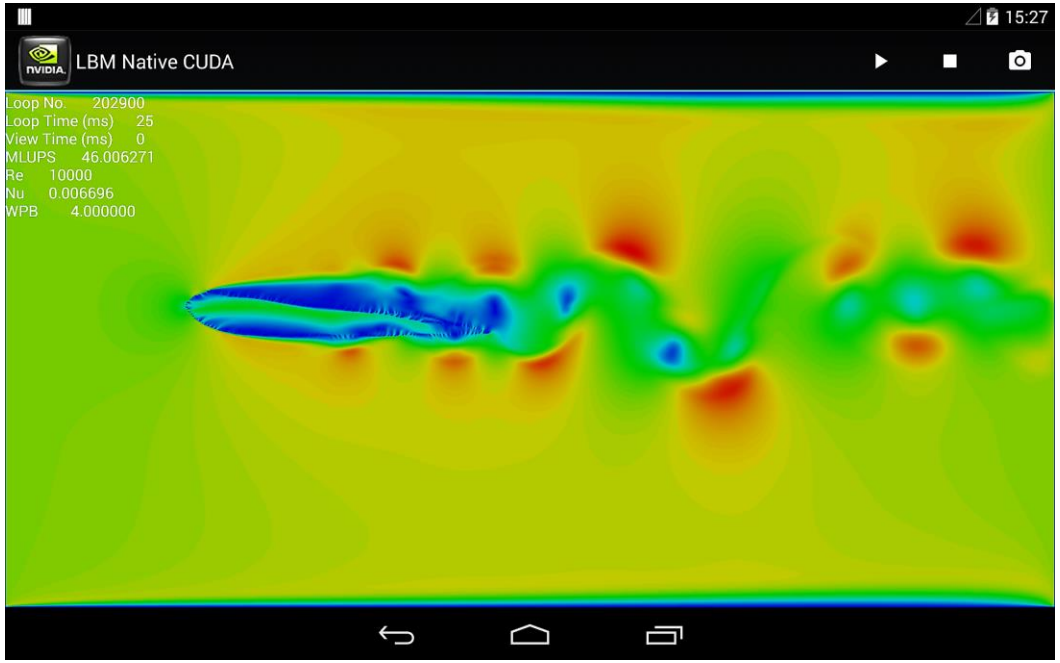
- Helps build a **database of symptoms** of seasonal allergy sufferers.
- A data collection tool with the ability to **track and plot** individuals' progress.
- Currently developing a second version and is a platform for Brazil Breathing.



Example Projects

- We also have expertise in the team in **native** mobile programming for **performance applications**.

- Our expertise includes:
  - **Mobile GPGPU programming** (CUDA and OpenGL)
  - C/C++ on mobile using **JNI**
  - Peer-to-peer connectivity



Take Away

- The Mobile Application Development Service is **live now**!
- Your research does not have to **be** the app: we can develop apps to **support a bigger research goal**.
- We are **flexible**: doesn't have to be 1.0 FTE.
- If you think we can help your research, **please speak to us**.
- We have a **wide variety of expertise** and **in-house templates** to increase productivity.

Adrian Harwood (adrian.harwood@manchester.ac.uk)