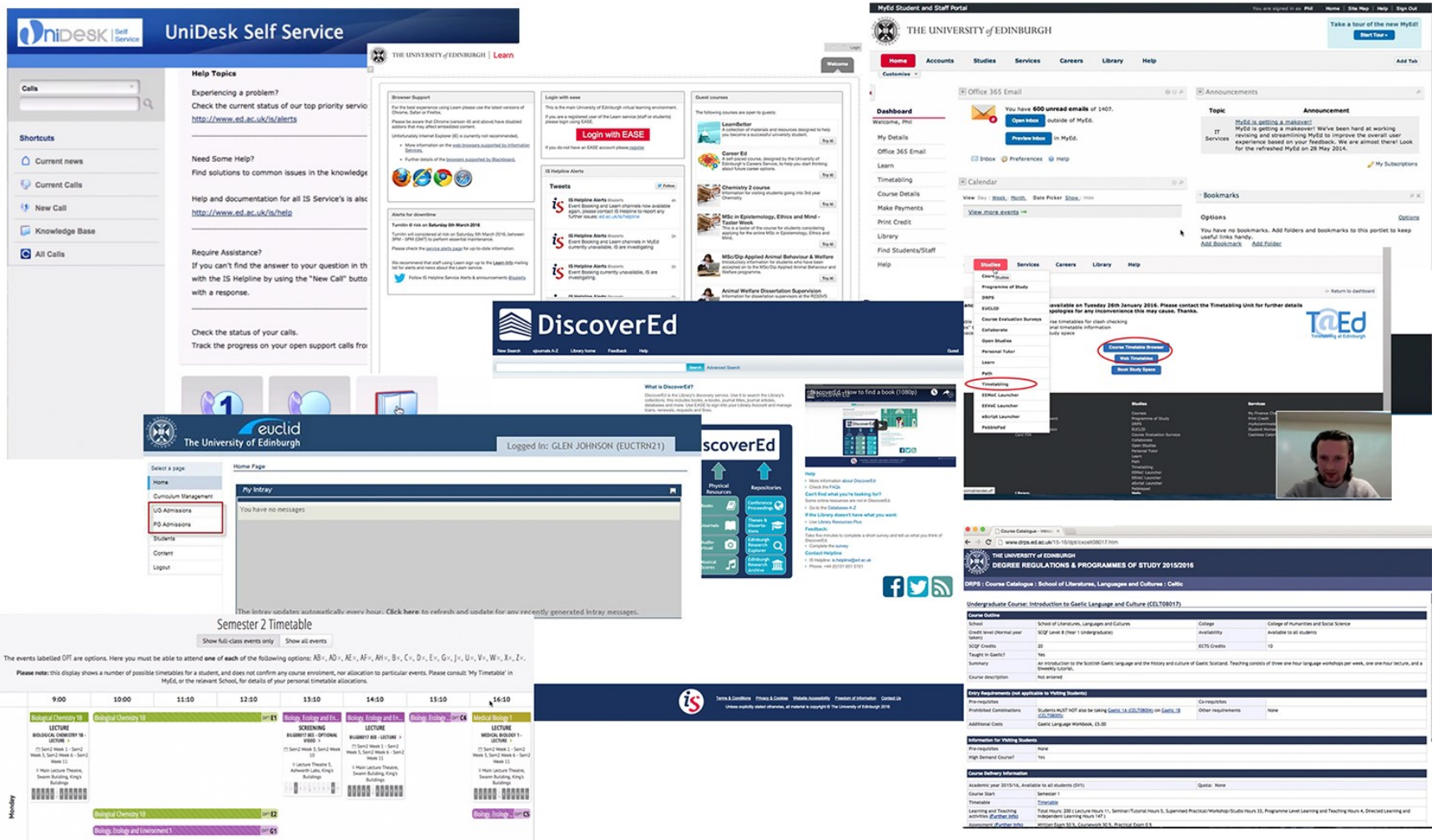
Putting IT all together

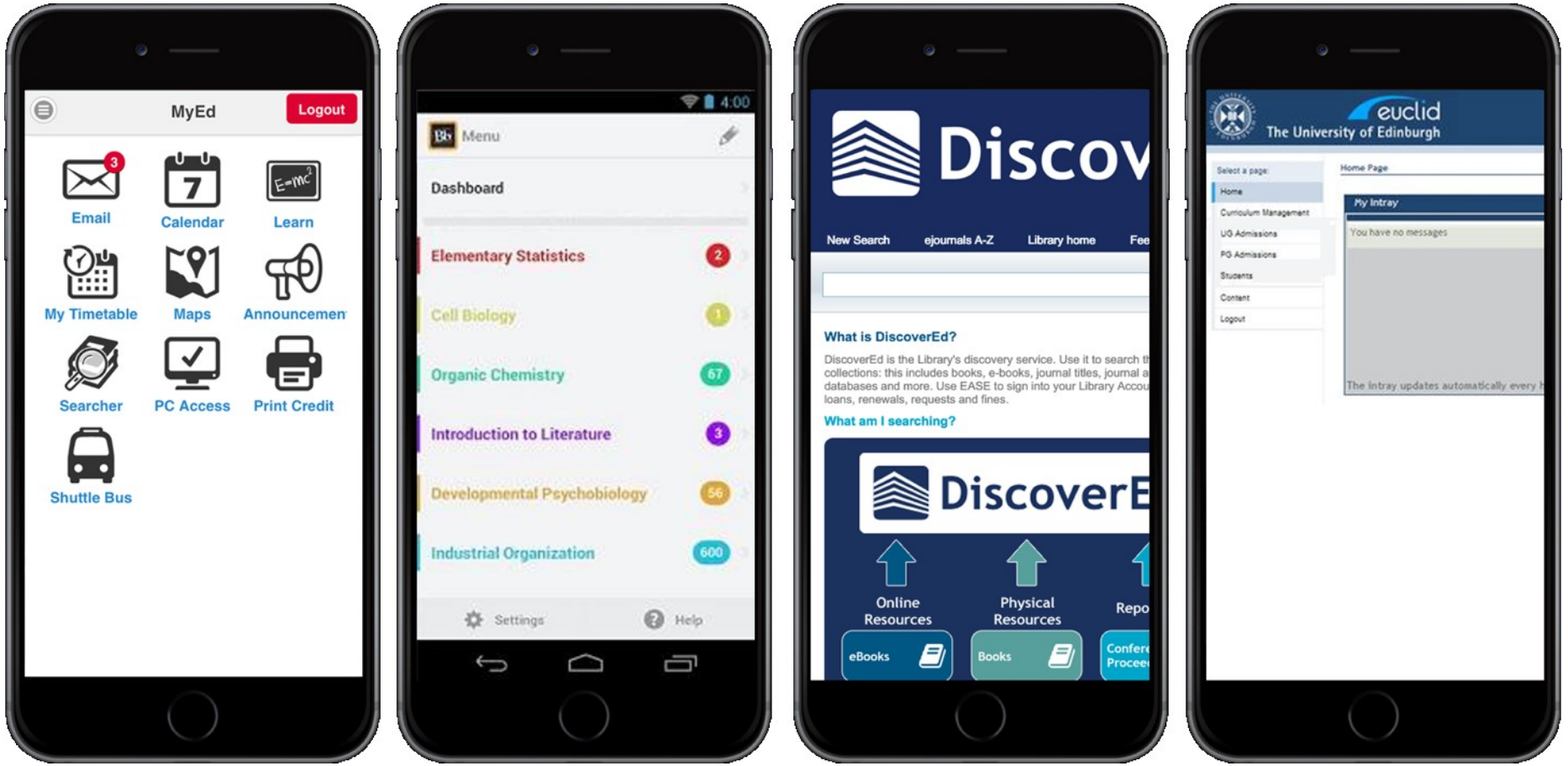
Dave Berry

Enterprise Architect

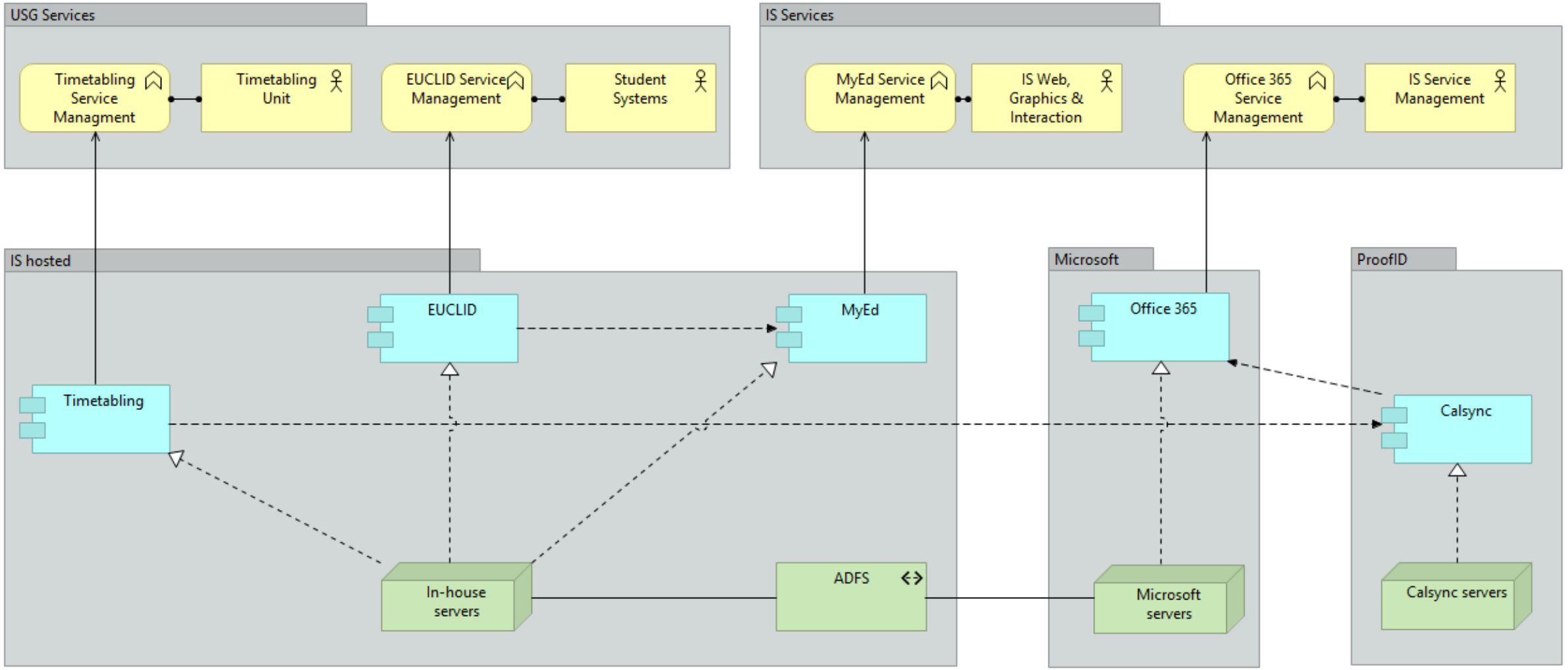
What do our online services look like to students?



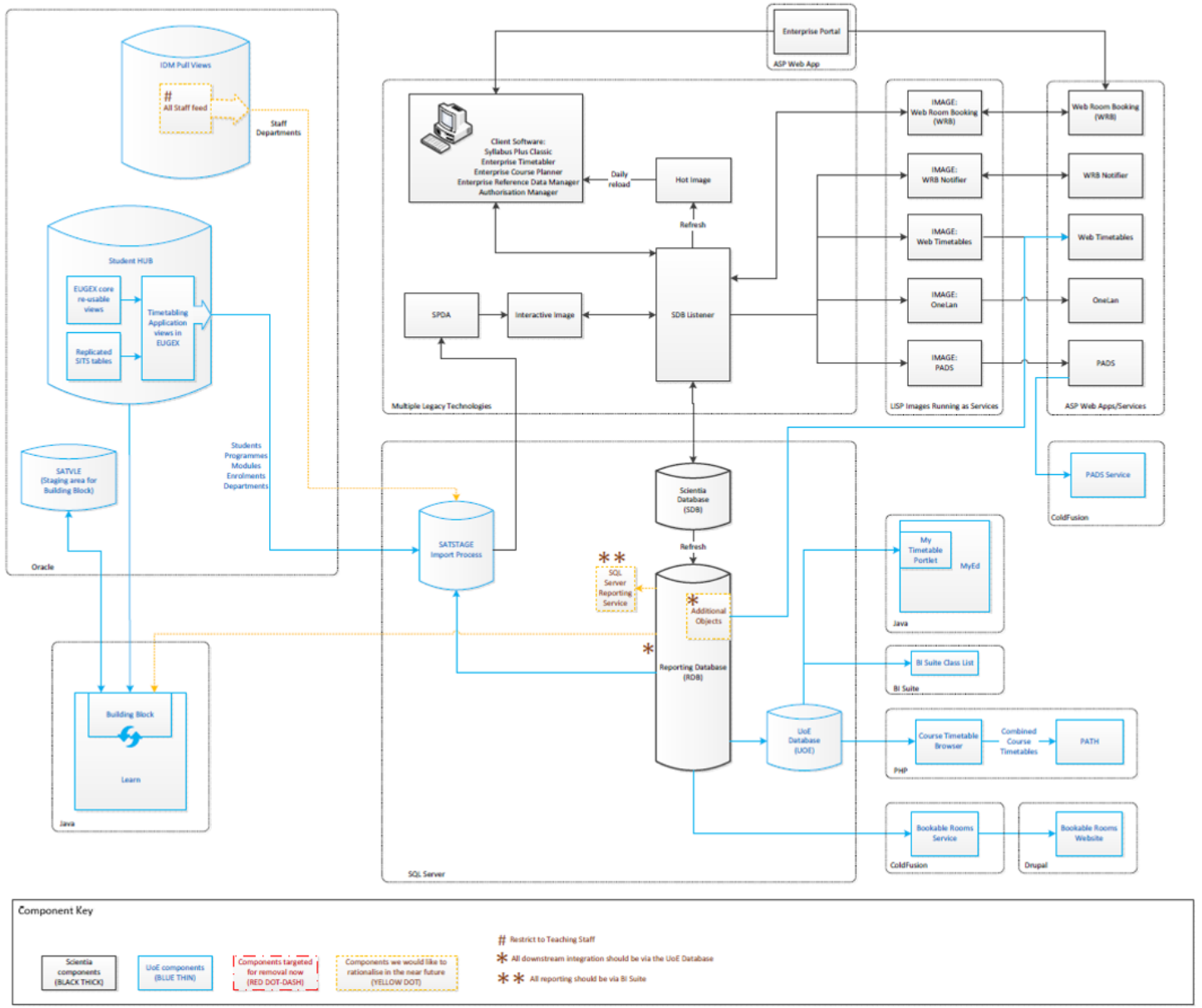
Inconsistent interfaces



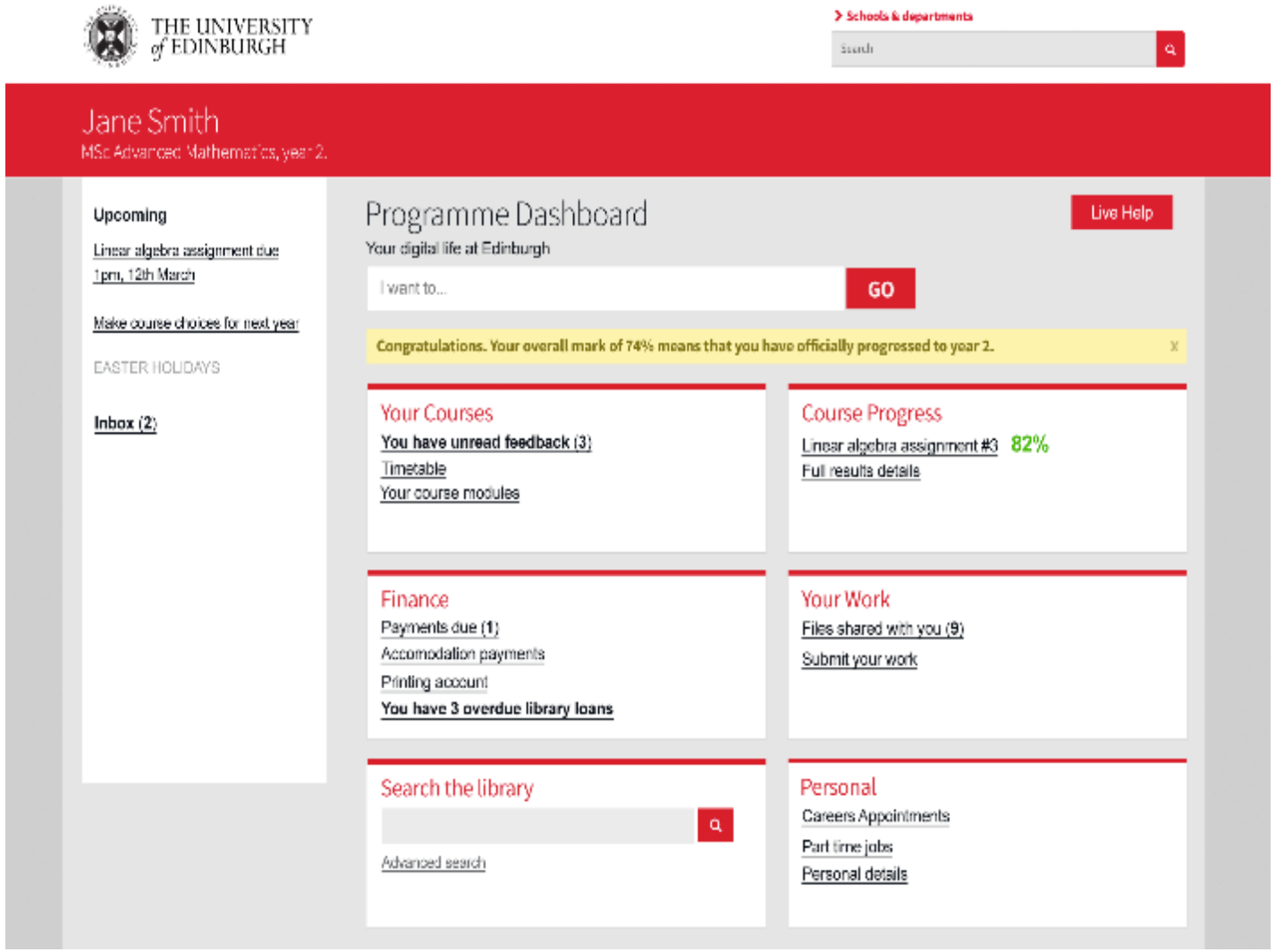
The current (“as-is”) architecture – a small subset

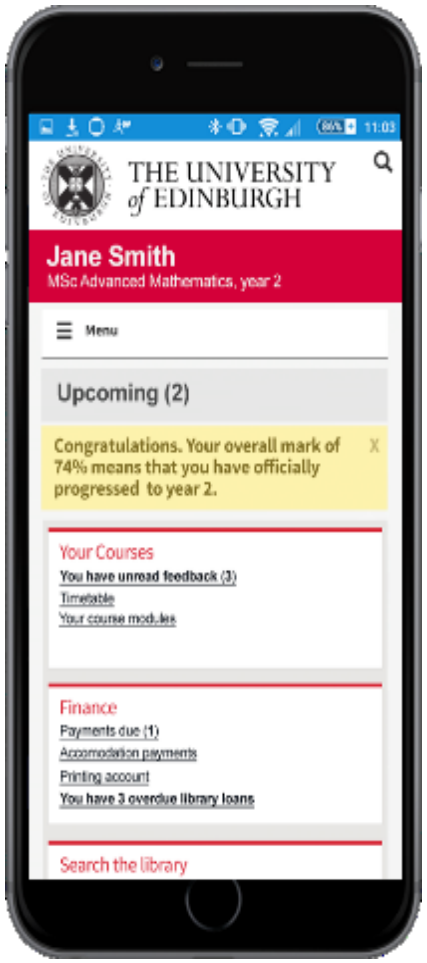


Timetabling: the applications architecture in more detail

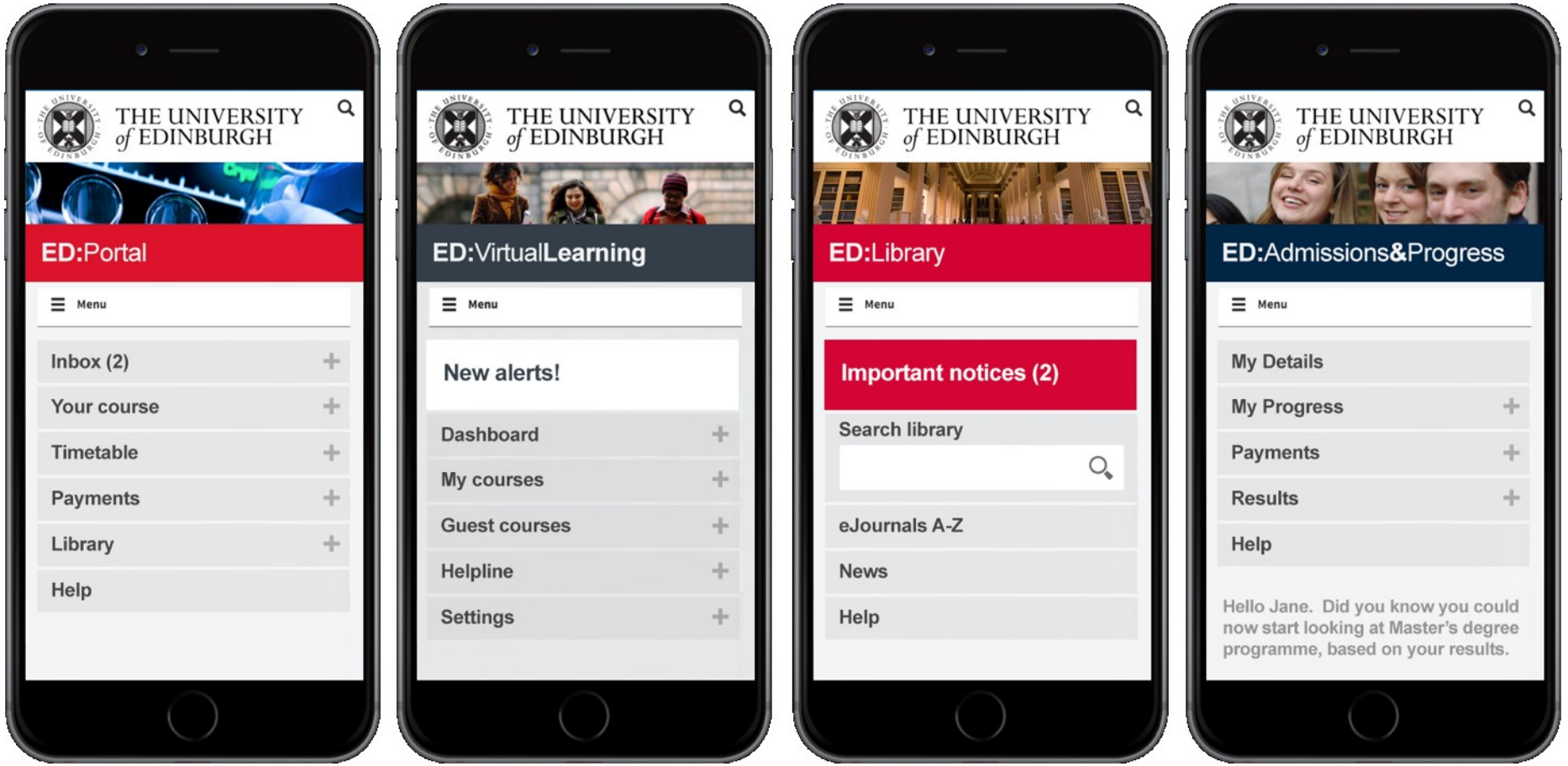


An illustration of what our services could look like

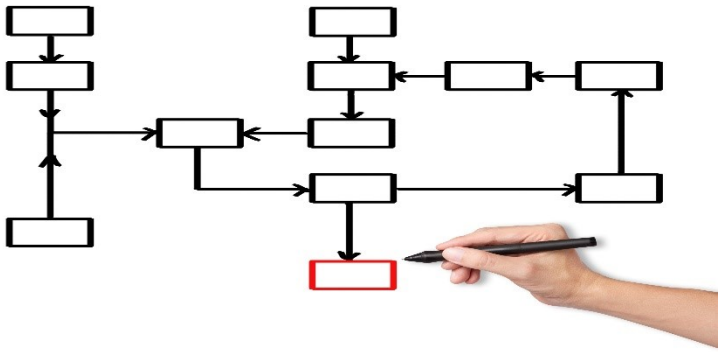




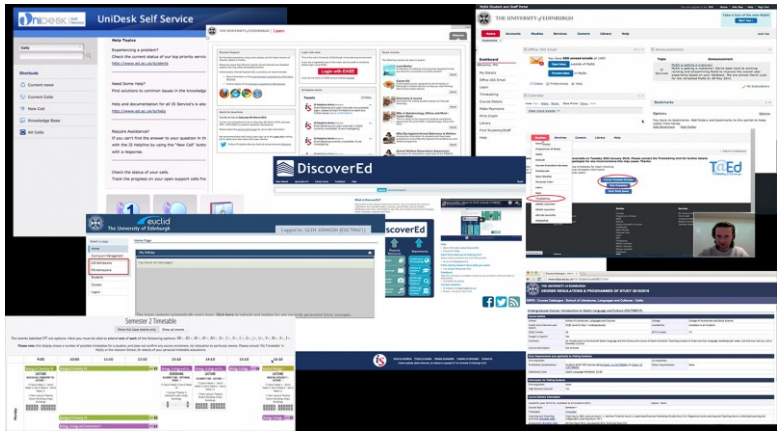
Consistent appearance; Meaningful names



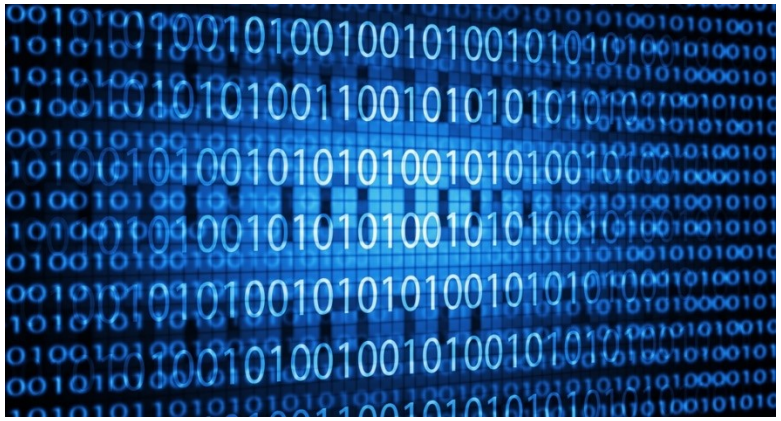
Let’s look at what this entails behind the scenes



(Business) Processes



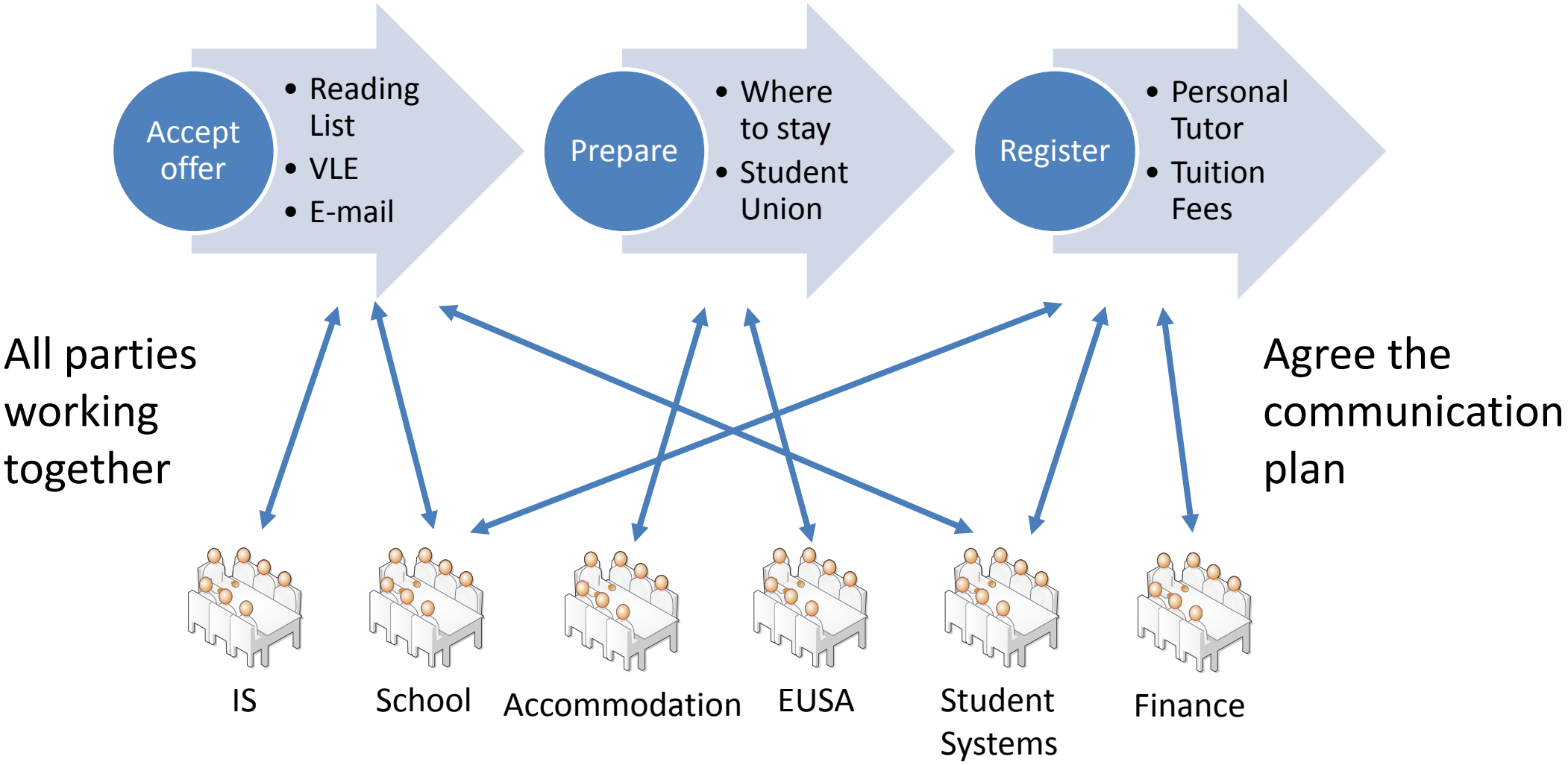
Applications



Data

Technology (Hardware & Software)

Processes: Map the User Journey



Process: Digital First

- (Re-)Design processes from scratch to be used online
  - Don’t just replicate existing processes
- What do our students & staff want to do?
- How can we make this easy?
  - Let them focus on learning, teaching & research

Processes: Avoid duplication

- One way of doing each task
  - Consistency for users
  - Consistency for support staff
  - Allows us to focus on the user experience instead of spending time implementing multiple variations

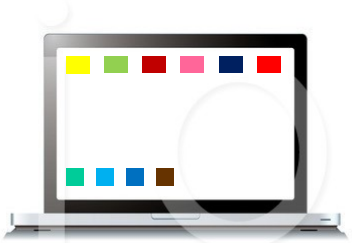
Applications: Integrated & Personalised

Accept offer
- Reading List
- VLE
- E-mail

Prepare
- Where to stay
- Student Union

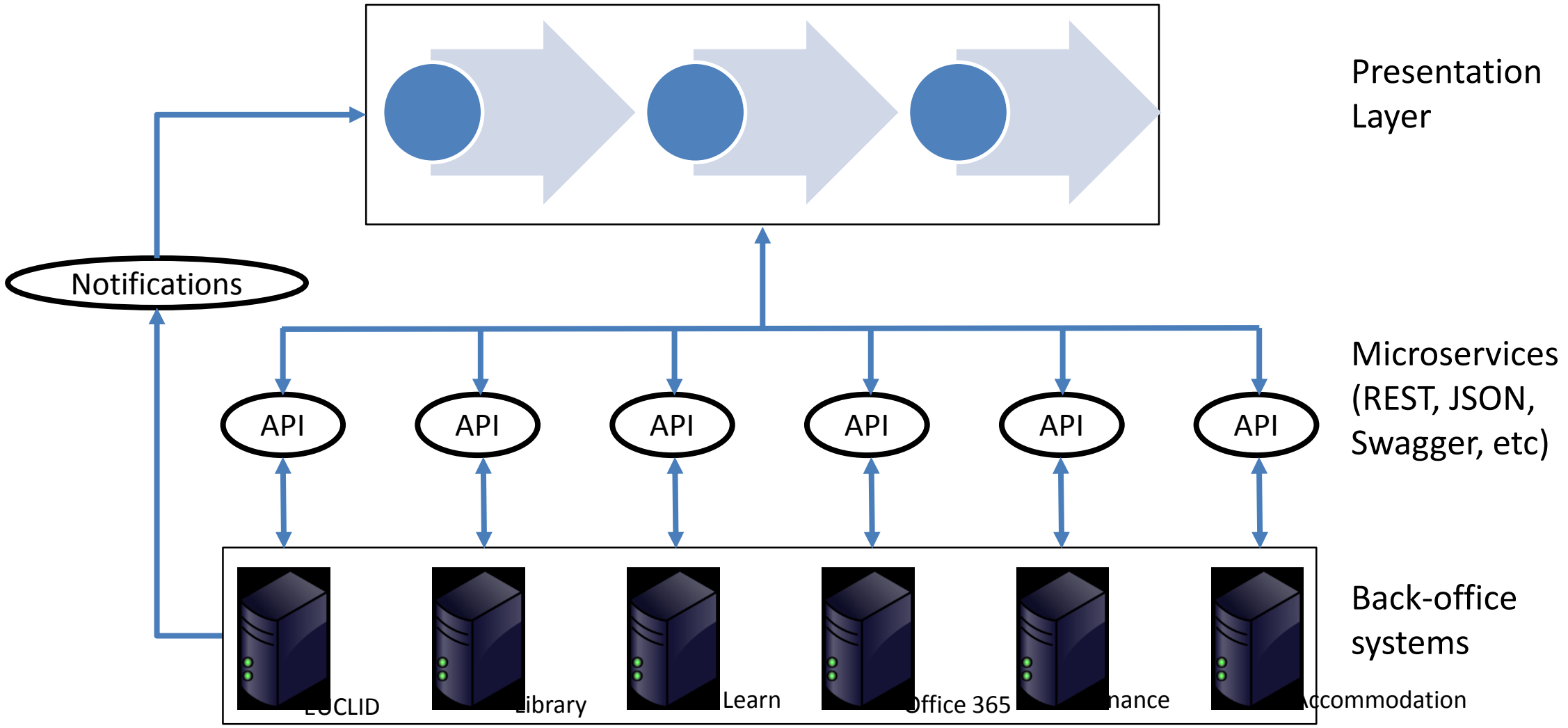
Register
- Personal Tutor
- Tuition Fees

All information in a single place



All important dates in the student's diary

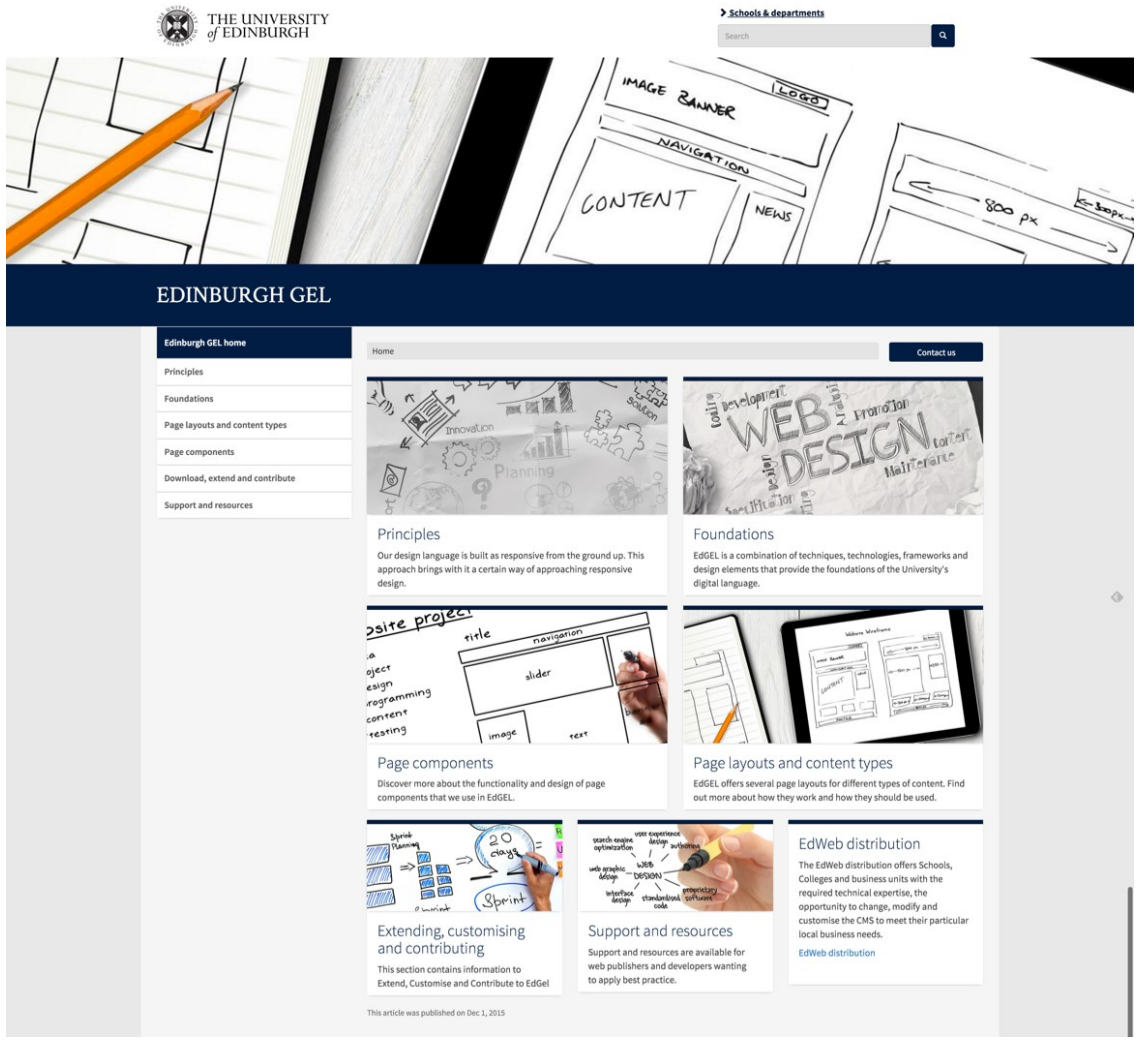
Applications: Reusable Building Blocks



Applications: Easy to use

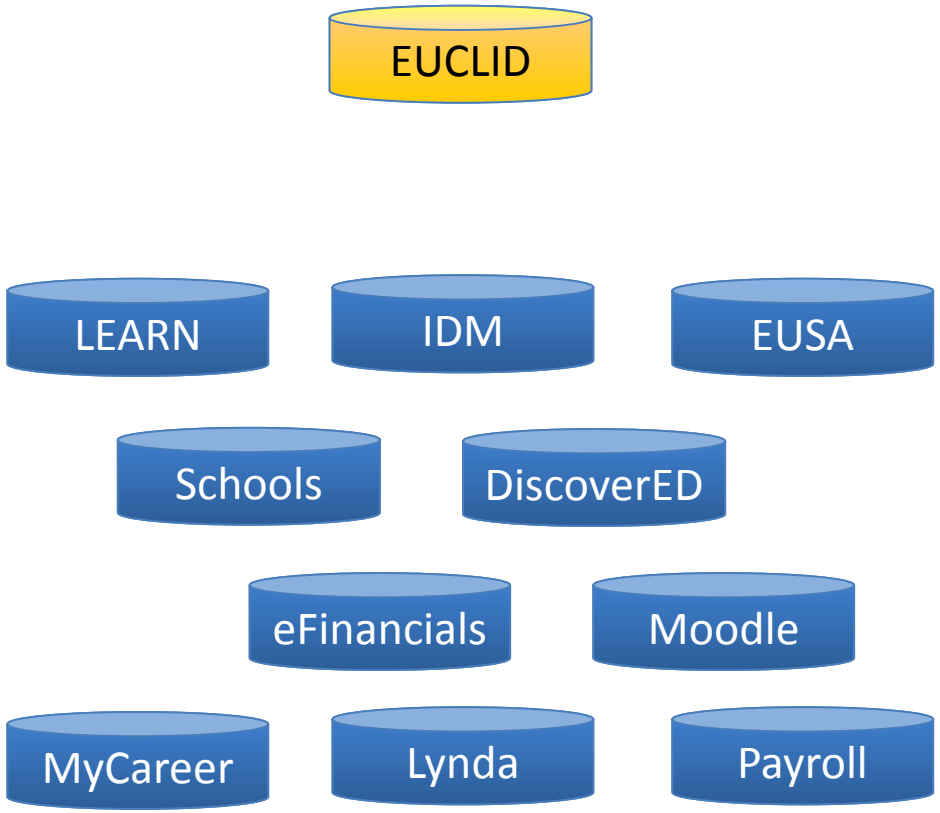
- Usability workshops – with real users
- Web code libraries: responsive design
- Accessible by design

Applications: Consistent experience



- Global Experience Language
  - Websites instantly recognised as part of the Edinburgh family
- Currently implemented for EdWeb
- We should implement EdGEL for web applications, e-mails, etc.
- C.f. BBC GEL www.bbc.co.uk/gel

Data: Golden copies

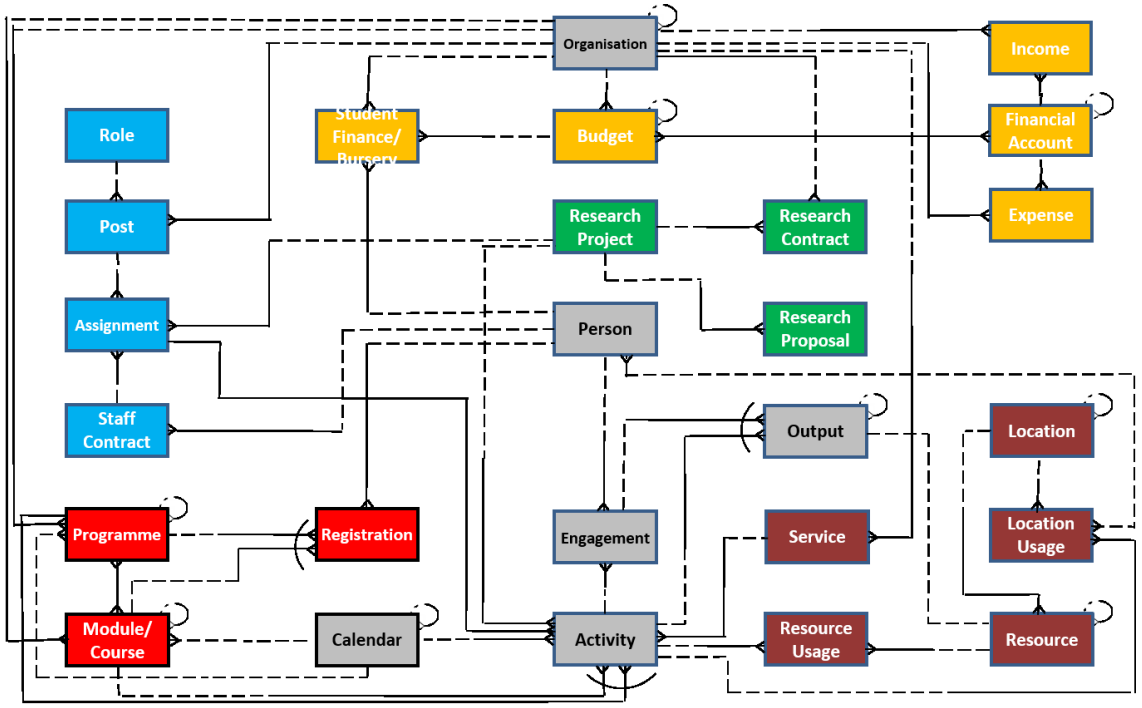


- Definitive value of core data
  - E.g. EUCLID = Student Record
- All updates made to golden copy
  - May propagate to other systems
- Example:
  - If a student updates their address in EUCLID; this should update there address in Payroll too.
- Golden Copy Data Catalogue

Data is a shared asset

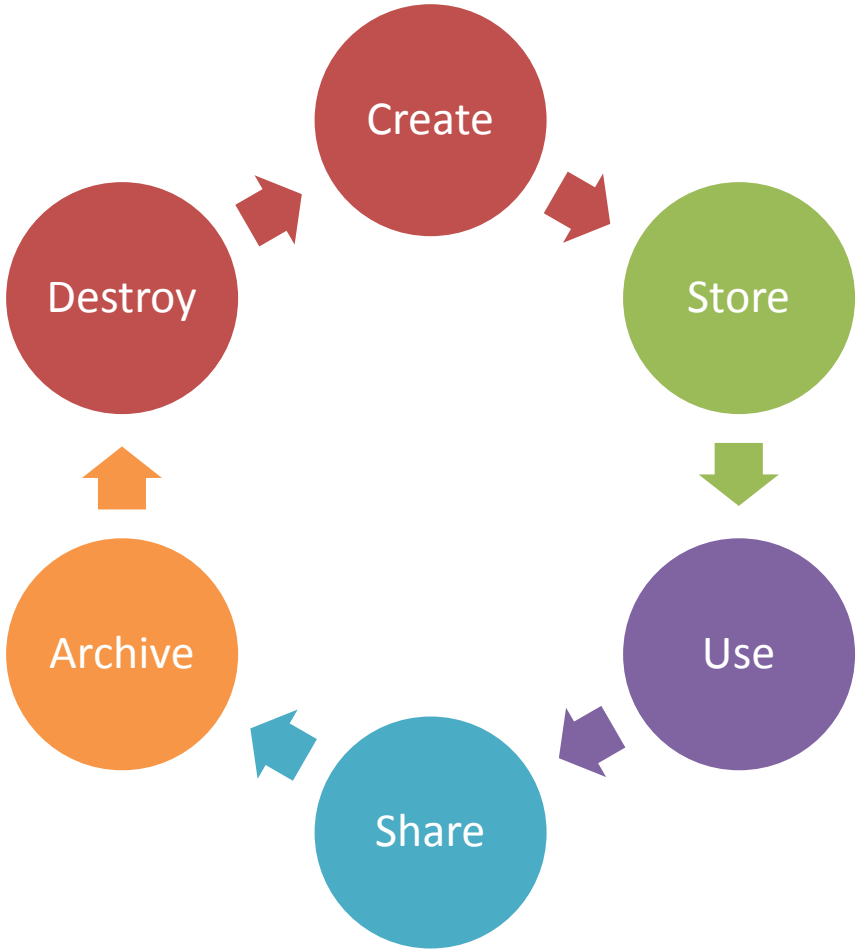
- Data from golden copies must be made available
  - Other systems need it
  - APIs don’t work without it!
- Prevents discrepancies between central and local systems
- Appoint *Data Stewards* to manage access and quality

Data: Common vocabulary and definitions



- Present consistent information
  - Using terms that users understand
  - Shared across org units
- University data model
  - Shared across IT systems
  - If necessary, translate vendor terminology to ours

Data Life Cycle



- Ensure that data is correct and current
  - Processes must keep data up to date
- Meet legal requirements
  - Data protection
  - Data retention
- Meet Business Intelligence requirements
  - Data warehouse

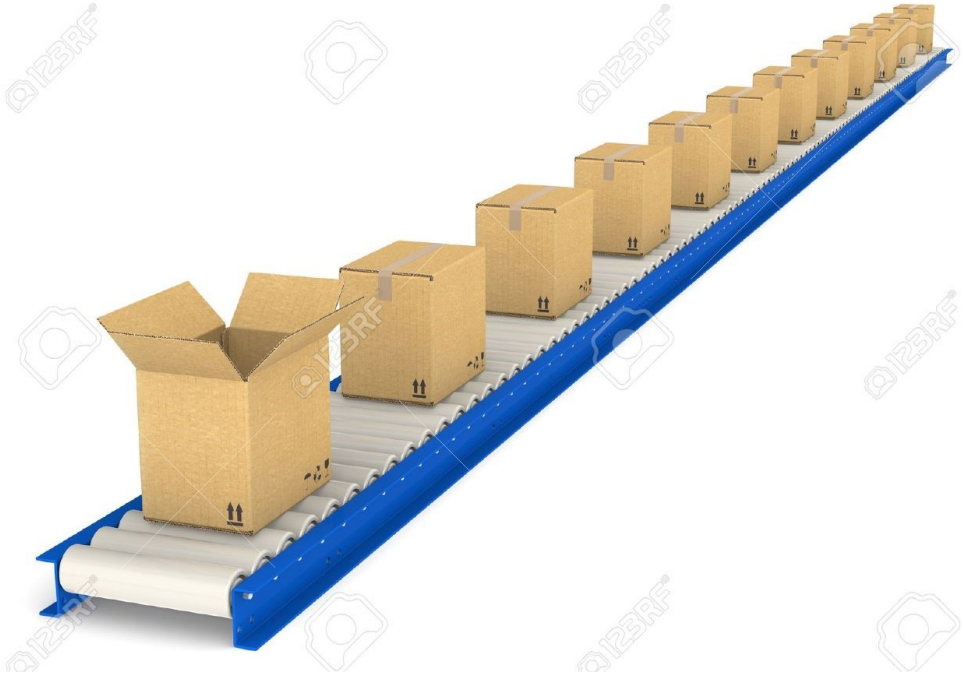
Technology: Standards

- Standards allow building blocks to fit together easily
- Formal (ISO) standards and industry standards
- Building software
  - REST, HTML5, Swagger, …
- Accessibility
  - WCAG
- Data integration
  - JSON, LTI, XCRI-CAP, …
- Security
  - OAuth2, Kerberos, …
- Messaging…
- Infrastructure…

Technology: Monitoring and Analytics

- Usage, performance, availability
- Optimise user experience
- Analyse infrastructure requirements
- Timeously respond to problems

Technology: Automated and Scalable Provisioning



- Consistent results every time
- Automated testing for assured reliability
- Quicker turn-around time
- Deploy on-premises, in the cloud, or a hybrid

Process: This is for everyone

These principles apply to all organisational units within the University

Recap: Key Architecture Principles

- This is for Everyone
- Digital First
- Map the User Journey
- Avoid Duplication
- Common Use
- Federation

(Business) Processes

Applications

- Integrated and Personalised Experience
- Reusable Building Blocks
- Consistent User Experience
- Easy to Use
- Design for Failures
- Innovation

- Golden Copies and Data Stewards
- Data is a Shared Asset
- Common Vocabulary and Definitions
- Extract Value from Data
- Data Security
- Data Life Cycle

Data

Technology (Hardware & Software)

- Manage Technical Diversity
- Standards
- Monitoring and Analytics
- Automated and Scalable Provisioning
- IT Security
- Technology Life Cycle

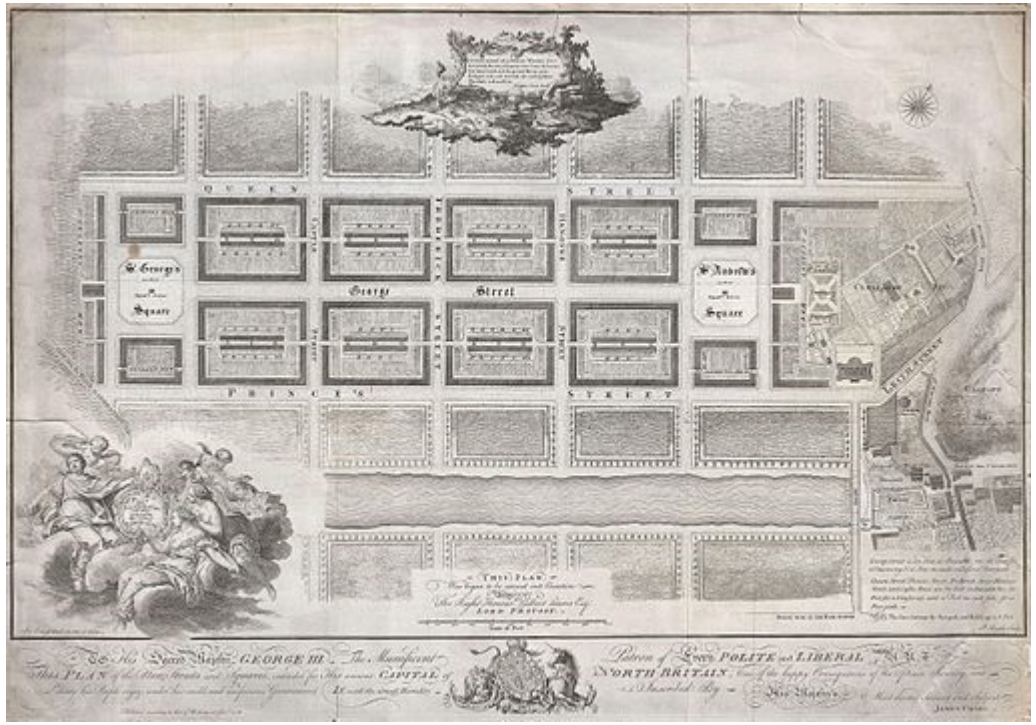
What has all this to do with architecture?

- In IT, “Architecture” refers to the relationships between components
  - Infrastructure, applications, data, business functions & processes
- … and the principles and guidelines governing their design and implementation over time
- Target blueprints, that describe where we’re heading
- Co-ordinating across organisational units

The question is not whether you have architecture…

- You always have some sort of architecture
- Even if you don’t know what it is
- And even if it isn’t pretty

The question is how you manage it to enable change



Enterprise Architecture

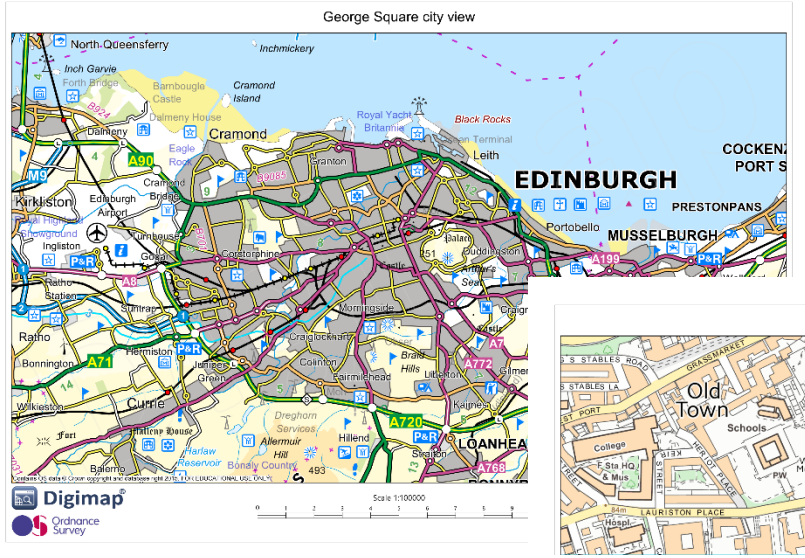
- Know the current state
- Plan the desired state

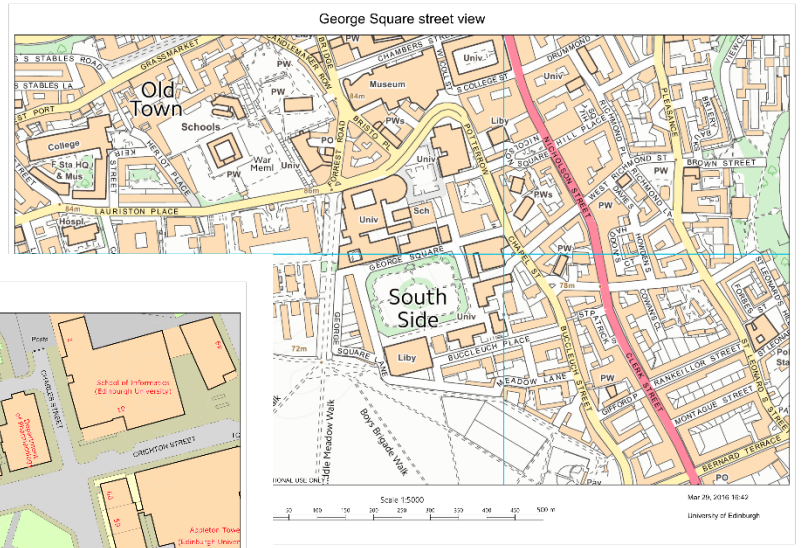
Solution Architecture

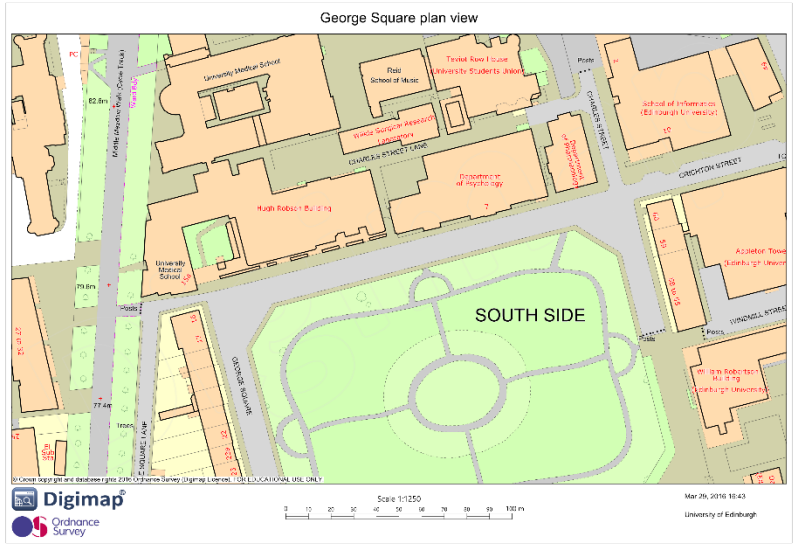
- Agree a roadmap
- Implement incrementally

Architecture can work at different scales

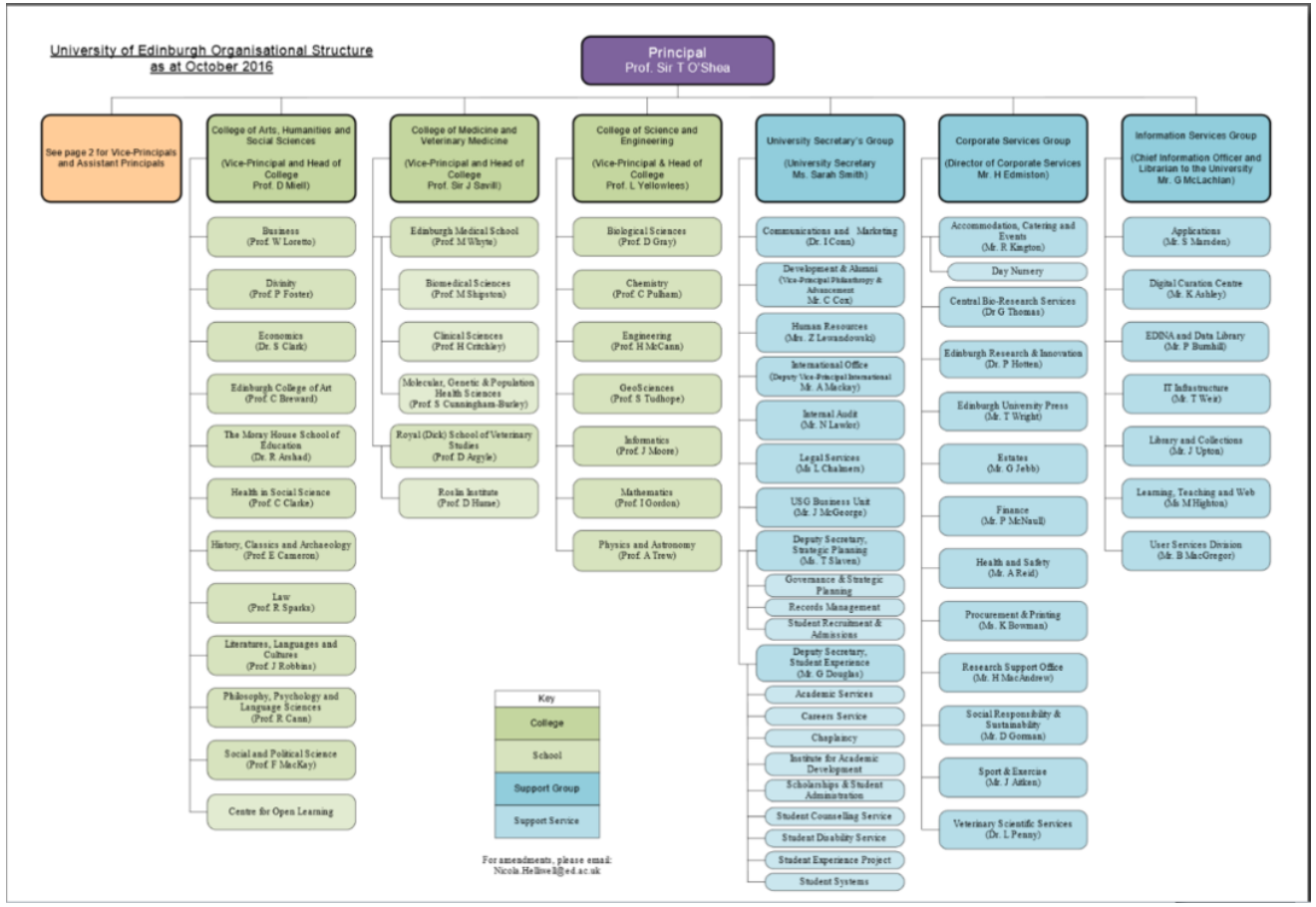
- Co-ordinating for the entire University
  - E.g. Contact management
- Large-scale review of an entire area
  - E.g. HR, or Student Admin
- Review of a particular service
  - E.g. to reduce support calls
  - E.g. to exploit new capabilities







Coda: What do our support services look like to users?

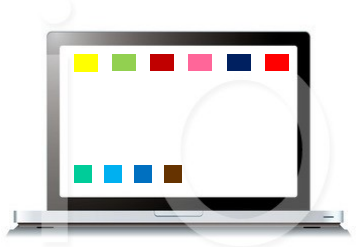


- A query can end up like a game of “pass the parcel”
  - We should treat users as members of the University, not as parcels

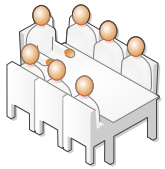
Support: Integrated & Personalised

Academic	Finance & Accommodation	Information Systems
• Change course selection • Special circumstances	• Student loans • Outstanding invoices • Where to stay	• Printing • Wifi access • Library books

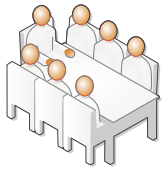
All queries via any channel



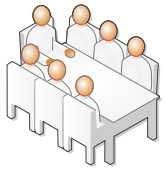
The person you ask ensures the question is resolved



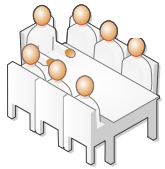
Finance



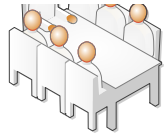
Student Systems



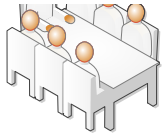
School



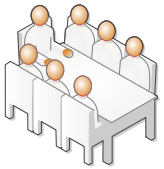
Accommodation



IS



Careers



EUSA

http://distributed-thinking.blogspot.co.uk