

Putting IT all together

Dave Berry

Enterprise Architect

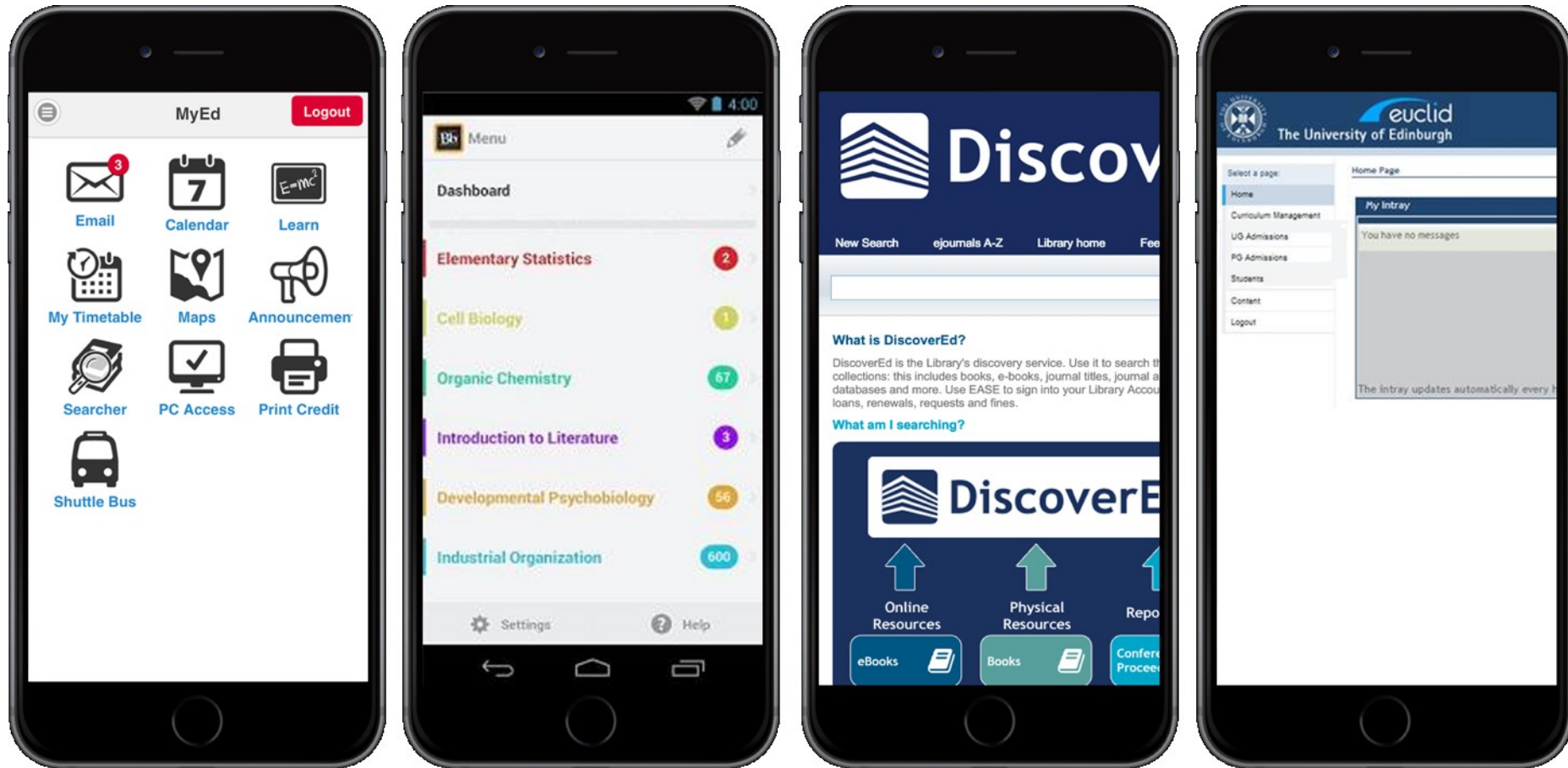


What do our online services look like to students?

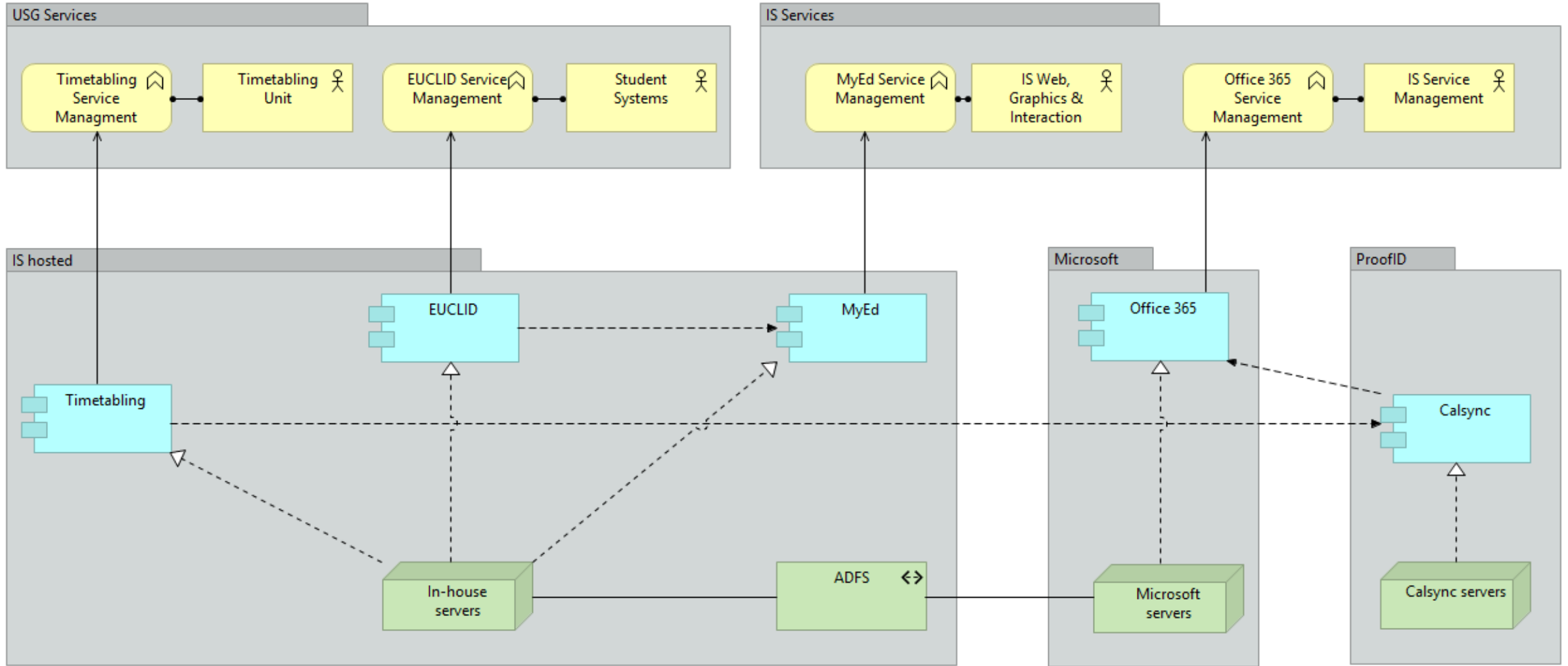
The collage displays several key online services used by students at the University of Edinburgh:

- UniDesk Self Service:** A helpdesk interface for reporting issues, with sections for 'Help Topics', 'Calls', and 'Shortcuts'.
- MyEd Student and Staff Portal:** A central hub for students, showing 'Office 365 Email' (600 unread emails), 'Announcements', 'Dashboard', and 'My Details'.
- DiscoverEd:** The library's search and discovery platform, featuring a search bar and various resource categories.
- euclid:** The university's main portal, showing the user is logged in as GLEN JOHNSON (EUCTRN21).
- My Library:** A personal library page with a 'My Library' section and a 'You have no messages' notification.
- Semester 2 Timetable:** A detailed view of a student's course schedule, showing classes like 'Biological Chemistry 1A' and 'Biological Chemistry 1B'.
- Course Catalogue:** A page for 'Introduction to Gaelic Language and Culture (ECCT08017)', including course details, requirements, and delivery information.

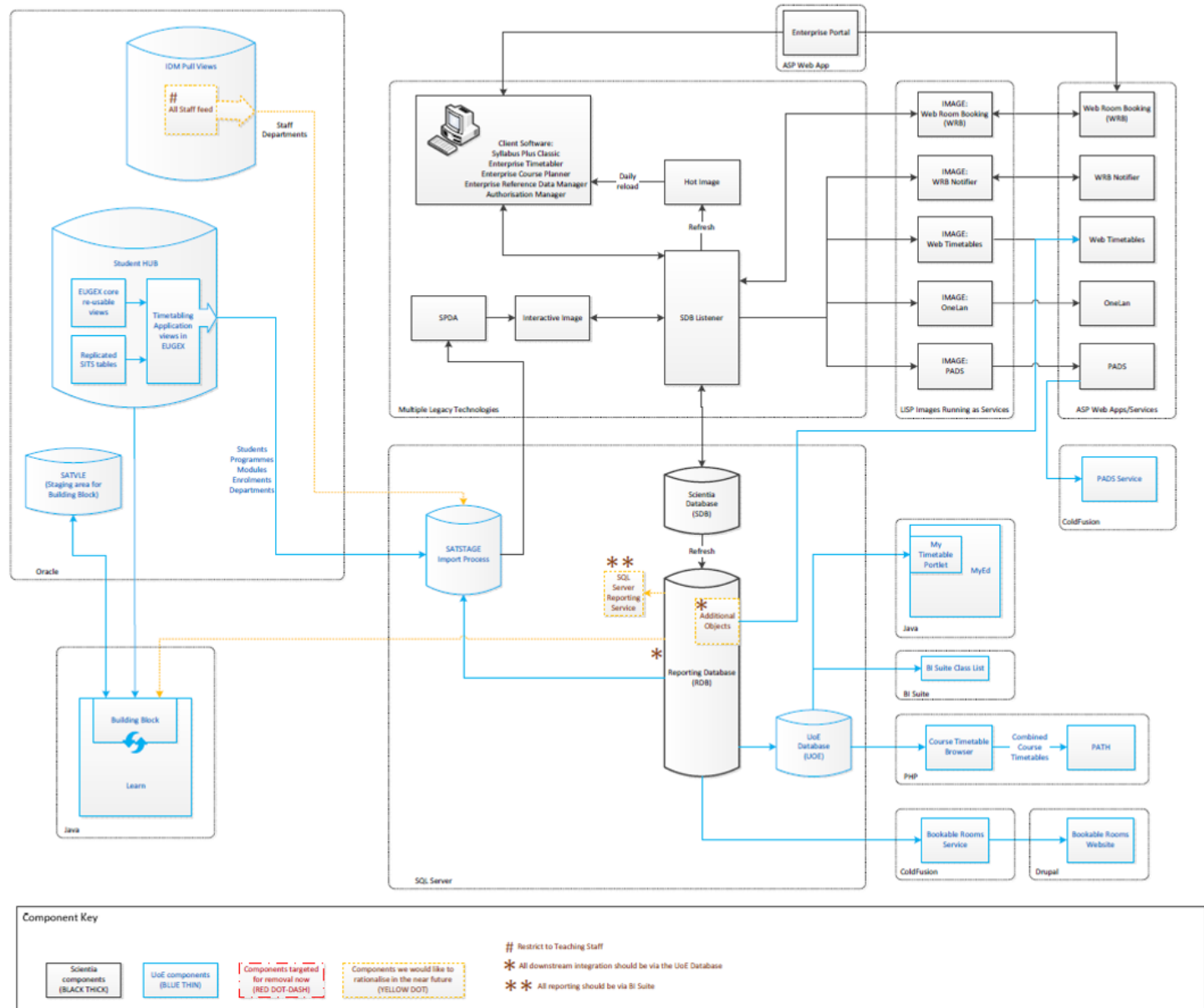
Inconsistent interfaces



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



Timetabling: the applications architecture in more detail

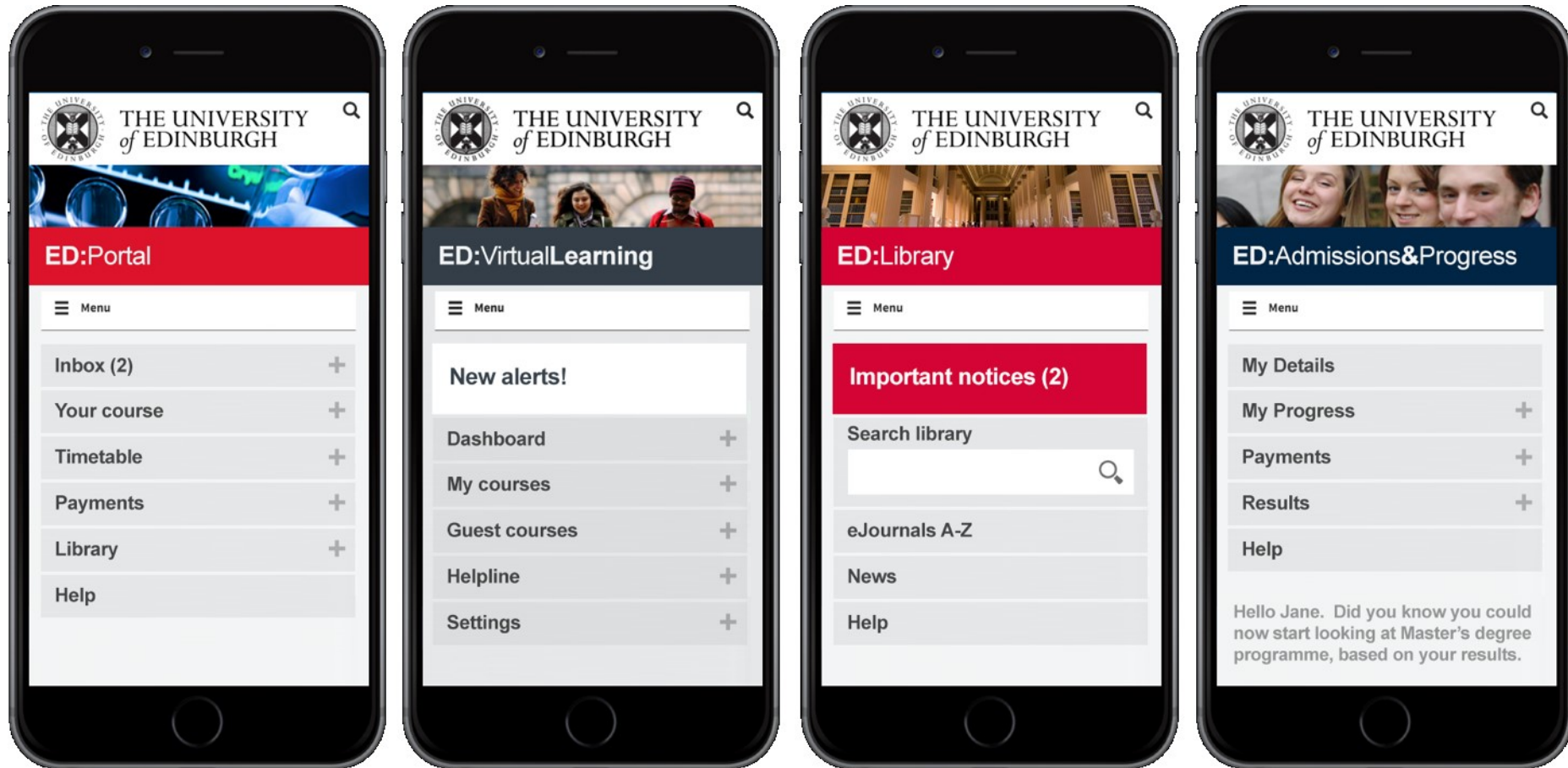


An illustration of what our services could look like

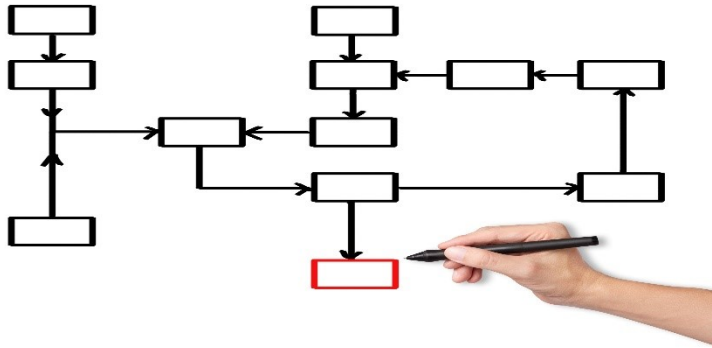
The desktop interface features a red header with the University of Edinburgh logo and the user's name, Jane Smith, along with her course details: MSc Advanced Mathematics, year 2. A search bar is located in the top right. The main content area is titled 'Programme Dashboard' and includes a 'Live Help' button. A navigation bar at the top of the dashboard contains a search input and a 'GO' button. A yellow notification banner states: 'Congratulations. Your overall mark of 74% means that you have officially progressed to year 2.' The dashboard is organized into several sections: 'Upcoming' with a 'Linear algebra assignment due 1pm, 12th March' and a link to 'Make course choices for next year'; 'EASTER HOLIDAYS'; 'Inbox (2)'; 'Your Courses' with 'You have unread feedback (3)', 'Timetable', and 'Your course modules'; 'Course Progress' with 'Linear algebra assignment #3 82%' and 'Full results details'; 'Finance' with 'Payments due (1)', 'Accommodation payments', 'Printing account', and 'You have 3 overdue library loans'; 'Your Work' with 'Files shared with you (9)' and 'Submit your work'; 'Search the library' with a search input and 'Advanced search'; and 'Personal' with 'Careers Appointments', 'Part time jobs', and 'Personal details'.

The mobile interface displays the same user information as the desktop version. It features a 'Menu' button and a 'Upcoming (2)' section. The yellow notification banner is present. The 'Your Courses' section is visible, showing 'You have unread feedback (3)', 'Timetable', and 'Your course modules'. The 'Finance' section shows 'Payments due (1)', 'Accommodation payments', 'Printing account', and 'You have 3 overdue library loans'. The 'Search the library' section is also visible at the bottom.

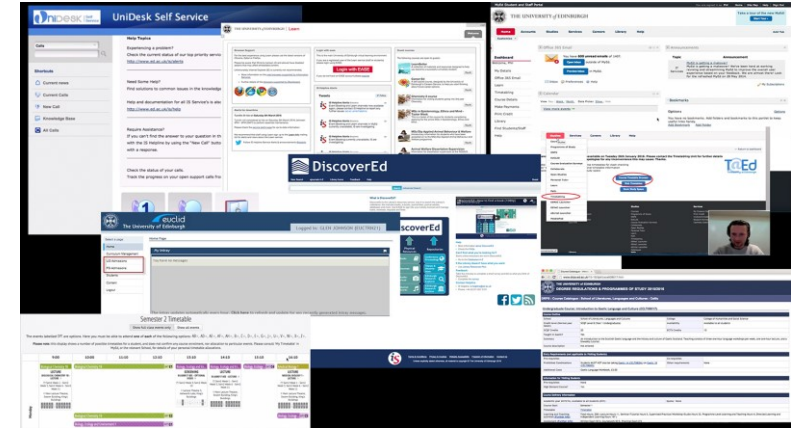
Consistent appearance; Meaningful names



Let's look at what this entails behind the scenes



**(Business)
Processes**



Applications

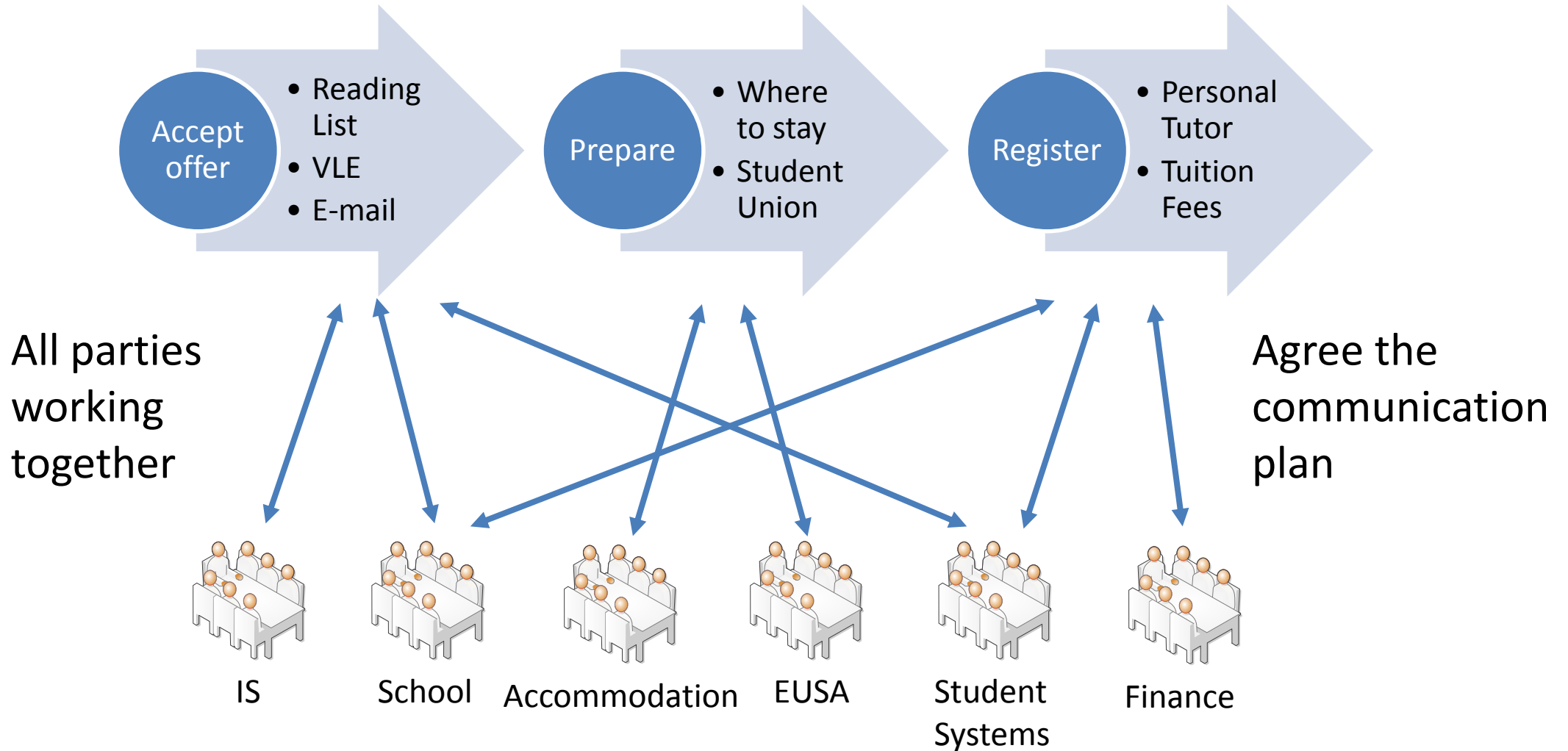


Data



**Technology
(Hardware
& Software)**

Processes: Map the User Journey



Process: Digital First



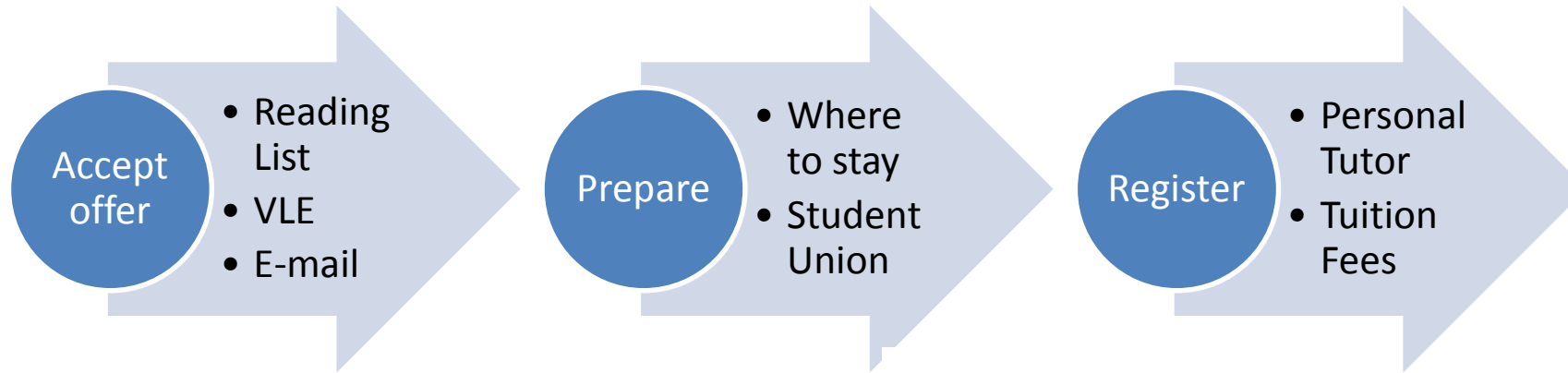
- (Re-)Design processes from scratch to be used online
 - Don't just replicate existing processes
- What do our students & staff want to do?
- How can we make this easy?
 - Let them focus on learning, teaching & research

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



All information in a single place



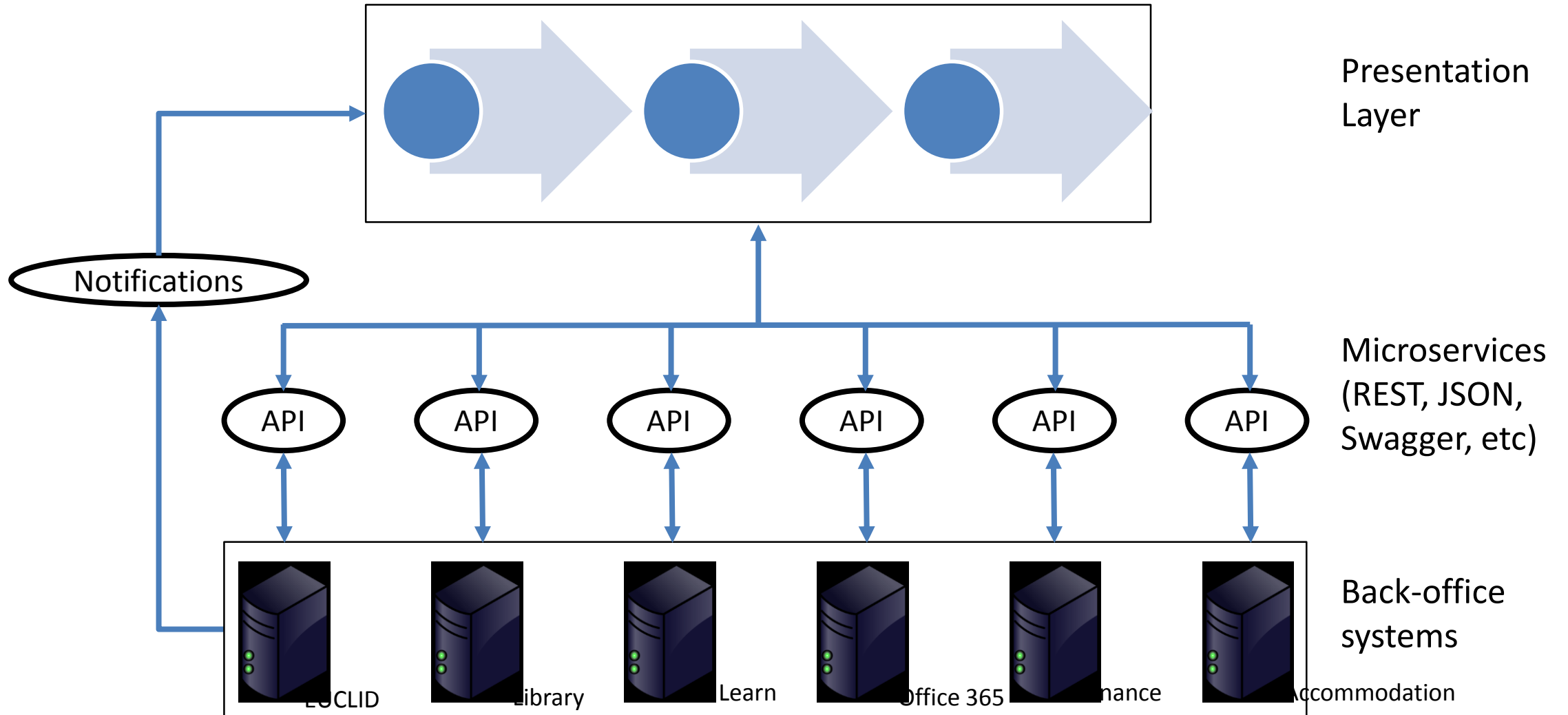
August 2015

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					



All important dates in the student's diary

Applications: Reusable Building Blocks

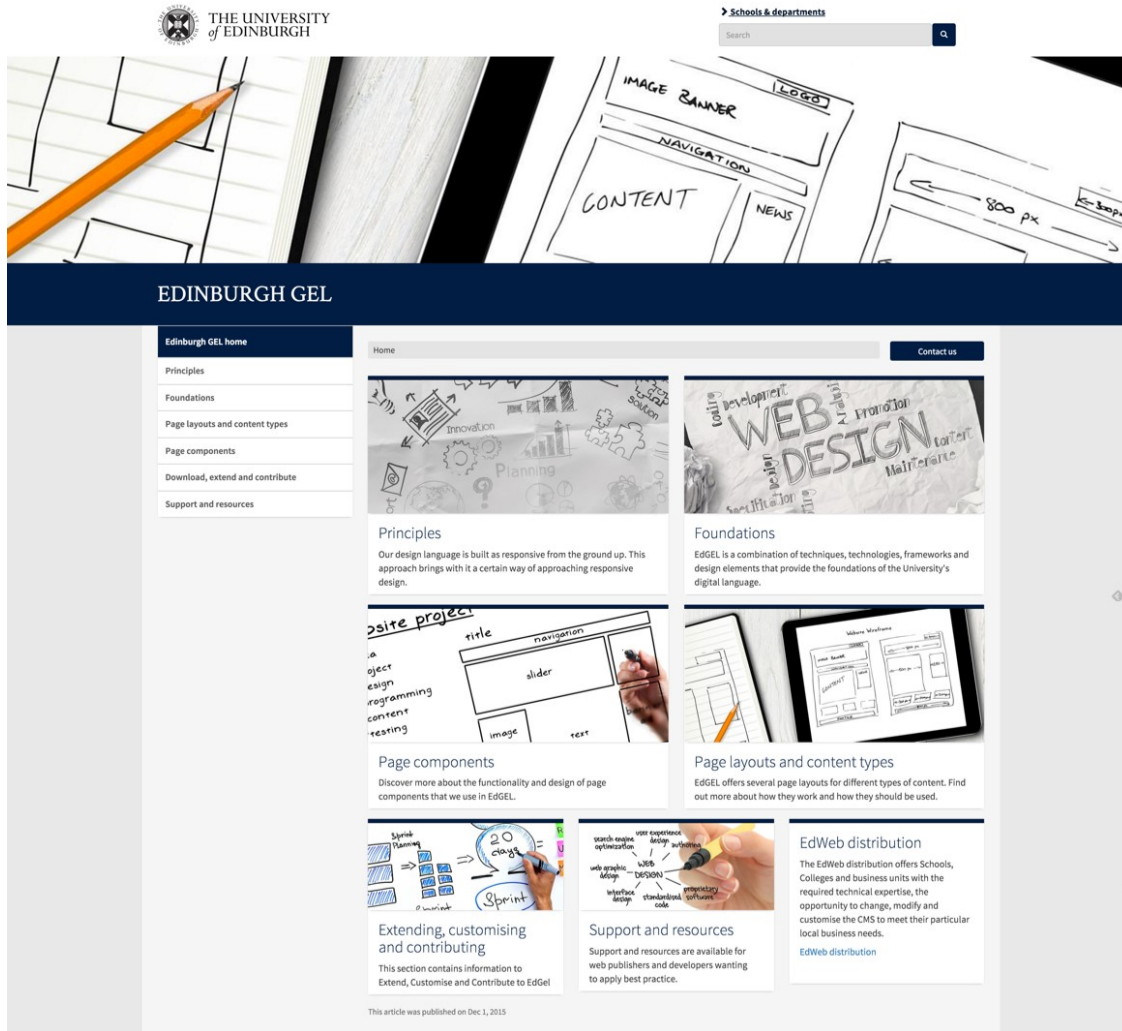


Applications: Easy to use



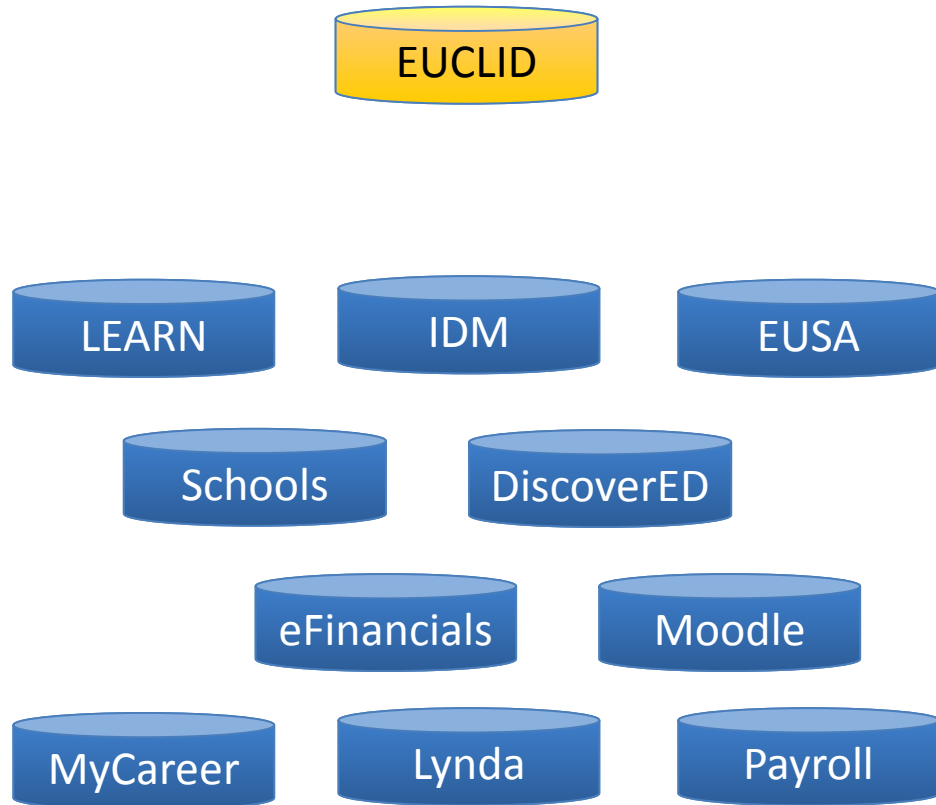
- Usability workshops – with real users
- Web code libraries: responsive design
- Accessible by design

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



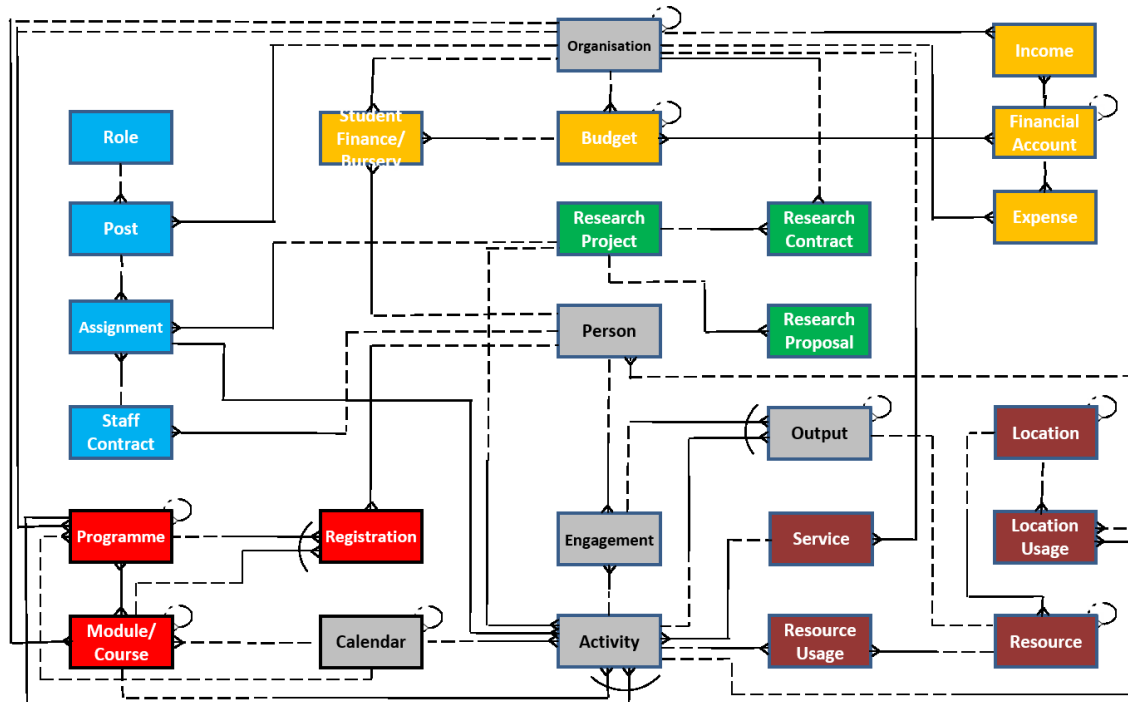
- Definitive value of core data
 - E.g. EUCLID = Student Record
- All updates made to golden copy
 - May propagate to other systems
- Example:
 - If a student updates their address in EUCLID; this should update there address in Payroll too.
- Golden Copy Data Catalogue

Data is a shared asset



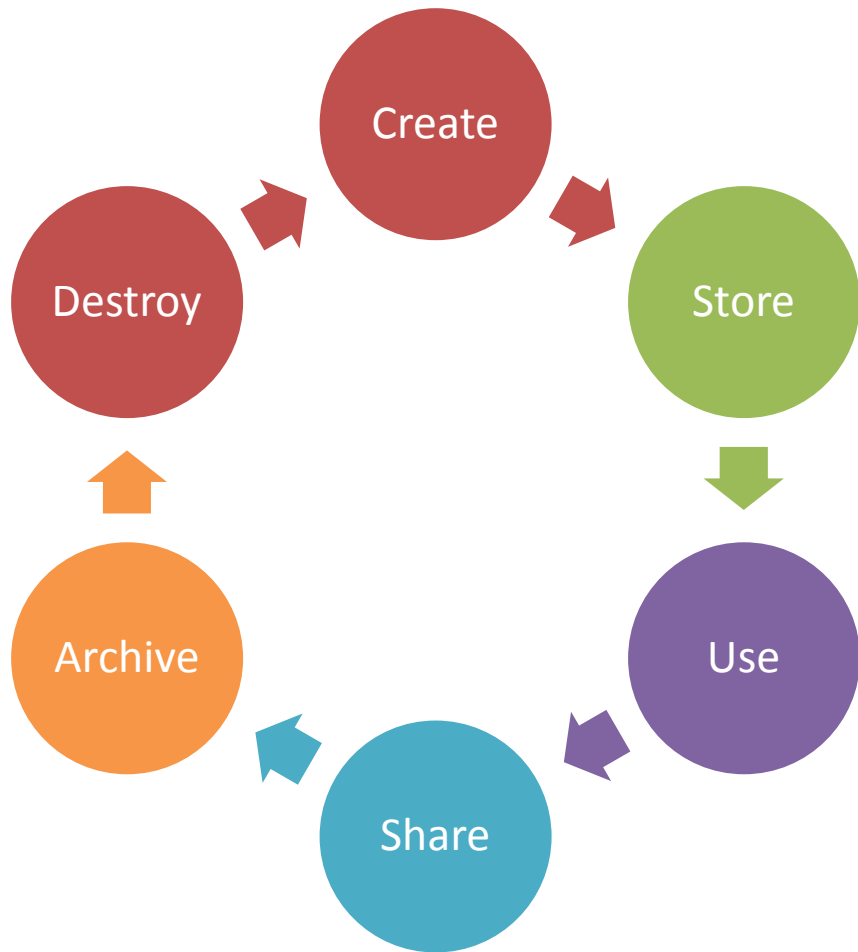
- Data from golden copies must be made available
 - Other systems need it
 - APIs don't work without it!
- Prevents discrepancies between central and local systems
- Appoint *Data Stewards* to manage access and quality

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



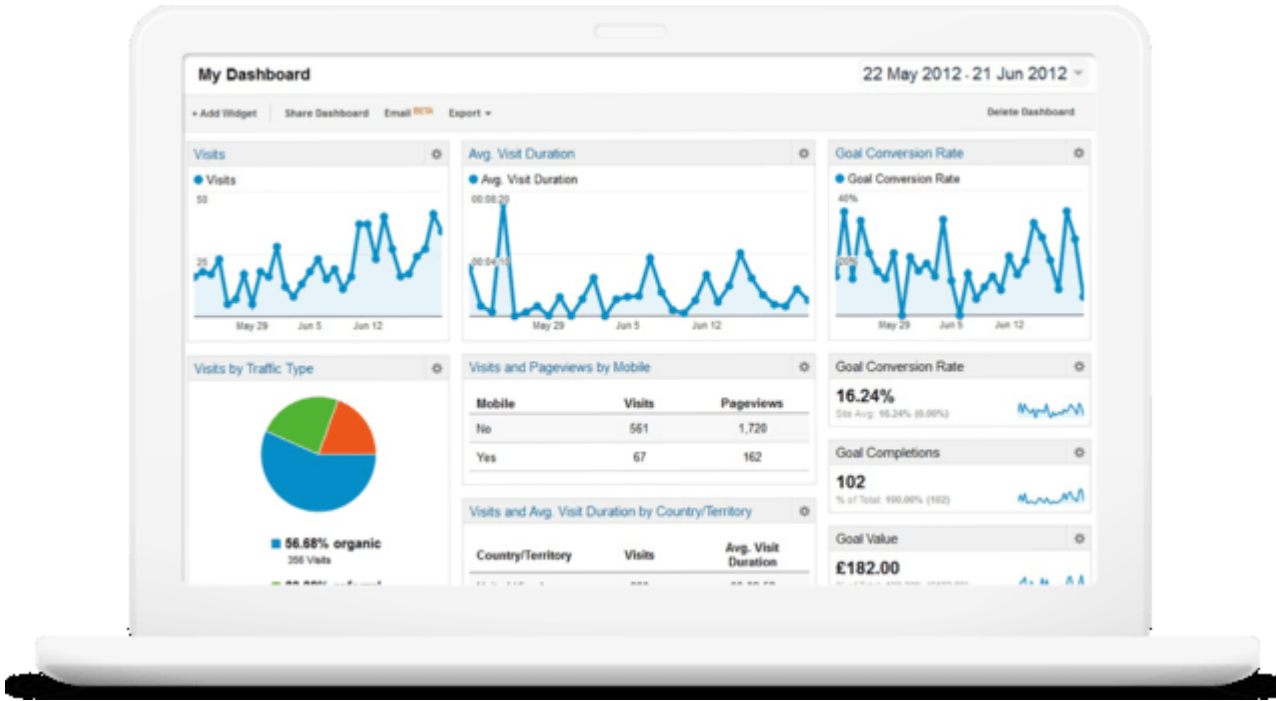
- Ensure that data is correct and current
 - Processes must keep data up to date
- Meet legal requirements
 - Data protection
 - Data retention
- Meet Business Intelligence requirements
 - Data warehouse

Technology: Standards



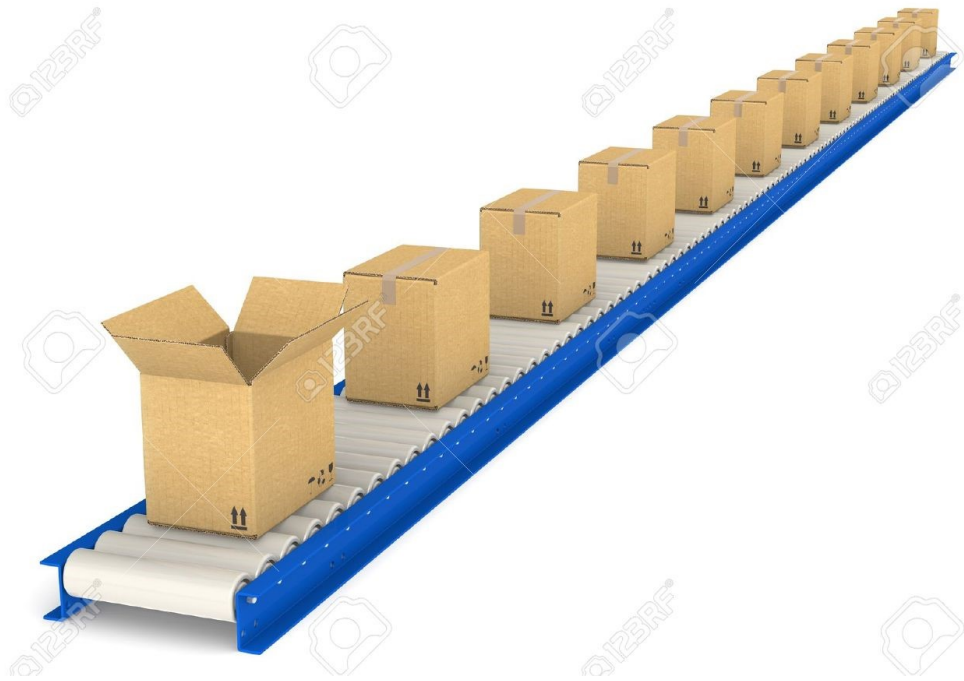
- Standards allow building blocks to fit together easily
- Formal (ISO) standards and industry standards
- Building software
 - REST, HTML5, Swagger, ...
- Accessibility
 - WCAG
- Data integration
 - JSON, LTI, XCRICAP, ...
- Security
 - OAuth2, Kerberos, ...
- Messaging...
- Infrastructure...

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?



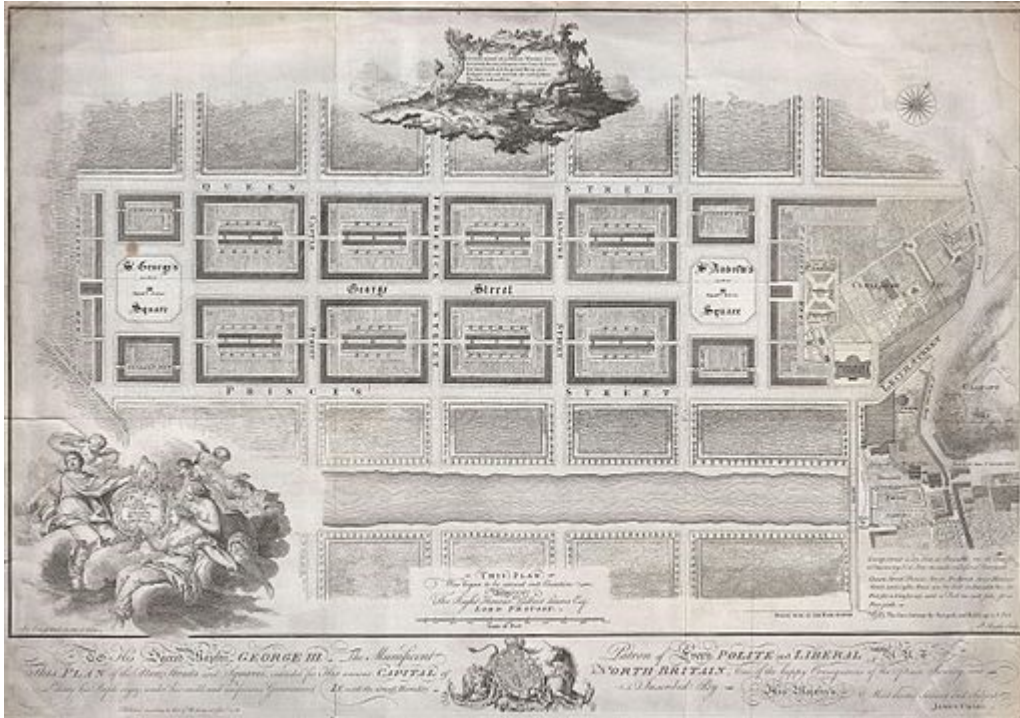
- In IT, “Architecture” refers to the relationships between components
 - Infrastructure, applications, data, business functions & processes
- ... and the principles and guidelines governing their design and implementation over time
- Target blueprints, that describe where we’re heading
- Co-ordinating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

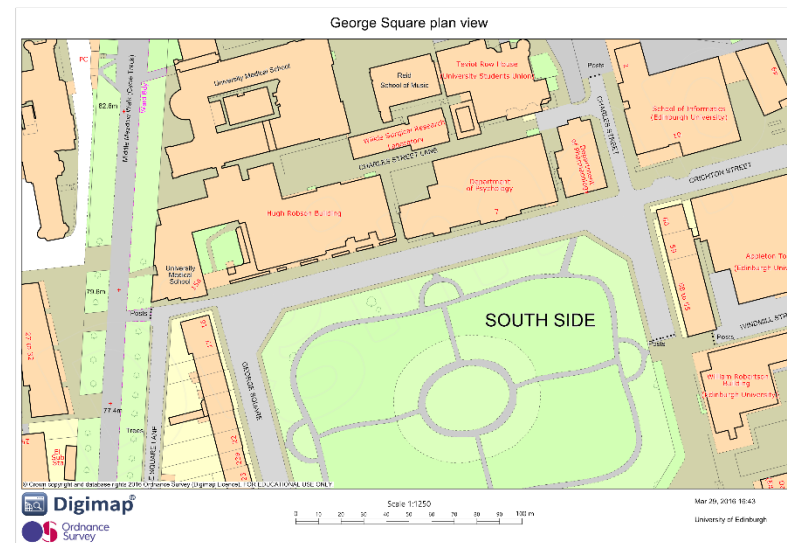
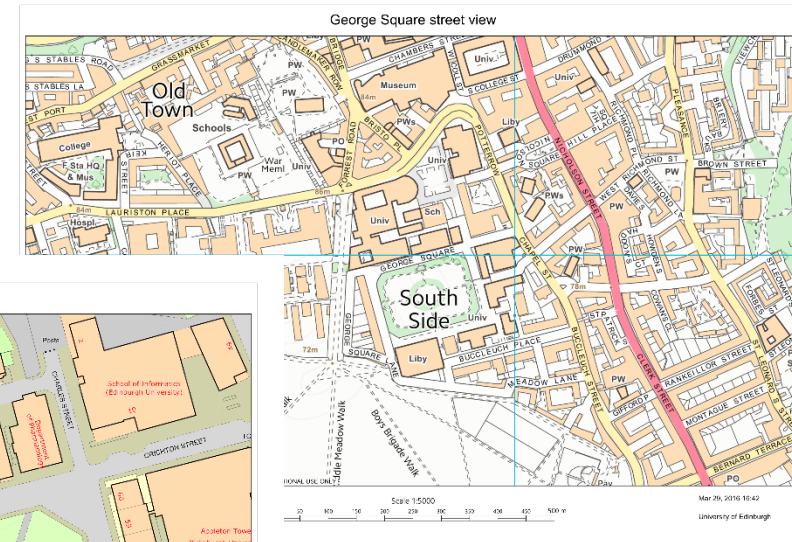
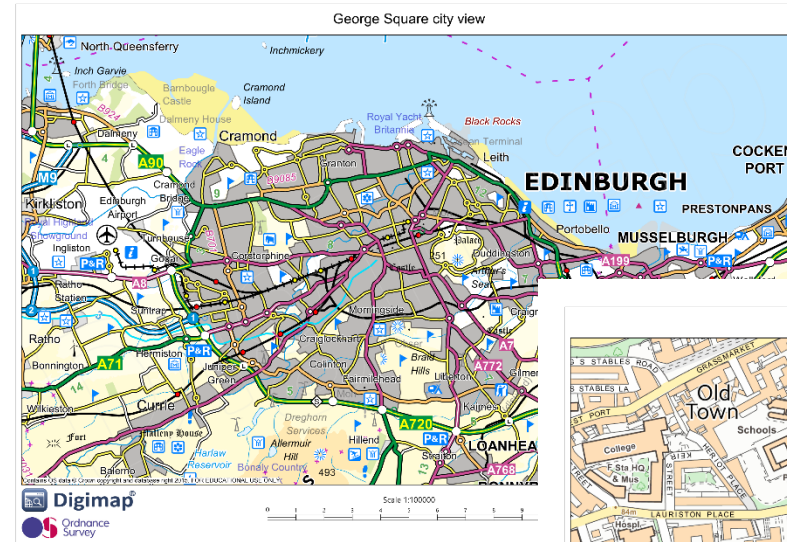
- Know the current state
- Plan the desired state

Solution Architecture

- Agree a roadmap
- Implement incrementally

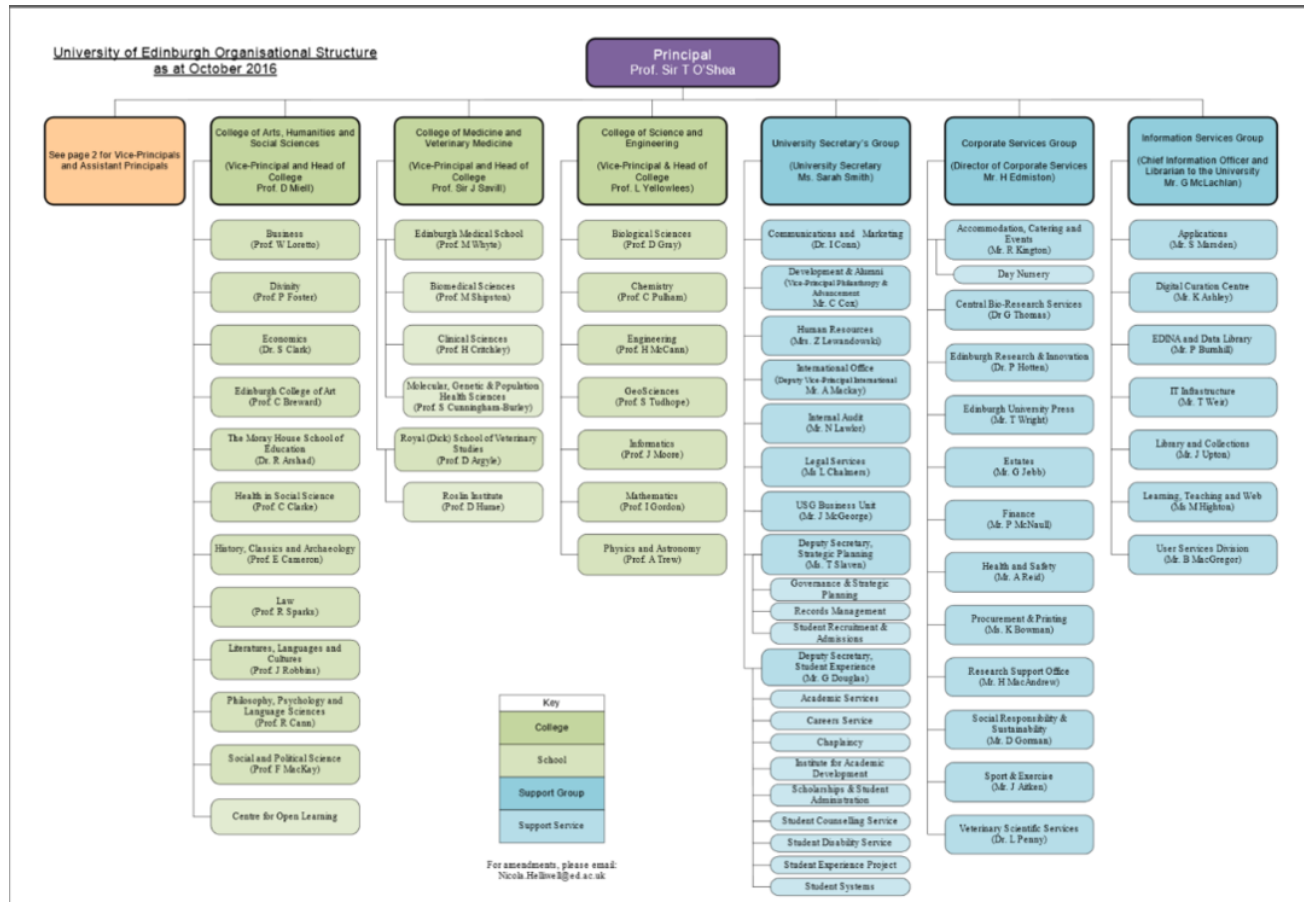
Architecture can work at different scales

- 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

- Change course selection
- Special circumstances

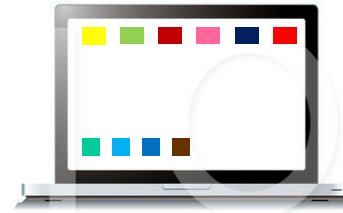
Finance & Accommodation

- Student loans
- Outstanding invoices
- Where to stay

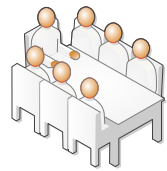
Information Systems

- Printing
- Wifi access
- Library books

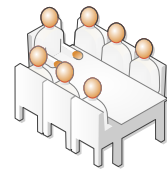
All queries via any channel



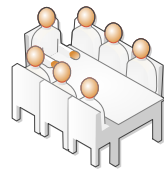
The person you ask ensures the question is resolved



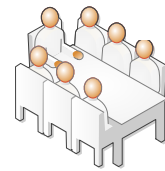
Finance



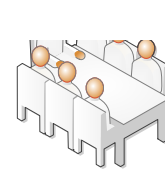
Student Systems



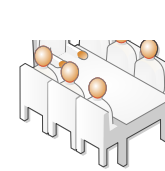
School



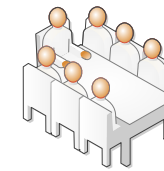
Accommodation



IS



Careers



EUSA



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