

JISC



JISC Conference 2009 Opening Digital Doors



inspiring innovation

What do researchers want from ICT?

Speakers:

1. Matthew Dovey, Programme Director e-Research, JISC
2. Gabriel Hanganu, Oxford University
3. Neil Chue Hong, OMII-UK
4. Professor Rob Procter, National Centre for e-Social Science, University of Manchester



eius

e-Infrastructure Use Cases
and Service Usage Models

e-Infrastructure Use Cases and Service Usage Models (eIUS) Project

Gabriel Hanganu
JISC Conference

24 March 2009, Edinburgh

Outline

- eIUS success stories
- How we captured them
- Why are they relevant

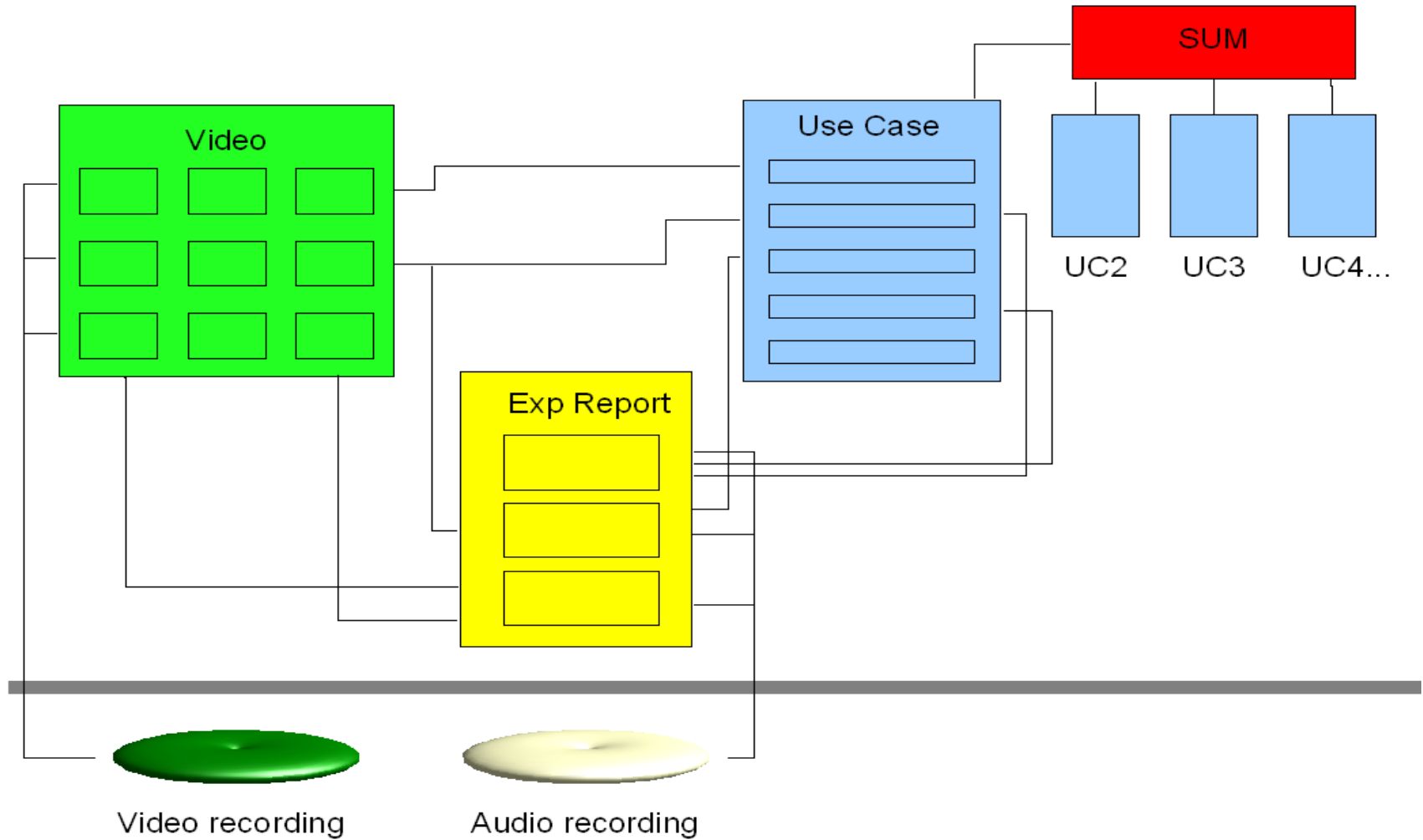
Success stories

- Main objective: “develop a deep understanding of the e-Infrastructure services currently available in the UK, and how they are used by the research community across main subject disciplines”
- More than just an information gathering exercise: “broaden participation in the use and future development of e-infrastructure services”

Main outputs

- Combination of interviews and focus groups to produce:
- Experience Reports: examples of e-Infrastructure use organized by stage of research cycle
- Use Cases: non-technical idealized scenarios of how users interact with e-Infrastructure
- Videos: visual alternatives to Use Cases, 'trailers for research' to encourage further uptake
- Service Usage Models: patterns or combinations of e-Infrastructure use derived from Use Cases

Exp Rep, Use Case, Video, SUM



eius

e-Infrastructure Use Cases
and Service Usage Models

Outputs matrix

	Research area	Research Council	Interview location	Transcript	Experience report	Use case	SUM	Video
1	Engineering	Medical	Oxford					
2	Applied econometrics	Economic & Social						
3	Computational biochemistry	Biotechnology & Biological						
4	Corpus linguistics	Arts & Humanities	Oxford					
5	Radiotherapy	Medical	Cardiff					
6	Demographic modelling	Economic & Social	Leeds					
7	Chemistry	Engineering & Physical	Manchester					
8	Microeconomics	Economic & Social	Manchester					
9	Bioinformatics	Biotechnology & Biological	Manchester					
10	Earth Science	Natural Environment	Cambridge					
11	Archaeology	Arts & Humanities	Reading					
12	Disease control	Biotechnology & Biological	Manchester, Liverpool					
13	Quantum chemistry	Engineering & Physical	Liverpool					
14	Astronomy	Science Technology Facilities	Edinburgh					
15	Microelectronics	Engineering & Physical	Glasgow					
16	Geography	Economic & Social	London					
17	Dance studies	Arts & Humanities	Leeds, Manchester					
18	Education studies	Economic & Social	Liverpool					
19	Crystallography	Natural environment	Southampton					
20	Humanities computing	Arts & Humanities	Reading					

Success stories

- [Archaeology clip](#)



eius

e-Infrastructure Use Cases
and Service Usage Models

Experience report - Archaeology

Research cycle stage 2: Data collection

“The traditional approach has been [that] you describe your layers and write them by hand on a proforma, you do all your records, handwritten and all your plans are just drawn in pencil on permatrace. What we're trying to do here is to reach the point where everything is entered digitally right from the start, so immediately you write your context record using a digital pen, you can [upload] that information in the database. You can draw a plan of the layer, or a plan of the wall, and immediately that information can be [uploaded] straight into the database, rather than having a whole set of different datasets which you then subsequently have to link up. [This] is speeding up the process [and] you can start analysing at a much earlier stage.”

Experience report - Archaeology

Research cycle stage 2: Data collection

“The traditional approach has been [that] you describe your layers and write them by hand on a proforma, you do all your records, handwritten and all your plans are just drawn in pencil on permatrace. What we're trying to do here is to reach the point where everything is entered digitally right from the start, so immediately you write your context record using a digital pen, you can [upload] that information in the database. You can draw a plan of the layer, or a plan of the wall, and immediately that information can be [uploaded] straight into the database, rather than having a whole set of different datasets which you then subsequently have to link up. [This] is speeding up the process [and] you can start analysing at a much earlier stage.”

Use case 11 – Archaeology

1. Martin is a Roman archaeologist interested in the dynamics of social and economic change in late Roman urban settlements across the UK. He leads a large research project involving the exploration of the Roman site of Casterium, carried out in short periods of fieldwork every summer. This year after the first excavation week he is particularly excited. Several metal ring keys were found in one of the peripheral trenches of the site, and this rather unexpected find may put the entire research in a new perspective.

2. As excavation can only be carried out during the short summer period, Martin needs to decide if over the next few weeks he should ask some of the team to further explore the peripheral trench, or carry on with the initial excavation plans. In front of his computer Martin opens the Integrated Archaeological Database, an online resource shared with partner organisations he has extensively used in the past few years, and checks the matrix of stratigraphic relationship for the new find.

3. Clive is the supervisor of the excavation unit who has found the ring keys. While he is having an early breakfast in the camp's kitchen, he checks on his laptop connected to a local ad-hoc wireless network the latest data his trainees entered in the online database.

4. After all the previous day's excitement, Clive has now got a chance to check whether the new find was properly documented. Clive looks up the database entry and notices that a piece of information entered via digital pen by a trainee is not fully accurate. He logs into the database and corrects the entry while making a mental note to flag the error to the student who made it.

5. Field archaeologist Margaret is working in her camp-based office. Margaret is responsible with the organization of the excavation and scientific teams hosted on site. She has been very busy over the past few weeks getting the site ready for the summer dig and helping all the teams settle in. Now she can finally focus on another part of her job, which involves preparing contextual information for the off-site specialists who produce dating reports for the new finds.

6. In her office Margaret looks up the online database and selects relevant data and photos associated with the newly discovered keys. Although she could send all the information in an email linking to database entries, she has to print and send it by post, as the Roman metalwork specialist who is producing the report is less confident working online.

7. While preparing the contextual information pack, Margaret occasionally copies relevant bits of data in a separate folder labelled 'Late Roman'. This information will be useful in a few days time, when she and Martin are meeting to discuss the interim report they publish each year from the excavation site. The report is published on the Late Roman website, an online resource they have initiated a few years ago to supplement material published in paper form. The report will be updated and expanded into a fully fledged paper as the excavation results are being processed and analysed.

8. Soil micromorphologist Sally is busy taking soil samples from trench X, the location where the ring keys were found a few days ago. To determine the precise location of the find Sally uses an EDM (electronic device measurer) provided by her institution, which records coordinates that can be accurately mapped on the Ordnance Survey Grid reference.

9. Sally takes the soil samples to her university's lab and prepares phytoliths micro-photography slides for inspection. She is intrigued by the occurrence of a silica sequence she has never come across before. Having checked UCL's Old World Phytoliths image gallery, Sally decides to phone a UCL colleague she had met last year at the Soil Micromorphology Group annual meeting to ask her opinion. As they speak, they browse the image gallery and draw comparisons with a set of phytoliths Sally has uploaded in the Integrated Archaeology Database. Inspired by the conversation, Sally completes her report and uploads it in the database.

10. A few days later Margaret emails the metalwork specialist Sally's report. Having checked the micro-photography images available online, the specialist completes his dating report and emails it to Margaret, who uploads it in the site's database. The two published reports help Martin decide on excavation priorities for the last two weeks of fieldwork. Unlike the initial plans, one part of the team will be asked to dig in the area adjacent to the new find.

11. August 25th 2008. Another summer excavation camp at Casterium has completed. The teams have left the day before and the tents' field now looks totally deserted. Martin and Margaret are having a last cup of tea by trench X before heading home. They are exhausted, as they always are at the end of the fieldwork period, but this year's results have been particularly good. They have already received exciting feedback to the preliminary report published on the Late Roman website.

Use case 11 - Archaeology

1. Martin is a Roman archaeologist interested in the dynamics of social and economic change in late Roman urban settlements in the UK. He leads a large research project involving the exploration of the Roman site of Casterium, carried out in short periods of fieldwork every summer. This year after the first excavation week he is particularly excited. Several metal ring keys were found in one of the peripheral trenches of the site, and this rather unexpected find may put the entire research in a new perspective.



eius

e-Infrastructure Use Cases
and Service Usage Models

Use case 11 - Archaeology

1. Martin is a Roman archaeologist interested in the dynamics of social and economic change in late Roman urban settlements in the UK. He leads a large research project involving the exploration of the Roman site of Casterium, carried out in short periods of fieldwork every summer. This year after the first excavation week he is particularly excited. Several metal ring keys were found in one of the peripheral trenches of the site, and this rather unexpected find may put the entire research in a new perspective.

2. As excavation can only be carried out during the short summer period, Martin needs to decide if over the next few weeks he should ask some of the team to further explore the peripheral trench, or carry on with the initial excavation plans. In front of his computer Martin opens the Integrated Archaeological Database, an online resource shared with partner organisations he has extensively used in the past few years, and checks the matrix of stratigraphic relationship for the new find.



eius

e-Infrastructure Use Cases
and Service Usage Models

Use case 11 - Archaeology

1. Martin is a Roman archaeologist interested in the dynamics of social and economic change in late Roman urban settlements in the UK. He leads a large research project involving the exploration of the Roman site of Casterium, carried out in short periods of fieldwork every summer. This year after the first excavation week he is particularly excited. Several metal ring keys were found in one of the peripheral trenches of the site, and this rather unexpected find may put the entire research in a new perspective.
2. As excavation can only be carried out during the short summer period, Martin needs to decide if over the next few weeks he should ask some of the team to further explore the peripheral trench, or carry on with the initial excavation plans. In front of his computer Martin opens the Integrated Archaeological Database, an online resource shared with partner organisations he has extensively used in the past few years, and checks the matrix of stratigraphic relationship for the new find.
3. Meanwhile Clive, the supervisor of the excavation unit who has found the ring keys, is having an early breakfast in the camp's kitchen. He checks on his laptop connected to a local ad-hoc wireless network the latest data his trainees entered in the online database.



eius

e-Infrastructure Use Cases
and Service Usage Models

Use case 11 - Archaeology

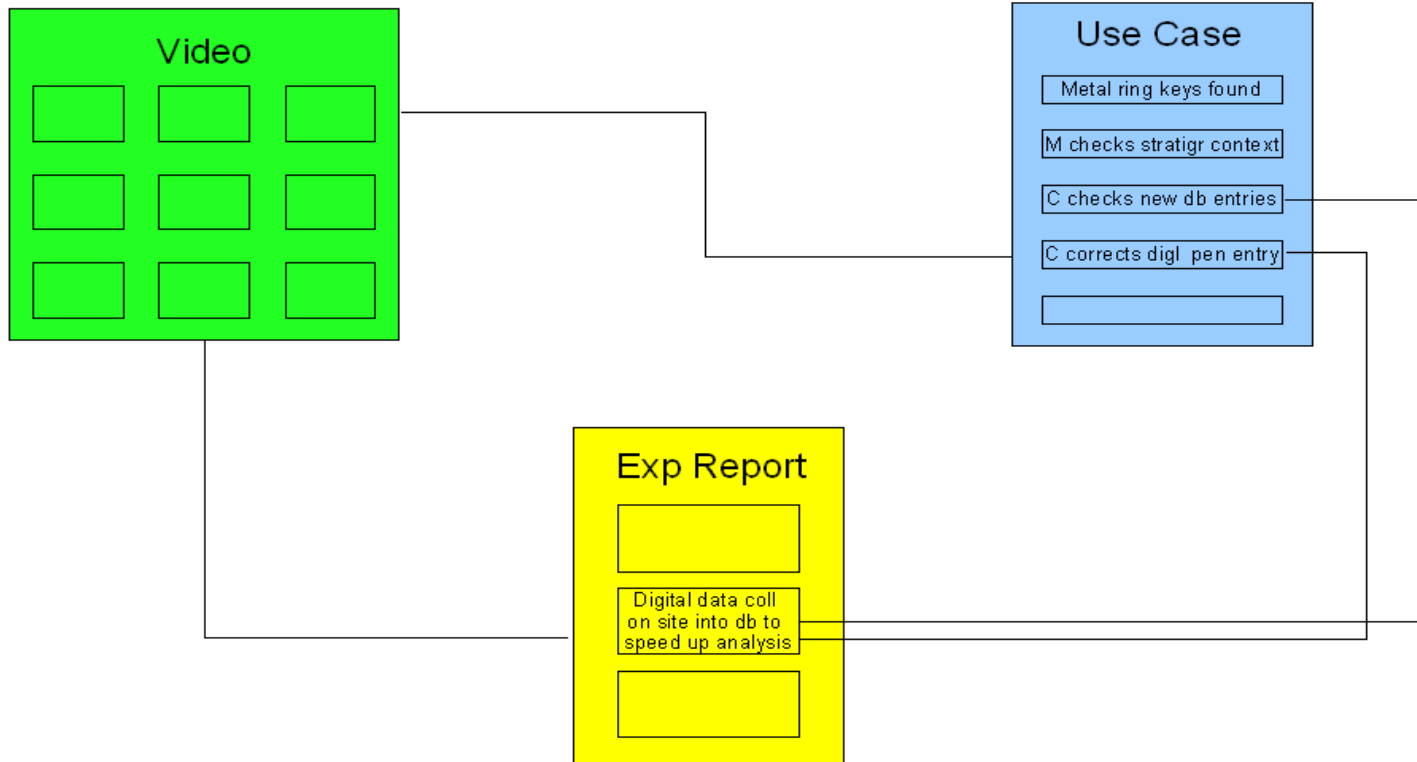
1. Martin is a Roman archaeologist interested in the dynamics of social and economic change in late Roman urban settlements in the UK. He leads a large research project involving the exploration of the Roman site of Casterium, carried out in short periods of fieldwork every summer. This year after the first excavation week he is particularly excited. Several metal ring keys were found in one of the peripheral trenches of the site, and this rather unexpected find may put the entire research in a new perspective.
2. As excavation can only be carried out during the short summer period, Martin needs to decide if over the next few weeks he should ask some of the team to further explore the peripheral trench, or carry on with the initial excavation plans. In front of his computer Martin opens the Integrated Archaeological Database, an online resource shared with partner organisations he has extensively used in the past few years, and checks the matrix of stratigraphic relationship for the new find.
3. Meanwhile Clive, the supervisor of the excavation unit who has found the ring keys, is having an early breakfast in the camp's kitchen. He checks on his laptop connected to a local ad-hoc wireless network the latest data his trainees entered in the online database.
4. After all the previous day's excitement, Clive has now got a chance to check whether the new find was properly documented. He looks up the database entry and notices that a piece of information entered via digital pen by a trainee is not fully accurate. He logs into the database and corrects the entry, while making a mental note to flag the error to the student who made it.



eius

e-Infrastructure Use Cases
and Service Usage Models

Archaeology ER - UC - Video



Capturing success stories

- Experience reports
- Use cases
- Videos

Experience reports

- Interviews
 - Selection of interviewees
 - Locations
 - Structure
- Experience report
 - Read transcript + listen to audio
 - Read related transcripts if available (eUptake, Engage)
 - Select relevant data + organise cf. research cycle

Use cases

- Draft use case (analysis and distillation)
 - Identify characters
 - Sketch narrative
 - Flesh out, select key quotes
 - Check logical & temporal coherence
- Feedback and final use case
 - Circulate draft to interviewees and elicit feedback
 - Create feedback report
 - Edit draft into final use case
 - Check overall coherence

Videos

- **Rough cut video**
 - Identify projects and protagonists
 - Background research based on experience report
 - Write and circulate set of questions
 - Film and edit rough cut version
- **Feedback and final version**
 - Circulate draft and elicit feedback
 - Edit rough cut into final version
 - Disseminate via CE portal, Oxford iTunesU, uTube

Why outputs are important

- Lessons learned
- Methodology potential



eius

e-Infrastructure Use Cases
and Service Usage Models

Lessons learned: overall benefits

- Researchers adopt e-infrastructure tools if they provide overall, rather than just research benefits

“The software we produce [Taverna] is a workflow management system that allows me to design my experiment as workflow: I need to get this data from here, that data from there, compare it in some way, usually in various ways, and then I need to take these comparisons and do some statistical analysis on them. So I automate the whole process, then if I want to look every day to see whether there’s new data, I can just run on the website again.[...] If Taverna didn't exist people could still do comparisons between genome databases manually or write more programmes to connect to the web pages, but then you have to be a programmer as well. So the reason Taverna is becoming popular in bioinformatics is, some bioinformaticians are very good programmers, some are very good biologists who know about biological data, and there's not really much of an overlap.”



eius

e-Infrastructure Use Cases
and Service Usage Models

Lessons learned: co-ownership

- Personalisation and sense of co-ownership are key for the successful adoption of e-infrastructure

“We have two different types of users, we have the scientist users who just share workflows, and then we have people who do something in the workbench, find something they can't do, build a bit of code to allow them to do that, and then of course it gets shared back to the rest of the user group because it's open source, they submit it back to us, so yeah, we get a lot of contributions. [...] The social computing aspect of this is that people comment on each other's workloads. The reputation of a person who put the workflows up is important, and that's the same as in Wikipedia I suppose, if you see something written that's not right, you change it, then you're putting your own reputation on the line really, you explain: I know more about this thing than you do, so I'm going to correct you.[...] You can comment or you can ask questions of the workflow author, and you can rate it, we have a star rating system.”



eius

e-Infrastructure Use Cases
and Service Usage Models

Methodology potential

- Use beyond e-infrastructure uptake in research
 - Institutions/ departments, informal online communities
 - Other JISC programmes
- Emphasis on social aspects of ICT adoption
 - Sustainability and community building

“You can have as many guidelines and ideas about the way things should be done; you can have millions of them, but it's getting people to use them that is difficult. Because we've got loads of guidelines and ways of doing things in place, but it's still ultimately up to that one researcher, whether they choose to use it or not, and you can't force them. And you can try all you like to make it as friendly for them as you want, but in the end, if they don't use it, they don't use it.”



eius

e-Infrastructure Use Cases
and Service Usage Models



eius

e-Infrastructure Use Cases
and Service Usage Models