Evaluating Failure: The Case Of UKeU

Rosa Michaelson

Fellow in Business Computing

Accountancy & Business Finance
University of Dundee
Dundee DD1 4HN
r.michaelson@dundee.ac.uk
www.dundee.ac.uk/accountancy

ABSTRACT

The failure of the UK e-university, known as UKeU, is an interesting case study for evaluating the effectiveness of ICT. Useful lessons can be learnt about the scale and focus of successful technology-enhanced learning in HE, and about project management. This case study brings the technological focus up-to-date with regard to earlier examples used in teaching students about best practise, such as the London Ambulance Service Dispatch system failure of 1992. Of particular interest is the dependence of UKeU on the production of a specialised platform for online learning. The focus on platform development was listed as one of main reasons for failure by the House of Commons Education and Skills Committee which conducted the official inquiry.

Keywords

e-learning; evaluation; teaching case studies; analysis of failure

1. INTRODUCTION

Failure in IT projects is regularly flagged by the media, especially those that concern public funds and government initiatives. Analysis of failure is a major motivation for teaching software engineering techniques such as project management and requirements analysis. IT and Information Systems failure has been of research interest for over 40 years, with a range of emphasis on the social, the political and the technological causes [1,2,3].

Case studies such as the London Ambulance Despatch System (1992) and the Cambridge University Accounting Information System (2001)

form useful teaching exemplars for those who may in future be involved in ambitious projects [2, 4, 5]. A more recent example, for which a range of associated material is readily available, is that of the UKeU. In February 2004 a project allocated £62M of public monies, to provide a UK virtual university, known as UKeU, was closed down by HEFCE, having spent in the region of £30M. The subsequent inquiry found several reasons for the failure of the UKeU to meet expected student numbers, and to find commercial partners who would match the public funds. The complete story combines several themes of failure analysis such as cost, lack of accountability, technological misunderstandings, and internal and external disagreements.

This paper addresses one of the identified reasons in more depth, namely, the decision of those in UKeU to produce a new platform, which cost between £7M and £14M. The rationale for focusing on technology is two fold: (i) it forms a useful teaching case study for computer science and information sytsems students and (ii) precisely because little if any such analysis about the technological aspects seems to have taken place in the subsequent writings about the UKeU. It also allows us to revisit previous evaluations of the effectiveness of ICT and e-learning in which the limitations of virtual universities were described [6].

Sources for this paper are from a repository of reports commissioned during the life-time of the e-university and UKeU but not freely available until recently, from the House of Commons Skills and Education Committee reports, and from amongst others, the Auricle discussion site [7, 8, 9].

2. HISTORY AND CONTEXT

On 15 February 2000 David Blunkett, the Education Minister, announced the launch of an online university for the UK, excluding Scotland[1]. This was established with the goal of competing globally with other networked institutions in the USA. The e-

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[1] Scotland had its own e-university initiative, the short lived Scottish Knowledge company [10].

university was to be a commercial sector public-private partnership, funded through the Higher Education Funding Council (HEFCE), which had no direct experience of running an organization like this. As a result, in the next year HEFCE commissioned various business reports and received opinions from various interested bodies before determining a business model for the e-university.

By October 2001, a holding company was established with board members from HEIs and HEFCE, and UKeU was incorporated with Professor John Slater as interim Director. At this point an agreement was reached with Sun Microsystems, the only private company to be involved with the new institution. It was not until March 2002 that directors and senior managers of the operating company were appointed.

In 2001 pilots to develop post-graduate e-learning programmes were sought from VCs. There were 87 expressions of interest, and 13 were chosen for further scrutiny, but by January 2003 only 3 had gone live. These *fast-track* pilots were existing distance learning post-graduate courses (*fast track* pilots were to receive a better deal financially): PgC Learning in the Connected Economy (Cambridge/Open University); Masters in Public Policy and Management (York/WUN); MSc in Information Technology and Management (Sheffield Hallam University). Note that these courses were already using existing technologies for delivery, and were premised on staff involvement in direct teaching response.

John Slater, who had been acting director, resigned in 2003, having suggested that the special in-house platform be replaced with BlackBoard. In October 2003, it was announced that there were no marketing or sales partners. No private monies were invovled other than Sun Microsystems 'in kind'. In November 2003, UKeU announced that it had recruited nearly 900 students from 38 countries studying online courses from 16 UK universities. This was well below the business plan expectations of thousands of students.

27 February 2004: HEFCE announced the restructuring of UKeU, leaving some small projects in place such as the UK investment in e-China and the newly created e-learning Research centre at Manchester, Southampton and the Higher Education Academy, but closing down the operations of the company [8, 11, 12].

3. FINDINGS OF THE OFFICIAL REPORTS

The House of Commons Skills and Education Committee set up an inquiry into the failure of UKeU on 16 June 2004. The hearings of the committee were published on the official web-site, as were the subsequent reports and findings [8].

The committee identified the following as the main reasons for failure:

- The business model was supply-driven not demand-led;

- There was insufficient market research;

- UKeU focused too much on providing an integrated e-learning platform;

- And failed to form effective partnerships with, or gain significant investment from, the private sector [8].

Expanding on the third point above, the committee found that "…UKeU allowed the development of the technology platform to drive its strategy and the development of programmes. It had a skewed focus on the platform, based on an assumption that once this was right, the original projections of very high student numbers would be easy to realise. Unfortunately this assumption was not based on research evidence, but on an over-confident presumption about the scale of the demand for wholly internet based e-learning." [8]

4. THE UKEU PLATFORM

At the 4th LTSN ICS Conference in Galway 2003, Jonathon Darby, the chief architect of the UKeU gave a key note speech about the plans for the UKeU platform. The overheads for this talk gave little away concerning the actual technology, project management or development process, due, no doubt to ideas of commercial sensitivity. Despite the use of the term *architect* those present learnt nothing about the actual computing architecture, other than the hardware and software was to be provided by Sun, and that the design of the new platform was heavily influenced by ideas of interoperability of learning objects. However, as the following list of reasons for choosing a from-scratch e-learning platform show, the hardware could have been seen as immaterial given the open source decision.

4.1 Motivation for a new platform

The motivation for the new platform was presented as follows. Contemporary virtual campus products such as Blackboard or WebCT were regarded as having limitations. Corporate training learning environments, for example Saba or Docent, were also seen as inappropriate for the online university. There were special requirements to design for remote adult learners, and support for course development teams. Hence the decision to produce a totally new platform, which was to be based on open systems architecture. Scalability of the design was important due to the expectations of large numbers of students, projected as being between 8,000-10,000 [12]. In 2002 it was suggested that "The resulting system will be sufficient to cope with

the first three years of the planned growth to a size significantly bigger than any existing UK university."[14] Further considerations were the ideas of interoperability and reuse. This led to an emphasis on standards, such as ADL/SCORM and IMS [13, 15]. The main model of the platform was represented in terms of content management.

4.2 What was the platform?

Though commercial secrecy surrounded the software development of the platform, reports published by HEFCE (both internal and external) subsequent to the closure of UKeU throw some light on the this aspect. Technical reports have not yet been published, perhaps because there was an expectation that monies could be recouped by selling on the platform to some other commercial e-learning provider, or because the platform has only existed in an incomplete form. Subsequent publications of internal reports show that the new platform was intended to provide a completely integrated system for all aspects of a distance learning company. In other words a fully-fledged Managed Learning Environment (MLE) with integrated databases for administration and content management, assessment tools, web services, e-mail and so on. All of this was to be delivered on what was termed *the platform*, though it seems likely that a variety of servers delivering different functions were envisaged as making up the complete system.

Software not provide by Sun included an SQL supporting database (Oracle 9i), a content management system (Vignette), assessment software (MCQ) and some kind of decision table software.

A Sun/Netscape proprietary e-commerce product called iPlanet was chosen as the means to implement a Virtual Learning Environment (VLE), which is typically presented as the core of a MLE. iPlanet was described as "a set of tools that allows the effective development of threaded discussions, synchronous and asynchronous conferencing, chat rooms, and various web based activities, in a way that is monitored and reported at a low level in the system" in a 2002 internal UKeU report by John Slater [14].

4.3 The design process

The decision concerning the new platform was formed early in the UKeU history, before the employment of software professionals within the organisation. Design decisions were taken with the help of academics in other institutions, but not apparently with input from the academics running the three pilots.

The specification was written mainly in UML, and ran to 500 pages. The group who wrote the specification consisted of "pedagogic and administrative experts from UK HE" and the implementation team is described as having similar representatives, acquired by the team from Sun as HE subcontractors [14]. A user interface portal designed and implemented by another company is also described in the Slater document. This is confusing, since one might assume that the VLE written with iPlanet would have this function.

4.4 Issues with technology

This section deals with some of the problems that arose in the development of the platform. It is obvious that there were problems with project management. For example, the platform was not finished during the life time of the project. There appear to be disagreements between those who worked in UKeU and the Sun development team about the number of release versions in use [16]. OU students were described as having used a pre-release version at an ALT-C workshop after the closure [16].

Other problems which can now be identified include

- over ambitious objectives: no UK institution had a fully fledged MLE during this period, though most had AIS and student record systems in place. The scale of the project was large since all functions were being designed at one go.

- the lack of consultation with the academic users who were to provide the course materials;

- lack of understanding about 'interoperability' given the problems of re-purposing the content of existing courses;

- change of focus on important design elements over development lifetime;

- lack of experience of software supplier with many aspects of the platform – Sun were not among the main suppliers of student record systems within UK HE at that time, and they had no similar learning environment product available;

- lack of technical expertise in UKeU when the decision concerning a new platform was taken;

- misunderstandings about the term 'Open Systems' (iPlanet has been seen as a rival for Apache, which is both free and open source);

- the *locking in* of the new technology - why were partners discouraged from using their own systems until the new platform was finished?

- timing – as the time for implementation lengthened, so other commercial systems were being adopted and integrated in HE, making it harder to integrate new courses.

During the oral evidence to the Skills and Education Committee, it became clear that contractual

obligations, ownership of IPR, and the actual costs of the development of the new platform were disputed by different partners. All of these issues should resonate with any one who has taught software engineering, or identified common problems associated with a number of IT project failure.

4.5 Problems with Learning Objects

The lack of focus identified above can be examined with regard to the major design objective of the use of standard learning objects. Learning Objects are problematic, and seem to be based on abstract notions of granularity of the *stuff* educators create to help students learn, rather than defined by the way people work. An illuminating example of this incompatibility is given in a case study of learning objects and language teachers [17]. The UKeU learning technologists could not produce a consistent definition of a LO during the life time of the project. "The platform was being developed with the learning object being the cornerstone of its development. However there were different interpretations of a learning object throughout the project which had a direct effect on the development of the platform" [16]. The number of standards currently available show that defining LO is still an issue. Standardisation and interoperability based on an ill-defined concept, inflated the cost of re-purposing materials. The cost of rewriting the content of an existing course to meet the platform specifications was quoted in one example of being in the order of £150,000. This would have required a course fee of more than £8,000 per student, and was the main reason for not entering a partnership with UKeU [18].

4.6 Problems with MLE

Managed Learning Environments are defined by JISC as being the integration of a VLE with several information systems, such as a student record system and finance database, for a university or college. Though there are now several ways of modelling MLE, a JISC and UCISA (Universities and Colleges Information Systems Association) scoping report of 2003 found few, if any, fully-fledged MLE existed. Institutions responded with a majority view that the time-scale for integration of legacy systems and VLE/s was in the order of 5 years, and that MLE were costly [19]. A point seldom raised in by those who push the idea of an MLE is that the models do not reflect the actual cost or importance of the associated systems: for example, purchasing a student record system or financial accounting system costs in the order of millions of pounds for a medium-sized institution, whereas a VLE is in the order of £80,000 - £100,000. In the case of the UKeU platform, the learning environment and content management system seems to have been the most important objective. We have no evidence concerning the completion of a student record system or financial accounting system. These items are never mentioned. However, the type of learning environment envisaged is an on-going research issue, involving much talk of ontologies, pedagogies and semantics.

5. WHAT CAN STUDENTS LEARN?

What should students be aware of when considering the above technological focus of failure analysis of the UKeU?

Firstly, though I suggest that the analysis above is focused on technology, in fact all ICT failure is a mixture of the social and the technical. The point here is that decisions taken about technology can be crucial to the success of a project.

Secondly, the danger signs of failure include overambitious objectives, complexity, the big bang approach, lengthening time scale, lack of project control. All of these arise in considering this case study.

Thirdly, the use of methods such as UML, will not necessarily ensure success. Though not using a design method is of significance in predicting failure, if one is used it must be used in an effective way. We have no way of knowing to what extent the 500 page UML specification was complete or coherent, or if it specified an attainable or useful system.

Fourthly, in the documentation so far available there is no mention of meta-level project management method. The most obvious one, recommended by the Audit Office for government IT projects, and endorsed by the BCS is PRINCE. The above caveat applies in adopting a project management method, but it is still better to try and use one than proceed on an ad-hoc basis, especially when there are contracts and large sums of money involved.

6. CONCLUSION

Further discussions arise from this case study, which are out with the scope of this paper, such as costing ICT, and the socio-political contexts of large government projects. A fuller version of UKeU failure combines several themes including lack of accountability, technological misunderstandings, and internal and external disagreements from different groups. Students can also analyse this case study in terms of various theoretic views of the analysis of failure, which include positivist management perspectives and the socio-technical.

As noted during the lifetime of the UKeU there is a more pragmatic view of e-learning effectiveness [6]. We know that small projects tend to be successful, that incremental change is the most effective, and that taken-for-granted e-learning, focused on the

needs of those who educate, and which encompass subject specific applications, is the appropriate use of ICT for teaching and learning.

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