SCHOOL OF ECONOMICS
PAPER ON IT PROVISION FOR RESEARCH
November 1, 2011

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Executive Summary

- Under the combined impacts of the Security Project and the Integration Project, ECO academics have increasingly run into difficulty in being able to carry out basic tasks in fulfilment of the responsibilities of academic posts, and specifically research;[1]
- The specific areas of impact include
    - That response times for technician service are unacceptably slow, often measured in weeks if not months;
    - New policies regarding UEA-owned laptops imply a heavy maintenance cost of technician time, while placing sufficient procedural burdens and limitations on academics such that the laptops cannot be practicably used for their intended purpose;
    - An absence of a consultation and feedback loop to ensure that the practical computing requirements of academics are met.
- Based on the experience of the large number of new members of staff in ECO over the last few years at other institutions across the UK, throughout Europe, and in North America, the quality of IT support currently being provided at UEA is far below that of competing peer institutions, with a perception of IT support by many members of the School as obstructionist and nonresponsive;
- The REF-preparedness of the School is at risk as the level of IT services threatens the ability of the School to retain, recruit, and ensure the productivity of staff at a critical point in the REF cycle;
- The importance of identifying acceptable short term as well as long term solutions is discussed in this paper, and possible solutions are identified.

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[1] Our focus is on ECO research, but we aware that DEV quantitative economists and PhD students have the same time of problems and concerns and that, based on what stated by the Head of NBS at a recent SSF Faculty Exec, in NBS there are also staff concerns related to the implications of the Security Project.

1. Timeliness of Local Support

Analysis

- Over the past few years, as the School has grown in size, the response time for support requests on individual staff desktops has degraded.[2]
- The importance of IT security is noted and the School certainly wants to foster it;
- The combination of the Integration Project and Security Project have however resulted in a vicious cycle resulting in degradation of the level of service from merely disappointing to fully unacceptable;
- Based on experiences of recent joiners at other institutions prior to coming to UEA, the responsiveness and quality of support ECO is receiving ranks near the bottom of its league table in this area. *Annex A* lists a list of institutions from which ECO has recruited over the last several years;[3]
- It is our understanding that Security Project provisions all but prohibit non-ITCS personnel from having administrator privileges on desktops;
- *Annex B* contains a list of IT desktop needs by the School that have not been addressed and *Annex C* provides a sample of specific illustrations which are unresolved notwithstanding having been flagged up in multiple instances to support personnel.
- There are many nontrivial practical details which must be addressed before before minimising the number of academics with administrator privileges as feasible. To take one example mentioned in Annex B, it is typical among scientific computing software, including mission critical one such as STATA, to roll important updates on essentially a continuous basis, as well as to provide an extensive library of add-on modules which can be installed on demand from a repository;
- By withdrawing administrator privileges without an adequate plan in place to support these packages, a much greater burden has been placed on on-the-ground technicians to carry out these updates and installations, over and above their existing workload; given the list of Annex B, this appears unsustainable even under optimal conditions with current staffing levels;
- The problem has been further compounded by the concurrent incidence of the Integration Project.[4]

Actions to date

- We have sought information on the Security Project, but found it difficult to come by relevant documentation, although we have requested these details several times from Keith Porter and Mark Jones.
- Through August and September, School representatives held a series of three

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[2] We see this as occurring through no fault of the individuals IT local support members involved.

[3] Junior academics compare UEA IT support unfavourably with the support they enjoyed whilst completing their PhDs.

[4] After one enquiry about several unresolved issues for a new member of staff, the School was told that "right now [August], the Integration Project takes precedence over everything else." This was very much not the sort of first impression the School and University wanted delivered to a new joiner who may soon decide to be back on the job market: that internal administrative matters were more important than providing the basic tools to do the job for which he had just been hired.

meetings with Keith Porter and Mark Jones;

- As one of the outcomes of these meetings, Mark asked the School to prepare a list of software titles we considered to be mission-critical and which required special attention to ensure that updates and add-ons could be applied by users without technician action;
- Mark promised to respond within approximately 10 working days with an action plan. The School delivered the list on 29 September; as of 1 November, no response has been received;
- We support continual improvement in security practice, but while that work is going on, we must be able to get on with our work. We argue that two months' delay since we started discussions on this matter is long enough.

Proposed next actions

- In the *short term*, we propose that we revert to the previous School policy on granting of administrator rights to academics. This previous policy, which permitted academics to have administrator rights when there was cause to do so, was designed precisely because of the needs of using and updating these scientific computing packages, and as such reflected a conscious pragmatic balancing of security versus usability.
- In the *medium term*, we would collaborate with ISD to determine whether the mission-critical software titles we have listed can be installed in such a way that updates and add-ons can be applied by users without administrator privileges. We envision that this process should allow us to draw down the number of academics with administrator privileges and the extent of such privileges, once it can be established with confidence that all required work can be done without those privileges.
- In the *long term*, and building on the medium term work, there may be scope for defining a standard Windows based virtual research desktop platform which combines security with fitness-for-purpose in terms of research.

2. Laptop Policy

Analysis

- It is our understanding that UEA-owned laptops for which administrative rights are assigned to academic staff and which are taken away from UEA must, upon return, be completely re-formatted by a technician, and all data on the laptop quarantined;
- This policy renders the use of UEA-owned laptops by academic staff functionally impossible, as the main use of laptops is away from University, where IT support in lieu of administrative rights cannot typically and realistically be obtained, let alone be of the appropriate standard;
- As discussed in *Annex D*, even making very conservative assumptions, a cost-benefit analysis shows that this policy cannot possibly deliver value for money in regards to security. In brief:
    - The estimates of the cost of this programme of compulsory reformatting come to over £1000 per laptop per annum;
    - In order for a programme with this price tag to provide value for money, it must be that either there is an assessment that there is a quite a high probability that a laptop taken away from campus will come back compromised, or that the cost of such an adverse security event is extraordinarily large;
    - UEA's broader computer use policy appears inconsistent in this regard. Many students and staff bring their private laptops to campus daily, and use the campus network facility. These computers are roughly identical to the ones that would be owned by UEA and covered by the laptop policy, with the exception that the UEA-owned computers would be benefitting from UEA technician support. A working presumption would be that because of UEA support, these computers would be more secure than privately-owned ones, and in they are in much larger numbers than laptops covered by the UEA-owned computers policy;
    - If UEA truly assesses there is such a risk of bringing outside computers onto the campus network that it is willing to forego more than £1000 per annum per laptop the compulsory reformatting programme, then it seems that the use of the less secure, privately-owned laptops on the network should be prohibited as an unacceptable risk – which no one is obviously proposing, nor would we -.
    - If that is not felt to be justified, and given the small number of UEA-owned laptops relative to the large number of private laptops, the benefits at the margin of the new policy cannot possibly exceed the costs.
- The policy will contribute to significant undesirable outcomes:
    - Productive quantitative affected social scientists may simply cease using UEA-owned laptops. From the perspective of security, it means more computing will be done with private laptops, on which, again, the working presumption seems to be less security relative to those which are supported by UEA IT.
    - No research-intensive university we are aware of has such a policy of compulsory laptop reformatting, and, given the impact of this policy on morale, this makes UEA uncompetitive in the academic market both

within the UK and internationally;
  o As a result, this is likely to negatively affect the likelihood of retention of our more productive academics ahead of REF.

Actions to date

- We have again sought information about the new policy, but, as of this writing, we have not been able to receive any official documents describing the details for this policy and its rationale, despite having made several requests for the same. Rather, our understanding is based solely on meetings with Keith Porter and Mark Jones, and an email from Mark Jones on the subject, included as *Annex E*, and may as a result be incomplete due to not having received proper documentation;
- As noted above, through August and September, School representatives held a series of three meetings with Keith Porter and Mark Jones. This however ultimately only led to an email restatement of the policy, as per Annex E.

Proposed next actions

- In this area, there seems to be but one sensible solution that would be put us in line with research university competitors, which is to re-draft the laptop support policy in its entirety, granting members of staff administrator privileges on their laptops, and removing any compulsory re-imaging of laptops except in the instance of a known or suspected security breach involving the computer;
- There may, of course, be specific instances where an academic may agree with ISD regarding the usefulness of not having admin rights for security reasons, e.g. on a laptop in the context of a trip to Ethiopia where virus incidence is endemic and not adequately addressed by standard antivirus software.

3. Consultation, Feedback, and Fitness for Purpose

Analysis

- Any policy or practice should undergo a cost-benefit analysis, whether formal or informal, to determine its fitness for purpose and whether it delivers value for money;
- Such an analysis inherently must involve a consultation and discussion of the effects of the policy, good and bad, on users;
- Our disappointment with the level of IT service the School has received is not just limited to the specific failures we have cited, but also the lack of transparency, consultation and response in dialogues we have initiated regarding these practices;
- We are concerned that the lack of an effective consultation and feedback process severely compromises the fitness for purpose of the current UEA IT structure; the lack of transparency also creates problems in explaining policies to dissatisfied staff;
- Two examples of this are provided in the previous two sections (concerns regarding desktop and regarding laptop policy). We elaborate on why we feel the outcome of discussions on the laptop policy procedurally disappointing in *Annex F*, where we also provide three further examples (on quantitative computing; software development; and Dropbox) to corroborate our claims;
- UEA is well-served by having a cadre of experienced IT professionals dedicated full-time to the administration, support, and security of the UEA IT stack. Nevertheless, practicing academics are the only ones who can articulate the realities of the day-to-day use cases needed for computing resources to be effective;
- We note that successful software firms and software engineers are those who focus carefully on the user experience. We feel that, in terms of research support, this is inadequately the case at UEA.

Actions to date
- The School engages and has engaged with ISD staff members on all possible opportunities, e.g. through the three one hour meeting over the space of a month with Mark Jones and Keith Porter previously noted, by email, through additional meetings with local support, and raising these issues at the level of SSF Faculty Exec. While noting the admirable efforts of our IT local support team, the problems however remain.

Proposed next actions
- Apart from addressing the specific substantive concerns raised above in this document, we propose that a broad, representative sample of practicing ATR academics be involved in the discussion, creation, and revision of IT policies at all levels;
- The seeming disconnect between policies as available in publically available documents and policies as implemented by ISD staff should be eliminated;
- We also propose that the resourcing of IT provision also receive due attention post Integration Project.

Annex A. List of universities from which School of Economics staff have joined or been exposed to in recent years

The School of Economics has been successful over the last several years in attracting staff from or with recent connections to universities across the UK, Europe, and in North America. A selection of these universities is listed herein alphabetically.

In the United Kingdom:

Bath
Birkbeck College
Cambridge
Essex
Leicester
London School of Economics
Manchester
Oxford
Queens University Belfast
Robert Gordon
University College London

In Europe:

Catholic University of Leuven
Copenhagen Business School
Heidelberg
Humboldt-Berlin
Maastricht
Munich
University of Eastern Piedmont
Valencia

In North America:

California-Irvine
Cornell
Indiana
Purdue
Southern California
Texas A&M

Annex B. Document circulated to Mark Jones and Keith Porter on September 29, 2011, following three meetings

**SCHOOL OF ECONOMICS
SOFTWARE PRIORITIES LIST
29 SEPTEMBER 2011**

Further to a meeting between representatives of the School of Economics, Keith Porter, and Mark Jones, on 20 September 2011, it was agreed:

- That the School would draw up a list of software it considers essential to carrying out its teaching and research missions, segregating the titles into high, medium, and low priority categories.
- KP and MJ would respond within approximately 10 days (promised delivery date pending seeing the priority list) with concrete, actionable solutions to issues with installation, maintenance, and usability at least of the high-priority items.

The three categories identified by the School at this time are as follows, alphabetically within each category:

High priority: R, Scientific Workplace, STATA, z-Tree
Medium priority: Acrobat, Mathematica, Matlab, MiKTeX, Skype, Visual Basic
Low priority: Firefox, Ghostview and Ghostscript, Python and wxPython, WinEdt

In terms of support and functionality expectations, these packages fall into four groups:

Mathematical/statistical: Mathematica, Matlab, R, STATA

For these packages, the expectations are:
Users must be able to apply software updates, if downloadable/applicable within the software itself (e.g., STATA's **update** command).
Users must be able to download and install add-on packages and extensions.
Users must have adequate disk resources on the local hard drive for scratch files used in calculation

Document preparation: Ghostview and Ghostscript, MiKTeX, Scientific Workplace, WinEdt

For these packages, the expectations are:
- Users must be able to apply software updates, if downloadable/applicable within the software itself.
- Users must be able to download and install add-on packages and extensions. In the case of MiKTeX and Scientific Workplace, this includes style files required by journals for submission/publication.

Software development: z-Tree, Visual Basic, Python and wxPython

For these packages, the expectations are:

- ⚔ Users (typically members of the Centre for Behavioural and Experimental Social Science) must be able to develop and test software for research experiments on their staff workstation. This includes sufficient permissions to access the network for client-server communication, sufficient local disk space for programs and data files for testing, and other resources as necessary.

Other: Acrobat, Firefox, Skype

For these packages, the expectations are:

- ⚔ Users must be able to apply software updates, if downloadable/applicable within the software itself.
- ⚔ Users must be able to download and install add-on packages and extensions.

The School of Economics views the ability to keep these titles up-to-date on a running basis and to be able to add customisations to the installation via add-ons, extensions, style files, and the like without delay as essential computing requirements for research and teaching.

Annex C. Selected Recent Comments by Members of the School on IT Provision

From a new member of staff in August, more than a month after joining:

Thanks for chasing them up. It seems that without your intervention I would be waiting for several more weeks without being informed about the progress (it still looks like I will be waiting for weeks for the essential software).

From a new member of staff on the fitness for purpose of the configuration of their workstation:

Any code that I have written in the past two/three years refers to that folder. Not having permission to C drive is causing a hassle. For example, this morning I was running a file in R and the file did not run because I had no permission to work on the C drive. Seemingly the only directory I can work on is my user directory, but this is too small to load the data I need to run. This is certainly frustrating. Even if the space for my own directory were increased, I would find it frustrating to have to change all old files every time I use a different computer. Perhaps the solution is to use my desktop computer to check e-mails and do my research on my old laptop.

From a member of staff on usability of mission-critical software titles:

*I now am unable to install/update programs required for everyday use.
Three recent examples:*
> *- Update of Firefox did not work due to missing admin rights. (In the medium to long run this could have security implications.)*
> *- Installation of latex packages (AEA styles) did not work due to missing admin rights. I had to use my personal laptop to produce a manuscript complying with submission rules of a journal. This interferes with my ability to perform key tasks as an ATR member of staff (submission of manuscripts).*
> *- I am not able to update Stata 11*

I would appreciate it very much if a solution to this problem could be found soon.

Annex D. Cost-Benefit Analysis of the New UEA Laptops Policy

The cost of re-formatting a computer on every return to UEA is substantial. At a conservative estimate, it will require a few hours of technician time. Not only is there the salary cost of this time, but, in light of the poor response times ECO has received in technician support, there may be further opportunity costs as other services will be delayed due to the reformat. Note also that in ECO we assess that specialist software may be the norm rather than the exception, as noted elsewhere in this document, which adds further to the burden on the technician. Finally, there is the cost of academics' time and lost productivity. Given response times for technician work as currently

experienced, one would expect that an academic would not have access to the laptop for perhaps a fortnight during the re-formatting process. Further, once the laptop is returned, many customisations to the computing environment will have been lost and have to be restored by the academic.

Meanwhile, UEA are keen that ATR members of staff publish internationally-excellent research outputs. Publishing at the 4* level correlates strongly with international travel, both to conferences and for invited talks at universities worldwide. A productive ATR member of staff – that is to say, precisely those members of staff who UEA wish to attract and retain – can be expected to be making 4 or more such journeys within a calendar year.

Taking the amount of technician time and lost productivity of academics into account, and assuming 4 or 5 international journeys per year, even extraordinarily conservative estimates of the cost of this programme of compulsory reformatting come to over £1000 per laptop per annum.

In order for a programme with this price tag to provide value for money, it must be that either there is an assessment that there is a quite a high probability that a laptop taken away from campus will come back compromised, or that the cost of such an adverse security event is extraordinarily large. We have been given no details of any studies which would justify either assumption, and either such a high probability or large cost seem on surface implausible to us.

Indeed, UEA's broader computer use policy appears inconsistent in this regard. Many students and staff bring their personal laptops to campus daily, and use the campus network facility. Owing to the international stature and global reach of the university community, these privately-owned computers come from, and travel to, countries all over the world. These computers are roughly identical to the ones that would be owned by UEA and covered by the laptop policy, with the exception that the UEA-owned computers would be benefitting from UEA technician support. A working presumption would be that because of UEA support, these computers would be more secure than privately-owned ones.

If UEA truly assesses there is such a risk of bringing outside computers onto the campus network that it is willing to forego more than £1000 per annum per laptop the compulsory reformatting programme, then it seems that the use of the less secure, privately-owned laptops on the network should be prohibited as an unacceptable risk.[5] Or, to put it another way, as the number of privately-owned laptops on the network overwhelms the relatively few UEA-owned laptops, the marginal security benefit to the network simply cannot justify the cost.

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[5] We hasten to point out that a prohibition on the use of privately-owned computers on the UEA network is not something we would recommend.

Annex E. Email from Mark Jones on IT policy (sent 22 September 2011)

Dear all,

Thank you for your time this week. I met briefly with Jonathan Colam-French and we discussed the issues you raised about laptops.

It is possible to use a personal laptop on campus connecting via EDUROAM and then connect to Central File Store via the VPN. If staff at UEA do use this option IT Support will not be able to support the machine as it is not owned by UEA which is one of the reasons why it is not a recommended solution. Software licensing may also be an issue, depending on terms and conditions, as some software bought by UEA must only be installed on UEA hardware. There is further information about JANET's Roaming service Acceptable Use Policy and at http://www.uea.ac.uk/is/wireless/eduroam.

When using a UEA owned laptop it is possible to request via the IT helpdesk that the user should be granted admin rights on the laptop if they think they will need to this while away from UEA. The request will be passed from IT helpdesk to IT Support who will either install software in advance or change network configuration group settings so that a user can connect to different wireless networks if needed. Local admin rights will also be granted if appropriate and then when the machine returns to UEA we will need to take steps to re-image the laptop.

I hope this outlines the current position regarding laptops at UEA and am happy to discuss this further if you wish to.

Annex F. Concerns on Consultation, Feedback and Fitness of Purpose: Example Case Studies

On laptop policy

To place the email from Mark Jones on the laptop policy (Annex E) in context, this message came at the culmination of a series of three hour-long meetings held over the course of a month among Mark, Keith Porter, and representatives of the School of Economics. In those meetings, the School expressed our concerns and objections regarding, among other issues, the laptop policy along the lines which have been summarised in this document. We acknowledge Mark's willingness to meet with us, and each meeting ended with a promise that Mark would investigate further and come back to us with more information regarding the rationale of the policy. In this final email, all we ultimately received was a straightforward restatement of the policy, to which we had objections in the first instance. There were neither modifications made based upon our feedback, nor was there any further information on the rationale of the policy, as an indication as to why our concerns could not be accommodated.

On quantitative computing

From our reading of the Desktop Computer Software Policy, a working presumption in IT provision is that most academics use a small number of common titles, e.g., a web browser, Microsoft Office, Outlook, which can be efficiently packaged en masse. While this may be a valid assumption for some, users of quantitative methodologies employ a wide range of tools. Which tools are chosen depend not only on the preferences of the researcher, but also on the specific research task at hand, compatibility with previously-written scripts and programmes, and coordination with collaborators and members of the research community at large. The list of software titles we have identified for immediate action are not exhaustive; new titles will be added in future as new researchers join the School and as standards in quantitative software packages evolve. A flexible and responsive system of consultation must be in place so that IT provision can adequately track the needs of the active researcher.

On software development

Among the Economics staff we have many members of the Centre for Behavioural and Experimental Social Science (CBESS), a research centre which is part of SSF's strategic research development strategy. Members of CBESS conduct laboratory decision-making experiments using bespoke software written for the purpose. Each study requires development of new software targeted at the precise scientific specifications of the research question. That is to say, many academics in Economics are in fact engaged in software development and testing as an integral part of their research.

We do not at present see how this type of activity can be supported at all in a model of centralised provision of pre-packaged software suites with a highly restrictive policy on access to local computer facilities such as the hard drive, network ports, and so on.

On the Dropbox service

The School recently made an enquiry regarding the Dropbox service (http://www.dropbox.com). Dropbox is an award-winning service for remote storage, synchronisation, and versioning of files, which is used worldwide in industry and academia. It is widely used within academia to communicate versions of files among coauthors at different institutions.[6] Keith Porter promised to look into this for us, and came back to us the same day with a reply on the matter from Raymond Scott. We appreciate that Keith got a reply for us so quickly, but the response we received from Raymond has flagged up a number of concerns in our minds. (We include the text of the message as *Annex G*.)

The Dropbox service has been successful by providing a transparent remote synchronisation (rsync) facility, including automatic micro-level versioning of files to guard against accidental deletion. It also provides easy tools for live

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[6] We note in passing that the incentives given by the REF strongly encourage collaboration across institutions.

sharing of folders of files for interactive collaboration. Despite the similarity in name, the other "dropbox" facilities Raymond cites in his message are not at all substitutes for this use case. Those "dropboxes" are, instead, a method for one-off transmission of large files not suitable for sending via email, similar to commercial services such as YouSendIt. They do not provide either synchronisation or versioning facilities. For example, a member of staff has several active Dropbox shares with collaborators at Exeter, both because Dropbox is a widely-used service in academia, and because the Exeter "dropbox" facility does not provide equivalent functionality to serve the use case in the collaboration.

Raymond cites a security incident with the Dropbox service as justification for not recommending it. Indeed, there was a security incident involving Dropbox this Summer. We disagree, however, with the interpretation of the events. An axiom in computer security is that all systems are vulnerable, in one way or another. When a vendor becomes aware of a security flaw, they have two choices: they can cover it up, or they can fix it and acknowledge it publicly. Disclosure should be viewed as a mark of honesty, transparency, and trustworthiness, signalling a vendor's credible commitment to maintaining the security of their product. One of the reasons that the Dropbox incident was "high profile" is because Dropbox chose to disclose it. The flaw was detected almost immediately, a fix was rolled out within hours, and in the final tally, only around 100 users out of 20 million clients were found to have been affected.[7]

To be sure, news of any security flaw should give one pause, and indeed there has been a vigorous public discussion of Dropbox's security in the intervening months. This is healthy. Vendors like Dropbox are disciplined by the sharp-edged incentives given by the market, and the market will select in favour of vendors who can deliver value to users while maintaining the security and integrity of the data.

The response of Dropbox contrasts with the historical attitude some vendors have taken with regard to security. For example, Microsoft, for many years, has been accused of hushing up security risks within various versions of Windows and Office, and their record for transparency and trustworthiness remains, in the minds of many, a work in progress. Nevertheless, this history does not, and in our view should not, disqualify the use of Microsoft as a software vendor. And, while we appreciate that this is a sensitive point, UEA's IT structure itself did suffer from a "high profile security incident" in the not-very-recent past, in addition to a complete failure of network services for 48 hours and delivery of a timetabling system which was shown not to be fit for purpose at its initial rollout. We are aware that IT provision is hard work and do not point the finger at anyone for these incidents, but rather they illustrate that bringing all services in-house is no silver bullet, either. Going with external provision does involve trust in the vendor, but opens up access to far more human capital and technical resources than can be provided by any single university alone.

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[7] Details as disclosed by Dropbox can be found at http://blog.dropbox.com/?p=821

Because communication is a two-way street, when it comes to selecting software or service vendors, it matters which tools are seen as standards in the community. Whether Dropbox, Skype, Microsoft, Apple, or another vendor, successful communication requires coordinating on services and formats. Where there are tools or services which are standard within the broader academic community in which we operate, and in which we compete, it places UEA at a significant competitive disadvantage if those tools are not available here. This strikes again at the heart of UEA's ability to attract, retain, and assist the productivity of the academic staff needed for a good showing in the REF exercise.

Annex G. Email from Raymond Scott to Keith Porter on Dropbox (sent 27 September 2011)

Hi Keith

*We haven't done an examination of Dropbox (*www.dropbox.com*) and so as yet have not formulated a position or policy on its use at UEA. A few weeks back, it came up as a point of discussion on the HE Information Compliance mailing list. Noted from that discussion were these points:*

- Dropbox is not safe habor certified
- They recently had a high profile security incident where accounts were left open for a number of hours
- There are concerns about its security

Certainly, we are not in a position to recommend its use, and we should not be doing so.

Next year, we will be looking at dropboxes under the more general subject of 'Collaboration Tools' in the security project.

Other HEIs do have dropbox services installed and managed locally (e.g. http://www.ucl.ac.uk/dropbox/*,* https://dropbox.essex.ac.uk/*,* https://as.exeter.ac.uk/utils/dropbox/dropbox.php*), and our attention will more focused on how something similar can be established at UEA rather than investigating the risks associated with use of Dropbox.*