

UNIVERSITY OF EDINBURGH

MINUTE OF A MEETING of the Sustainable IT Group held in the Cheviot Room, Charles Stewart House on Thursday 19 May 2016.

- Present:** Tony Weir (in chair), Director IT Infrastructure
 Fiona Carmichael, Computing Support Officer, Literatures, Languages & Cultures
 Paul Clark, Head of IT for CMVM
 Grant Ferguson, Head of Estates Operations
 Bryan MacGregor, Director of User Services Division
 Simon Marsden, Director IS Applications Division
 Fraser Muir, CHSS Chief Information Officer
 Euan Murray, Development Team Manager, Learning Spaces Technology
 Caro Overy, SRS Engagement Manager
 George Reid, Procurement Manager
- In attendance:** Bradley Richards, SRS Project Intern, for item 2
- Apologies:** Michelle Brown, Head of SRS Programmes
 Rab Calder, Energy & Utilities Manager
 Dave Gorman, Director of Social Responsibility and Sustainability
 Urte Macikene, EUSA VP Services
 Bruce Nelson, College Registrar, College of Science & Engineering

1 Minute

The minute of the meeting held on 18 February 2016 was approved as a correct record. In the absence of the Convener, the Director of IT Infrastructure chaired the meeting.

SITG welcomed new member Grant Ferguson, Head of Estates Operations, replacing Geoff Turnbull, and Bradley Richards, SRS Project Intern, in attendance for item 2.

2 ICT in the Context of Reuse

The Engagement Manager presented a mid-term report on the project, which aimed to develop a process and business case for PC reuse at UoE, in consultation with relevant stakeholders across the institution. CHSS was being used as a test bed, and SRS were liaising with the Turing Trust on space and ECCI on data. The Project Intern was now in post and investigating the potential for repair and reuse with UoE's primary partner [Remade](#). One workshop had been held so far, with more planned for late June and early July. 36 PCs were ready for reuse and the project was on track to meet its targets by the set deadline.

The Blancco software had been procured. The tool included hardware testing as default, as well as internal and external checks, had an impressive pedigree, and cut the time taken from 4-7 hours down to a flat deadline of two and a half hours. 500 licences were allocated, but the number available was unlimited. One issue was the physical licence dongle that needed to be attached to the PC. A group of volunteers would get together to investigate how to do this over the network.

Action – TW to nominate a representative from ITI.

Members agreed to emphasise the product's InfoSec level 5 certification, rather than engage in proof of concept activity such as trying to recover data from wiped disks, assurance being a key motivator in opting for a commercial product. The Chief Information Security Officer and University Records Manager had signed off on Blancco.

Action – CO to follow up with TW.

A

B

Next steps included PC sourcing and policy integration. There was a challenge in sourcing machines as the supply depended on school activity, and replacements tended to be seasonal. The flow of reuse and replacement had peaks, with none expected during exam time, picking up over the summer. It was recommended that lessons learned from the project be incorporated into the current policy, rather than developing a new one. Having secured sufficient storage space, Phase 2 would investigate available technologies.

Two-hour training sessions were available as part of the Reuse Hoose programme of events, initially for waste coordinators, then for staff more generally. If uptake was low they would be opened up to students. These sessions would build skills that were also useful outside of work.

Action – CO to target the IT Forum for staff who already hold responsibilities in this area, with a view to presenting at upcoming meetings and promoting the training.

Action – CO to use the EUSA Class Rep scheme to target students from October.

3 Climate Strategy Review & ICT Contribution

C

SITG noted an update on progress of the new University Climate Strategy, which had been well received at PSG in April. The previous Climate Action Plan had not succeeded due to a lack of analysis of the targets set and excessive emphasis on action from within Estates. This direction setting paper proposed a whole institution approach. The SRS Engagement Manager outlined the process for sign off of the strategy, the role of the proposed Sustainable Campus Fund, and how contribution from IT would feed in. Next steps would be finalising the strategy, developing a three year Implementation Plan, and looking into energy management and renewables (both on and off site, including power purchase agreements). SITG expressed strong support for investigation of UoE's options with regard to renewables.

Action – All to share any further comments with the Secretary.

4 Sustainable IT Implementation Plan

D

The SRS Engagement Manager updated the Group on progress since the last meeting. Printing had 812 Xerox machines across campus. A strategic review of the full network was underway and should indicate where UoE's population was and what devices they were carrying (aggregated and anonymised), yielding useful data for the Group.

Action – FM to liaise with Bob O'Malley.

Action – TW to pass on contacts to CO for specific actions within the Plan.

5 IT Energy Footprint & Prioritised Projects for Energy Savings

E

The Director of ITI updated the Group on next steps on the IT energy footprint. It was essential to fully understand the data, investment and returns, and carbon implications before taking energy efficiency action. The footprint included a number of estimations in need of refinement. The initial review had covered IS-managed infrastructure, plus any equipment run by IS on behalf of the Colleges or other support groups. It was recommended that the Group investigate how a full data capture of UoE IT could be achieved, and agree an approach on how co-located or national service power usage should be considered in calculating the University's IT footprint.

The usage breakdown was roughly 67% data centres, 19% desktop, 18% network, representing 4% of the total UoE utilities bill. It was anticipated that these numbers would rise. If national infrastructure such as ARCHER was included then this increase would be significant. SITG recommended that national services not be included in UoE footprint, beyond calculating the percentage of the University's own usage. The consolidation that ARCHER represented drove efficiency and yielded energy savings at a national level.

A number of assumptions had been made regarding usage in the data centres as metering was patchy. It would be helpful to be able to establish actual power usage, as well as the

cost of supplying chilled water to the Appleton Tower data centre. Initial project work with Estates to resolve this had begun. Data centre strategy was being developed and would be broadened in scope to include consideration of energy efficiency. Additional metering would be installed and further sensors for ambient temperature would be added. The focus would be on KB and Appleton Tower.

The ACF was managed by EPCC and the School of Physics. As the lowest PUE at 1.2, UoE should be encouraging greater use of the ACF, for the good of the University and its sustainability agenda. However ACF was the only data centre that charged for power, so funding needed to be made available to address this barrier to consolidation. Currently use of the less efficient data centres was driven by affordability, however devolved energy would resolve this in the longer term. ACF drew the same base power as Penicuik. There was no suitable land nearby for a windfarm or similar project. The majority of ACF use was external and recovered from the research councils. Focus in the medium term would be on better containment, including addressing the white space above racks, reducing cooling, and raising chiller air temperature. The inlet temperature (currently around 22 degrees) did not need to be so low – modern kit could run at 35 degrees, though this could reduce its lifetime and lead to more failures. A new set point between these extremes would be advisable and could be incorporated into procurement practices and wider strategy.

Energy usage figures for the 13,200 managed Windows desktops were based on expectations of time spent live and on standby. Further analysis of the power saving policies applied to monitors and PCs was necessary. The default policy setting was for machines to go into standby mode after 10 minutes, and 63% of managed desktops had that policy set. For PCs that did not, users would have had to manually override this setting. This could be for valid reasons, but merited further investigation. When PCs were always left on, there was a 12% increase in power usage. Changing settings on individual PCs was time consuming and automated roll out across the whole population was preferred. Patterns of usage varied throughout the year. The number of managed Windows desktops was high as it included open access facilities, more than a 1:1 ratio of PCs to staff, and a large PGR community.

Action – TW to produce a breakdown by area.

The assumption was a single base station and monitor, but double monitor usage needed to be factored in. Monitors were not always included with cascaded PCs, but this was not an issue for the reuse project at present as donations of monitors and PCs balanced out. For HPC systems, replacement could be justified on the grounds of energy efficiency alone. Further work was needed on mobile devices to establish where and when they were being charged, in addition to looking at power management systems associated with the base unit.

Windows desktop PCs were by far the most common, the volume of mac or linux was much lower. Macs still needed to be folded in. It was less clear how to handle linux, though there had been some discussion about a possible framework. Initial audit figures should be available by mid-June. There would then be further refinement with estates, or estimation of power draw, and a fuller understanding should be reached by the meeting in September. Information gathering was underway for CHSS. As it would not have much impact, little pushback was expected and none had yet been reported. IT in Science & Engineering worked on a more devolved collegiate model, so it was necessary to work with the seven schools individually.

Action – TW to follow up with Informatics to get their network data.

More than half of PCs did not have the default standby after 30 minutes. 22% never went into standby. Modern PCs were very good at clocking down their power consumption when not in use, so the situation may not be as bad as it initially looked. There were valid reasons

for machines always being on, such as those desktops used for lower scale computational work. Usage was highest in CMVM at 37%. The next step would be to interrogate the data. There may be some virtual use as well as physical, and investigation would help clarify this. More awareness raising could be done around Wake on LAN. All network figures were estimates based on average power draw. The network was very old and had technical debt. Funding was in place to address this, though it was not expected to result in any significant saving.

Printers had not been included in the audits. Data was available for Select Print and almost all schools and support units had engaged with it, giving around 90% coverage, though some areas were still on contract with Canon. CMVM had an active project to transition. There was a Xerox rep based in the Main Library who could be consulted on the Xerox tools, including the sleep function. A wider survey was needed to understand the range of devices in use.

The missing piece was non-ISG usage, which would require a full energy audit, managed through college computing committees. SITG agreed to sharpen estimates for actual power draw, and follow up with Procurement on the percentage of laptops versus desktops, given the rising trend for screens and docking stations on desks. Currently the vast majority of machines were Windows based and IS managed. The Director of ITI confirmed that UoE was purchasing the most efficient kit possible, the area for improvement was around how it was operated.

6 Utilities Programme Brief – Pathways to 10% & Sustainable Campus Fund

SITG noted an update on progress towards achieving a 10% reduction from business as usual during 2015-2017 from a 2014-15 baseline. Beginning with a project definition, the utilities brief outlined broad areas for action, quantifying what could be achieved and identifying a lead in each responsible for delivery, and set out a series of assumptions. As the data would not always be available, the paper proposed a rule of thumb based on industry standards which could be proved to be reasonably robust. One assumption was that UoE would invest in 'spend to save' and a Sustainable Campus Fund was proposed as a mechanism to allow for this. Agreed in principle in March, the Fund proposal would be discussed again at Estates Committee on 25 May. The Head of SRS Programmes was following up on energy efficiency with Heads of Professional Services in each of the Schools.

7 Sustainable ICT Procurement & Supply Chains

The Procurement Manager updated the Group on the SPPT tool and ICT workshop. Results from the workshop would be presented more fully at the next meeting. Members discussed whether there would be merit in having a standing member from IS, agreeing that Procurement would instead consult with IS when needed.

8 Any Other Business

50 George Square

Estates could provide a breakdown of utilities spend for 50 George Square, including laptop charger units and separating out sockets in open access areas. More work would be needed to establish the extent of in-building metering and how far sub-metering went, in order to be able to monitor positive change. SRS Projects Coordinator Chris Litwiniuk was currently working in 50 George Square as part of an ongoing energy engagement project. Robust data at building level was available for that location.

Action – GF to ask Rab Calder to get in touch with regarding this data.

SITG noted that the Meterology system was available as a tool to display current consumption centrally within buildings, as a potential driver for behaviour change.