

# School of Informatics School IT strategy 2018-2021

December 18, 2017

## 1 Leadership in Learning

### 1. **Challenge** Improving quality of teaching and learning

**Action** We wish to make substantially more use of University infrastructure (particular learning technologies such as Learn) and less use of use bespoke solutions within the School. We consider this in itself a challenge as we need to identify how to achieve this without negatively impacting on School business. The recent appointment of a Learning Technologist will provide the resource to coordinate this change.

We will consider more use of analytics to monitor performance of students through the academic year.

Students now expect to use Piazza for courses - we shall investigate what we can do to facilitate this further.

Building on the recent expansion of teaching space in the Appleton Tower, we are planning to further invest in teaching infrastructure, including IT provision, in response to evolving technologies and teaching methods.

We are reviewing the DICE desktop platform to determine whether it is still the most effective vehicle for supporting teaching course work.

### 2. **Challenge** Growth in taught student numbers. We have already grown substantially and don't expect any further intake in the medium term. However the volatility amongst student course choices is a big challenge - this leads to significant problems with resourcing at very short notice.

**Action** We need to identify solutions to the course choice volatility issue. However, the School is not entirely in control as some of these courses are delivered in partnership with other schools.

### 3. **Challenge** Distance learning - how to effectively support. There is considerable uncertainty over the growth areas for distance learning courses. How to resource compute intensive courses is a particular challenge for distance learning, particularly at scale.

**Action**

### 4. **Challenge** We have a growing requirement for computing power for taught students. Housing this computing resource is an increasing challenge (see Section 5).

**Action** We are in the process of procuring a compute cluster with 200 GPUs for machine learning.

### 5. **Challenge** We have a growing requirement for specialised practical lab provision (eg IOT, security and networks in addition to existing robotics). This requirement is shared with Research.

**Action** Consider what computing infrastructure is required.

6. **Challenge** We are hoping to be awarded a similar number of CDTs in the next round

**Action** We need to identify computing requirements for these CDTs in advance of the bids - we didn't do this for the existing CDTs which caused some difficulties in resourcing support.

## 2 Leadership in Research

1. **Challenge** The execution and expansion of research - the growth in the size of the School has made it difficult to keep track of developments within the School. As a result requirements are often discovered at the last minute impacting on the ability to meet the requirements in a timeous fashion.

**Action** We have some ideas, principally involving improved communication, to address this problem.

2. **Challenge** Finding sufficient space to locate research funded compute servers is proving challenging, and further growth will exacerbate this (see Section 5).

**Action** We have a programme of retiring older servers, but that is only a partial solution. We will look at encouraging research groups to consider the suitability of virtual servers - perhaps a workshop to assist groups in this might help?

3. **Challenge** Security accreditation is increasingly being required by partners, and perhaps even more so with industrial partners. We have achieved CyberEssentials Basic certification for our DICE managed systems. We expect to find it more difficult to achieve accreditation for those systems managed by individual research groups (known as self-managed systems).

**Action**

4. **Challenge** It is not possible for the School to be confident that the security of self-managed systems is adequate and that best practice is being followed. Systems with inbound firewall holes are of particular concern.

**Action** Mandatory training materials are being considered for those individuals managing such systems.

5. **Challenge** An increase in robotics research is expected with the move to Bayes.

**Action** Identify requirements.

6. **Challenge** CityDeal and Hubs - the requirements here are still rather unclear

**Action** Consider implications of these and how to resource any computing requirements

## 3 Digital Transformation and data

1. **Challenge** While the School has a good handle on what administrative data it holds and processes, there is no central record of what data is held by research groups and for what purpose. This is of particular concern with respect to GDPR compliance.

**Action** We have been awaiting the College data registry for a few years - meanwhile we have been attempting to survey what data is held by research groups and are recording that locally. Ideally a registration service would be available for researchers to record the data they hold and for what purpose - this could be part of producing and maintaining a Data Management Plan.

## 2. **Challenge** Data Science

**Action** We are in the process of appointing a Senior Data Scientist who will play a key role in growing and delivering data science expertise within the School and the wider University.

## 4 **Influencing globally and contributing locally**

1. **Challenge** Partnerships with other Bayes occupants. In particular, we expect tighter teaching and research links with Design Informatics and EPCC.

**Action** Identify IT requirements resulting from these partnerships.

2. **Challenge** School web presence - we have finished a simple content migration of the primary School web site to EdWeb, but many find the site difficult to navigate.

**Action** We are re-forming the School's Web Strategy Group in early 2018 to provide a stronger steer for the School's web presence. That group will engage with the new University Web Strategy where appropriate.

3. **Challenge** Many of the institute web sites are still hosted on a Plone CMS system and require migration to EdWeb. Some research groups maintain their own web technology - with the risk that best practice is not being followed.

**Action** We are re-forming the School's Web Strategy Group in early 2018 to provide a stronger steer for the School's web presence. That group will engage with the new University Web Strategy where appropriate.

4. **Challenge** Possible interaction with Farr 2

**Action**

5. **Challenge** Facilitating collaboration/international co-working

**Action** We are improving our video conferencing facilities - making VC more pervasive throughout our meeting rooms. We are investigating small meeting room pods specifically for occupants of multi-occupant offices wishing to make video conference calls.

## 5 **People, Finance and Estate**

1. **Challenge** The age profile of the computing staff is of concern, particularly with respect to data network expertise. There is also a growing concern that the current computing staff structure is no longer appropriate for the current IT staffing level.

**Action** The School must start succession planning, and should consider structure as part of this planning.

2. **Challenge** It is difficult to measure staff engagement with University and College security policy, particularly as so much data processing is done on systems which are self-managed.

**Action**

3. **Challenge** We are close to being unable to absorb any more growth in compute resource. We have fully occupied our allocation of space in the Appleton Tower and College server rooms and, whilst we have some physical space left in the Forum server rooms, we are reaching the limits of our Forum UPS provision.

**Action** We shall continue to encourage users to make use of centrally provided facilities wherever possible, but in almost all cases our compute resource provides functionality that is not offered centrally - eg dedicated GPUs, low level access, specialised hardware.

4. **Challenge** The continued growth in computing resource impacts on our ability to conform to the University's Climate Strategy.

**Action**

5. **Challenge** We find our relationship with Estates to be challenging. We are frustrated by the response of Estates to fixing problems with existing IT infrastructure and developing new infrastructure. It is often unclear where responsibilities lie. Rationalisation of the UPS provision in the Forum has been a long-standing issue.

**Action**

6. **Challenge** Much of the IT infrastructure (network core switches, UPS, AV) in the Forum is now reaching, or is arguably past, end of life.

**Action** The School is incrementally replacing the AV equipment and is currently considering replacing the network core switches in advance of the results of the University Strategic Review project. It is unclear who is responsible for replacing the UPS systems.

## 6 Others

1. **Challenge** The future of the network file-system used by our School systems (OpenAFS) is in doubt.

**Action** We are currently looking at alternatives.