Digital 3.0 in Higher Education

IT Departments at the vanguard of digital leadership and disruptive innovation

Authors
Shelley Rudge
Atkins Principal Consultant

Dr Peter Chatterton
Associate Consultant and Director of Daedalus e-World

Vanessa Fernandes
Atkins Senior Consultant

First wave Second wave Third wave

August 2018
Introduction

Disruption is coming from all directions to what historically was a relatively protected sector. By moving to study fees and an increasingly competitive global, regulated and digital marketplace for education, institutions of learning increasingly need to change to a service-orientated model to excel, with IT Departments at the forefront of digital leadership, disruptive innovation and change. In this article we outline two initial waves of digital technology (establishing digital infrastructure and end-user-driven disruption and innovation) and identify how, in a third wave (Digital 3.0), institutions need to better relate IT services to staff and student changing needs and provide greater flexibility, agility and “lean-ness” to respond to complex market conditions. Most of all, IT departments need to enhance their “true” partnership working with staff and students which historically, many have struggled to implement.

Wave 1: Establishing a digital infrastructure

In this wave computer science was established, institutions moved away from paper-based systems to digital record systems and away from traditional learning and assessment models (e.g. lectures, tutorials, exams) to blended and online models using technologies such as Virtual Learning Environments (VLEs), e-Portfolios, web-conferencing and digital assessment techniques. Despite the emergence of these new infrastructure capabilities, academics were generally slow to adopt them with limited pockets of innovative practices and IT departments were generally ineffective in stimulating their widespread uptake. At the same time, researchers were increasingly using digital techniques e.g. to aid data capture, analysis and visualisation as well as in publishing. The infrastructure grew through a combination of both centrally funded investment in core systems, usually specialist higher education specific systems (e.g. student records), and a somewhat piecemeal and fragmented purchase of “local systems” enabled by devolved decision making and a recognised acceptance of differences in academic departments.

In today’s world two key challenges facing many institutions relating to their historical digital infrastructure are:

› Fragmented data sources, outdated legacy systems and incompatibility with mobile access combined with a lack of service-oriented architecture makes data federation and master data management difficult/impossible to achieve in a world where mobile access is increasingly demanded.

› An increasing need for real time up to date data to support learner/data analytics, student performance monitoring and progression and student authentication means the local systems are becoming ever-more complex challenging the institutional “source of truth”.

Introduction
Wave 2: Digital & end-user-driven disruption & innovation

The second wave of digital evolution was largely technology and individual user driven with low-cost digital technologies such as personal computers, social networks, cloud services, mobile devices, and apps allowing users to bring in many new innovations to drive and support research, teaching, learning and assessment. As a result, models of teaching were disrupted with learning and assessment dramatically changing and impacting on every aspect of universities including academic roles, ways of working and business models. Also impacted was research where the same low-cost ways of mass communication and smart mobile devices have started to impact the way researchers engage with and impact the public.

This period of disruption has bought three further challenges:

- Disruption and innovation has brought complexity and speed of change which universities and students have struggled to deal with. For example, innovations in online and blended learning present a wide range of options for academics to utilise but institutional processes, policies and support services generally have not caught up with the challenges and issues that are raised. In such situations, it is not unfamiliar for staff and students to adopt publicly available networks and cloud services to support working, research and learning and this presents institutions with many challenges associated with data management, compliance and even institutional reputation!
- Additionally, the legacy of piece-meal system growth has meant a lack of focus on key stakeholder needs. Instead, systems can tend to support uncoordinated silos of operations particularly where there are cultural/ways of working differences between, for example, academic departments, administrators, registry, student support services and staff professional support services. The outcome of this can often be a disjointed, confused and inconsistent end user experience.
- The low-cost of digital technology has aided the introduction of competition and new markets in the higher education sector particularly for online learning including from new entrants. MOOCs (Massive Open Online Courses) are a well-known example, with most Universities at least putting a toe in the water to explore new markets, though with uncertain commercial benefits. There are worldwide examples of growing businesses in this area e.g. FutureLearn in the UK (driven by the Open University in partnership with a range of traditional universities) and MIT in the US.

Wave 3: integrated data, processes and systems to support lean student and staff journeys

Today UK Universities are facing unprecedented challenges arising from external factors outside of their control e.g.

- raised tuition fees increasing student expectations and demands
- greater Government scrutiny e.g. through performance/league tables such as TEF, REF, NSS, DLHE all of which can impact on institutional income
- increased competition including from new entrants unhindered by legacy systems and ways of working

As “digital” continues to disrupt and shape every aspect of University operations and external engagement, IT departments are in a unique position to make significant contributions to help their institutions address the challenges they face, with four key potential areas of focus:

- Management and embedding of innovations in support of teaching, learning, assessment and research
  The disruptions to the HE sector arising from low-cost online/mobile digital technologies has had significant impact on teaching, learning, assessment and research. However, unlike most private sector practices, many universities have minimal processes in place to expand pockets of innovation and embed them in more consistent practices throughout the institution. Students generally respond negatively to any inconsistencies in their teaching and support experiences and this dissatisfaction can be reflected negatively in performance tables such as Teaching Excellence and Student Outcomes Framework (TEF) and National Student Survey (NSS).
- Support for new “product innovation”
  Most Universities recognise the need not just to digitise existing “products” (e.g. learning programmes) but also to develop new (& often disruptive) innovative products for both existing and new markets. However, central IT departments do not always have the resources, expertise and relationships with academic staff to proactively drive and support such developments which again, can lead to uncoordinated pockets of development as well as adoption of “renegade” technologies. In this wave, universities typically implemented academic staff support units (e.g. blended learning, e-learning) which were (& still often are) mostly uncoordinated by central IT. Another criticism is that they are perhaps too much focused on continual innovation (what’s next around the corner?) rather than embedding new technology-enhanced curricula models across the institution to provide greater consistency of user experience, which is emerging as an important factor in TEF assessments. On the other hand, such units are often better at engaging with and supporting academics and students than IT departments.
- Driving efficiencies and productivity
  It was argued earlier that processes, systems and support in institutions have tended to grow in a rather fragmented way often with different “silo” agendas and drivers. There is an opportunity to adopt lessons learnt from other sectors to drive improvements in efficiency and productivity by designing and implementing lean approaches focused on both student and staff “journeys”. For students, such “journeys” can be considered to commence well before enrolment e.g. embracing school/college/university engagement (designed to engage/
motivate potential students with the benefits the university can offer and support them in selecting an appropriate programme) through pre-programme training (e.g. language/cultural/academic practice training), induction, progression, employer engagement through to joining alumni communities (encouraging alumni to engage with and support potential and existing students).

“Lean” approaches, as pioneered in the automotive sector, can pave the way not just to greater efficiencies but also to enhancements and co-ordination in the use of digital technologies. Lean has been successfully applied in a diverse range of private and public sector organisations, including Silicon Valley and universities. A lean process focusing on understanding what students, staff and employers value most can help to design processes and systems that eliminate waste, duplication and unnecessary tasks as well as maximising the opportunities afforded by integrated digital systems.

A focus on student/staff “journeys” also helps to address complexities surrounding competing and fragmented processes and systems.

> Integrated data, processes, systems and support

The issue of fragmented systems and data needs to be faced up to and addressed, despite the challenges. The ideas given above concerning a focus on lean student and staff journeys will serve as backdrop for such integrated data, processes, systems and support.

There will also be challenges associated with “big data” and associated technologies such as AI, smart/autonomous operations, student authentication/authorship and IoT. IT departments will therefore have to develop their expertise in these areas and this will again require a high degree of internal collaboration.

Opportunities for central IT departments

Central IT departments are well positioned to be at the vanguard of digital leadership and disruptive innovation and in helping institutions to adapt to an increasingly digital world. This can be affected via a service-oriented model for operational and software systems that can ultimately provide digital services that are flexible, agile and lean and which can accommodate continual innovation balanced with reliable infrastructure and services. A focus on staff and student “journeys” will help IT departments to prepare a business case for such an approach and this can then provide the evidence for addressing the challenges of legacy and disparate IT and data systems.

A change in approach from pockets of innovation to one focused on managing and embedding innovations systemically will be required, with clear processes for maintaining innovations and experimentation agendas, but better balancing these with processes to organisationally draw out and engage the institution with lessons learnt as well as processes and support for selecting and embedding key innovations that align with curriculum, departmental and institutional goals.

To achieve this IT departments need to develop much closer relationships and ways of working with other institutional units through “true” partnerships with academic and administrative staff and students who should all be encouraged to play key roles in defining and implementing services that meet their needs. Such partnerships should also capitalise on staff/student innovative ideas and knowledge of their subjects, people and ways of working and learning. This will all present considerable challenges particularly as there often exists cultural and “ways of working” barriers between IT and such units – which have been described as “master/slave” relationships – with all sides thinking that they are the “slave”!

Significant changes to IT department strategies, practices and expertise will be required e.g. enhancements in collaboration, effective innovation and change management processes, lean mapping and process improvement and they will need to support institution-wide operating model changes. In particular, IT will need to learn lessons from blended learning/e-learning units in how to support and partner with academic staff as well as better balancing the innovation agenda with embedding innovations institutionally. All this will be a key challenge for those seeking to be digital leaders.

Embracing these digital changes offers opportunities for today’s Universities to offer a tailored service to students, thus enhancing the student and staff experience. Laying a strong foundation for institutions to become best placed to become a disruptor rather than being the ones disrupted.
About the authors

Shelley Rudge
Principal Consultant

Shelley Rudge is a Principal Consultant with Atkins Business and Digital Consulting team and is the Technical Authority for Benefits Management and Realisation.

Shelley has worked with in Higher Education for the past two years with Russell Group institutions Imperial College London and University of Birmingham with a high level mandate to ensure the realisation of benefits across a portfolio of change initiatives. As part of this role Shelley has been operating at both strategic and tactical levels and across ICT, Registry and Academic departments.

Dr Peter Chatterton
Associate Consultant and Director of Daedalus e-World

Peter Chatterton is a consultant and academic whose work spans higher and further education, Government and industry. He consults to a wide range of universities and FE colleges, supporting them in programmes of innovation, change and agile working for educational transformation – using new technologies and media as the catalyst – helping to meet the needs and demands of learners and employers in a global digital world.

Vanessa Fernandes
Senior Consultant

Vanessa Fernandes is an experienced management consultant specialising in strategy development, enabling organisations to become data-driven and benefit from evidence-based insights.

She has worked with Russell Group universities like the University of Glasgow and University of Bristol on statutory data collection projects, collecting and leveraging Higher Education Statistics Agency (HESA) data.

Vanessa has published analysis on graduate outcomes in the UK for the Higher Education Careers Services Unit (HESCU) and Association of Graduate Careers Advisory Services (AGCAS).