Higher education is changing at a rapid pace. In this interview Steve Williams from Newcastle University tells us why IT transformation is helping to secure the University's reputation as a leading institution for teaching and research, in a highly complex and increasingly competitive landscape.

Steve Williams

Director of Information Systems and Services at Newcastle University

Could you tell us about the role you and your team play at Newcastle University?

Our role is defined by three areas: introducing new technology, formulating new ways in which technology can help people do things better and providing the necessary support to enable people to get the most out of the technology available to them.

What was the biggest challenge you faced when you came into the role?

There wasn't really a system in place for defining the type of technology support that was needed. Instead, there were various IT objectives and various pedagogical objectives but nothing linking or separating the two, making it very difficult to prioritise and deliver either. Today, we always approach technology at the University through a program of 'pedagogical improvement.' So, we first consider what we want to achieve academically and then decide what (if any) technologies or IT driven projects are required to achieve those objectives. This makes the whole governance of IT easier and it also ensures that the right priority is always given to the various pedagogical related IT and technology projects. I think the tie-in between teaching and technology is now one of our strengths. I feel there is an integrated program of pedagogical change at the University, underpinned by technology, and led by the Pro-Vice Chancellor for Teaching and Learning, with me as her 'right hand'.

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How does this system translate into actually meeting the needs of the students?

Ok, for example, the University says that every student should have the opportunity to engage in reflective learning and to do so students will require access to e-portfolio systems. This is obviously an objective with an IT component, and therefore my team must create a project plan for the delivery or enhancement of any e-portfolio system. If we consider it from the students' perspective, we basically say to students 'if you study at Newcastle University, our technology will enable you to do certain things'. So, to ensure we meet these various 'guarantees', we have to properly define and resource a whole series of projects to make sure that everything the students expect is delivered. Students today demand access to a wide range of tools via their desktop computers as well as via multiple mobile devices. We not only have to make sure that the necessary technology is available to them, but also think of innovative ways in which to support them. So, we have 'connection clinics', 'floor walkers' based at the various halls of residence helping students get devices set up in their rooms, and also staff who provide daily support in our student cluster areas. There's no point introducing new technology if people either don't know it's there, or how to use it.

You've recently presented on the impact technology is having on the learning experience. Can you give us some examples of new technology you have introduced at Newcastle University that has improved teaching and learning?

OK, one is a type of software called 'lecture capture' which is basically a set of technologies that allow recordings of presentations to be captured by the user and relayed automatically to any given audience. We have a lecture capture platform and any content that has been recorded can be viewed by students accessing the platform. This is something we're convinced students should have access to and Newcastle University is now one of the largest users of lecture capture in the UK. As I explained before, the rationale behind every technological development at the University is pedagogical rather than technological; it's driven by the organisation's core business which is teaching and research. Students and researchers should have the opportunity to reinforce their knowledge in many different ways; reading books is one thing, but having access to a range of recorded lectures, we believe, is equally important. Another technological implementation that we have driven is introducing 'clickers' or handheld devices where you can answer questions during a lecture by selecting A, B, C or D etc. on a keypad. Research has confirmed that this type of 'active participation' reinforces learning. So, again, the pedagogical imperative influences the type of technology we use.

How do you assess how valuable these tools are to the students as well as the teaching staff?

Pedagogical improvement programmes are led and sponsored by academic staff. As IT Director, if I say a certain type of technology is a good investment, my opinion maybe carries a small to medium amount of weight behind it. But if a senior academic heralds a technological improvement, then that carries more weight at the very top of the University. Equally, student feedback is important. So, with regards to lecture capture, some early feedback we received was from the programme director of the medicine degree who simply wrote 'My students' love it!' That's basically the best piece of marketing any IT initiative can get within a university and that comment actually led to us rolling out lecture capture across the organisation. Now that we have, student feedback on lecture capture is universally positive.

Are there any cases of specific departments or disciplines requesting specific technologies?

Yes, some of our academic units have taken the decision to give students access to specific technologies. For example, every student on one of our engineering programs now receives an Android tablet at the start of their course and we make sure that every single note or lecture hand-out is made available to them electronically on this device. This initiative essentially pays for itself because of the amount saved on printing. It also helps to attract students to the course as well because prospective students can see that, if they study on this technologically intensive engineering course, the University will support them by giving them an appropriate piece of technology. Indeed, many of the technology needs are unique to the specific schools. Standardising and being efficiency driven, while specialising where it makes sense to specialise, is the secret of success in a research university.

What future challenges do you anticipate overcoming?

The University is growing, both in terms of the number of students, as well as the number of specialisms that it offers. We're also expanding internationally. We have a campus in Malaysia now

and we teach a range of engineering programs in Singapore and we're probably looking to add at least one other international location in the near future; so this growth will bring a series of IT challenges. The other big challenge is very demanding expectations. People require bespoke ways of working with technology today. They want to do everything 'their own way' but without actually changing the way they actually work; they have their preferred channels for social interaction and they also don't want to be constrained in what they do. This applies to the staff and students and we want to be able to satisfy those demands, which is obviously very challenging. Another big area is the digital native debate. There is a belief that because young people have grown up with technology, they naturally know how to use any device and any software without any assistance. This is false. Our own experience is that many seventeen/eighteen year olds are exceptionally fluent with a small number of technologies, particularly social and gaming devices and platforms, but they don't automatically adopt or adapt to other new technologies quickly. Providing support to students and helping them to use the learning technologies is terribly important.

I know one of the big trends discussed in HE IT this year has been the rise of MOOCs (massive open online courses). What are they? Are they a threat to the traditional HE model?

My view is that MOOCs will continue to grow, as will the traditional model of campus or 'presence' based university education. There has always been distance learning; you could have done a distance learning degree with the Open University twenty years ago. What MOOCs do, however, is put a greater emphasis on using technology to deliver distance learning. Currently, MOOCs usually consist of various modules (not whole degrees at the present time) which you can access and complete online. These are often free and also un-assessed. Some of them, on the other hand, charge for assessments and come with university accredited certificates upon completion. Sometimes assessments are even done by your peers, which is an interesting model. The advantage of MOOCs is that they can make use of a variety of different technological approaches to learning. For example, you can access high quality, high resolution video and even broadcast quality material, if you want to. The purposes of these things vary depending on what you believe. Some people would say it's all about making university quality material available, for free, for everybody in the world. They also act as a recruitment tool. Some Universities have experienced students enrolling on courses after first completing MOOCs and being 'inspired'.

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So, how do you see MOOCs evolving?

Eventually, for example, if you want to study economics you'll be able to take micro-economics modules via a MOOC offered by University A, macro-economic modules via a MOOC offered by University B, study statistics via a third university and then maths through a MOOC offered by a bank or an accountancy firm and you'll be able to get it all accredited by a third party exam accreditation company. So, do I think Newcastle University will still be here and in the same shape in twenty, forty or sixty year's time? Yes, I do. But I also think that the actual nature of work will be influenced by MOOCs. There's a brilliant quotation from my favourite CIO, Tracy Futhey from Duke University in the USA, who said "Every one of our academics who teaches on a MOOC, changes their practice for their face to face teaching." Academics reflect on their practice and bring elements of what they've done on the MOOC and introduce it to their face to face teaching.

What role do MOOCs currently play at Newcastle University?

MOOCs are part of a wider program aimed at 'diversifying our portfolio'. Currently, we offer relatively few eLearning courses compared to other universities. ELearning courses and MOOCs are very complex things that need full and proper consideration and planning before they can be executed properly. Just because we have a good face-to-face degree in a particular subject, doesn't necessarily mean that it will naturally translate into a successful online course. You've got to take the time to really think about how the student will interact with the material differently, if it was delivered online, and get it absolutely right. There is, however, a resource and project management issue. If, for example, we've got three high quality lecturers in German with a full workload of teaching and research, they haven't got the time to really think about repurposing their courses into really excellent MOOCs; that takes months of planning and a great deal of individual time and investment.

What about your recent collaboration with FutureLearn? How will the IT department support FutureLearn?

Future Learn is a company owned and run by the Open University which provides a MOOC platform for a number of universities to participate in. We've selected subjects which we have intellectual leadership in, created excellent 'high production value' learning materials and then passed them on to FutureLearn to they can upload them onto their platform. So we're responsible for the content and they look after the infrastructure. Our first MOOC

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will go live next autumn. The reputation of the MOOCs is a shared thing. If the MOOC platform is creaky or the content is poor, both our reputations' suffer. Obviously the academics generate the content and think about the pedagogy, but my team are involved in the shaping of the content. Audio visual and video production is part of the service we offer.

Data analytics and the availability of 'big data' have had a massive impact in the private sector. Is it having the same impact within HE? Is this something Newcastle University is taking advantage of?

I'll give you two examples. We use Google Analytics to track who is looking at our post graduate portal so we know how many people from which countries and indeed from which cities within which countries - which is terribly important in the case of China - have looked at our site and also what courses they're interested in. In the past, all we knew was how many people applied for courses. So, this is really valuable to us, especially when we're planning where to invest resources for recruitment. There's also a huge amount of work done now, particularly in the USA more so than the UK, in trying to understand what makes students complete their course once they've started. So, tracking things like lecture attendance, the timeliness of assignment submissions and so on. American Universities and Colleges who use this kind of data have been able to improve attrition rates significantly.

I know Newcastle University has made a lot of organisational changes to attract and retain more researchers. What role has IT played in boosting Newcastle's reputation as a leading research institute?

I was effusive and positive earlier about the join up between teaching and IT; however research and IT at the University has traditionally been less integrated and it's something that we're striving to change. The university has grown its research base recently and has been very successful, particularly in the last year, in getting research grants. Typically, however, a researcher will buy their own equipment and as a result we have literally dozens of £10,000-30,000+ computers and other research devices all over the University. If we could combine much of this research computing together, either by joining up our research computing onsite or building bridges to research computing assets held elsewhere, we would be able to do more and better research with a faster turnover. A research funder will always look primarily at the inherent quality of the research proposal and the researchers doing it. However, the level of available computing resources is increasingly important in a grant application being successful. Getting this right is a huge priority for me in 2014.

You've worked on IT transformation projects in the public and private sector. Are the challenges in the HE sector any different to what you have experienced in the past? What's different about IT transformation in HE?

The decision making process is definitely the biggest difference and challenge. In the majority of businesses, for example, if a Chief Executive says 'we're going to do X' then you basically do X. In a university, especially a traditional research university like this one, decisions made at the top are often the catalysts for a long and complex debate. Each stakeholder here believes themselves to be independent. For example, it would be wholly inappropriate for anybody to tell an experienced mathematics lecturer how to teach calculus to first year students. Yet, many of those lecturers seek the freedom to choose the technology they prefer. Ok, they might know what brand of computer is best suited to their research purposes, for example, but they won't necessarily know what kind of mobile phone they need to interact with the University's email system. So, I have to work hard to, on the one hand, provide colleagues with the research infrastructure they need, but also gain their trust and support regarding all other IT issues. This can be very difficult. Diplomacy and influencing skills are important to any CIO in any organisation but they're particularly important in this one. The lack of alignment behind institutional direction makes technology enabled transformation difficult. It's extremely stimulating and thought provoking to work in this environment, but it is tricky. Certainly compared to other organisations I've worked in.

How do you keep yourself busy outside of work?

I'm a triathlete so I swim, bike and run. I also play the drums in a punk rock band. Both of those are physically intense and I think it's important to have something, whether it is intellectually intense or physically intense, to disengage yourself from work. I can't really worry too much about Windows 8.1 when I'm trying to keep up with a fast swimmer in the pool.