Biography

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Mike McKeown, 41, is the manager of the education business development group in Cisco Systems Europe, responsible for business development, sales, strategic relations, programs and market development of the education sector.

McKeown has been with Cisco for over 11 years. He was responsible for the creation of the Cisco Networking Academy Program in Europe, played a significant part in the development of the UK's national education network and speaks regularly on the topic of networked ICT transforming education at international events.

McKeown was a founding member of the European Commission Netd@ys committee and is a executive member of the eLearning Industry Group (e-LIG). He also benefits from practical perspective on 21st century education from his three young children!

McKeown has a BSc Hons degree in Computer Science from University of Swansea, UK.

ICTs in Education

Information and communication technologies are discussed more and more often in the context of education, but there is still some way to go before the market catches up with the technology advances of a society where there is ubiquitous access to mobile phones, PDAs and wireless Internet access on the street. Classrooms and lecture theatres need come up to with something better than offering students a pen and a piece of paper but how can they address this when budgets are being constantly squeezed and stretched in so many directions? Day to day amenities such as rundown buildings and broken chairs come as priority investments, and resources are needed to fix these problems in the short term.

However, moving forward what education authorities need to do is to look at the long-term vision, as here is where technology can make a difference. Network technology can play a pivotal role in cost savings, improving productivity, as well as improving security and reducing overall building management costs.

But investment in technology adoption does not come without barriers. Resources and budgets are consistently being over-stretched and arguments for investment against technology and in materials such as books is commonplace. Coupled with this, within the next ten years it is predicted that more than 50 per cent of teachers in the UK will reach retirement age. Current recruitment levels suggest there will not be enough teachers available to fill this gap and address the shortage.

The education market across Europe is changing and technology is starting to play a much bigger role in increasing productivity, quality and cost-effectiveness by swapping traditional classroom methods with technology. The education model hasn't changed since the beginning of the last century – it's still based around the classroom. What has changed however is the increasing pressure placed upon the learning model. Lifelong learning is more important than ever as syllabuses and skills need constant updating to keep abreast of fast-moving technology workplace.

Decentralisation also stands in the way of wide scale technology adoption. With no central decision-making body, school boroughs and universities are fragmented and often act independently of each other. This makes it difficult to mark out a clear scale and direction for investment. For technology implementations to make a real difference they should be deployed on a large scale to reap the benefits of applications such as wireless working, video conferencing and Internet Protocol (IP) across boroughs and campuses.

When we look at the classroom specifically, the increase in the role of technology has influenced the rise of two extremes in the market. On the one hand there are some traditionalists who seem to avoid technological advances, doubting its potential to assist in improving teaching and learning outcomes. Ageing lectures in universities often sit in this camp, and see very few of the benefits that technology can offer them. To the other extreme many institutions confidently market themselves as "Internet schools," and educational terms such as the "virtual classroom" and "electronic universities have become commonplace.

To overcome these barriers schools and higher education establishments need to improve processes and services to attract the best students and finest teachers. Today, on the whole, educational institutions are drawn to the benefits that technology can bring to address these challenges. Increasing access to advanced technologies to improve courses and curriculum is seeing a knock-on effect on enrolments. Universities are further ahead in deployment and are often classed as early adopters. In fact the general level of integration of ICT in teaching has increased greatly over the last two years among EU Universities and around 50 per cent of universities in the member states are involved in co-operating with other universities in their own country to offer joint-e-learning courses. [1] For schools, problems such as teacher shortages could be addressed via virtual classrooms utilising resources not only in local communities, but also across the world.

Things are changing slowly, but what still needs to be recognised is that investment in technology is a long-term commitment and while short-term gains and improvements can be recognised quickly, it is important is to lay the foundations of a secure network for the future. Having a network in place will help education authorities to remain

[1] WebCT figures www.webct.com

competitive and allow for further technology deployments that will inevitability come.

Cisco plays a key role within this sector, based around its strategy to demonstrate how the network can improve the quality, reach and cost of public services. In education, as in other public services, Cisco is providing new ways for people to communicate and to increase productivity, security and standards without increasing budgets.

The UK Efficiency Review estimates that 30 per cent more front line teaching time could be gained by simplifying and standardising systems – and this is achievable only through IT. For example, via e-learning, a teacher can be attending to one group or individual while others work at their own pace online. Multimedia presentation methods bring learning alive. Online conferencing can be used to bring in specialists to fill in the gaps in the school's local knowledge, meaning that inequality between institutions' resources becomes a thing of the past.

Use and investment in technology varies between schools and higher education institutions. Schools concentrate on using IT to make learning richer, to cut down on administration for teachers and to provide 'education for all'. As higher education facilities have more of a business focus, technology means being able to attract the best students and faculty and therefore increase revenue opportunities. As such, it's no surprise that higher education providers are more mature in their adoption of new networking technologies and have more money to do so. According to recent figures 65 per cent of universities state that offering e-learning courses for basic academic training and supplementary training is one of their key priorities over the next two years. [2] Schools have traditionally lagged behind due to their centrally created curricula, which necessitates less information sharing and therefore less interaction.

However, investment in technology in primary and secondary schools is now a big growth area. Governments across Europe are increasingly providing more money for technology, with the UK and Germany leading the way in modernisation. For example, in 2004, the average number of computers per primary and secondary school in England increased by 35 per cent from 2003[3]. Furthermore, the UK government has promised an extra £700 million to be invested in IT by 2006. Meanwhile, Central and Eastern European countries are also showing greater signs of investment.

Wireless technology offers mobility and flexibility, which is especially useful for large campus-based universities. Meanwhile, Internet Protocol (IP) telephony systems provide teachers with an efficient terminal for class registrations, give them an online timetable to locate and contact staff and students and make them available for coursework help or parental questions wherever they are. The resulting increased efficiency amongst staff and students continually improves education standards, as teachers are able to focus more of their time on teaching.

[2] WebCT www.webCT.com

[3] Information and Communications Technology in Schools in England, 2004, Department for Education

Technology is not just improving the learning experience it is addressing issues such as security concerns. Widely publicised security breaches among education institutions of all sizes and types - such as violence and vandalism - have brought this issue to centre stage. Security has become a topic not only for the schools but also for parents and students alike. IP technology, which allows for digitalised CCTV cameras and IP phones in every classroom, can help to address these concerns. Furthermore by incorporating the network at the heart of the building design, education establishments can greatly reduce the costs of running their buildings, which accounts for 75% of the overall cost of the building, while improving revenue stream and providing more enhanced services, amenities to attract and retain students and staff.

In short, technology can move education to a more learner-centric approach, allowing students to learn what they want, how they want, when they want. In this individualised and personalised learning model, teachers are on hand more as coaches than directors and education becomes a way of life, not just an isolated classroom activity. Visionaries see a future where schools open online 24 hours a day and classrooms are replaced by virtual tutorials with students learning in mixed groups of different ages and abilities[4].

[4] Cisco Systems, *Connected Schools*, 2004