UK Education: Impact Through Cohesive Action

(Examples from England, Scotland and Northern Ireland)

Executive Summary

CUSTOMERS
National Education Departments of:
- England
- Scotland
- Northern Ireland

INDUSTRY
Education

BUSINESS CHALLENGE
Deliver transformational progress in three national school systems, enabled by technology vision

SOLUTIONS
- **England**—Sustainable e-Strategy, enabling learners system-wide
- **Scotland**—Scottish Schools Digital Network serving all school districts
- **Northern Ireland**—C2k technology services for teachers and pupils

BUSINESS RESULTS
Improved academic excellence and increased efficiency:
- Created tools to improve teaching, learning and administration
- Improved collaboration to share resources and personalise ideas
- Built services around the needs of learners and teachers
- Saved time and money to reinvest
- Provided useful information at time and place of greatest need
- Established scaleable, sustainable ICT services for national success

Transforming education is a top priority for governments worldwide. It is no wonder then that more pressure than ever is being placed on education policy makers to make the best use of national resources and of technology enablers. England, Scotland and Northern Ireland are each facing up to this challenge by developing a cohesive national vision and strategy. Whilst each country is taking a different route, all are making significant progress toward the same destination.

BUSINESS CHALLENGES

Governments around the world share the same vision for education—help maximise the economic prospects of country and citizens by ensuring that their education system is effective and seamless, whilst making the best, sustainable use of national resources. Global competition is creating ever-greater urgency, whilst increased global collaboration and other technology-based capabilities are at the same time providing ever-greater opportunity.

Maximising educational success nationwide involves a long journey with many challenges, including:

- Fragmentation of information and communications technology (ICT)—notably through multiple and disparate systems, networks, vendors and standards
- Inability to connect people, places and tools
- Burdens put upon front-line staff by noncore, ICT-related activities
- Ineffective funding and governance models—typified by siloed decision making
- Benefiting from technology advances whilst mitigating against obsolescence

CISCO SYSTEMS

Prepared by Cisco
Internet Business Solutions Group

In response, three separately governed UK countries are successfully navigating through these challenges—based on a coherent national vision and ICT strategy—to help transform the national schooling systems of England, Scotland and Northern Ireland.

SOLUTIONS

Northern Ireland: World-Class Learning Technology Services

Driven by economic and social realities, Northern Ireland decided to transform its education system to be designed for the information age rather than for the industrial age. ICT was recognised as integral to that change—a vision that led to the creation of C2k in 1998, to provide world-class technology services to schools and for the community.

This public-private partnership (PPP) organisation is responsible for providing a suite of services for 1,200 schools across the areas served by the nation's five Education and Library Boards. The partnership was born from a strategic decision to create national education services that can be used by all. A critical step in doing so was to focus on desired outcomes and then provide the services to help improve these outcomes and the digital highway to access those services. This was a step-change from the previous approach, which tended to focus primarily on inputs, such as providing commodity devices like PCs.

Jimmy Stewart, Director of C2k, explains the route taken by Northern Ireland: "Before, students had to move to dedicated PCs in schools. There were also big issues around the reliability of the technology, which was seen as a burden by most schools and teachers. They were at that time receiving varying levels of support and advice on how to use digital resources effectively."

Having concluded that technology was a strategic enabler, the Northern Ireland Department of Education committed to a £500 million 10-year development programme. Key to its success was adopting a "teachers first" approach.

Starting in 2000, a national digital resources training programme was rolled out to raise digital resource awareness amongst teachers. This was followed by providing back-office tools and services for staff to save time and reduce unnecessary manual, administrative burdens. Having saved staff time and having gained their confidence in C2k, the next project phase was to develop services to help improve teaching and learning directly.

Using the scale of this national approach to its advantage, C2k attracted significant private investment to launch its portfolio of managed services. C2k has become a leading example in the global education sector of the use of a PPP approach to managed ICT service, with major participants in the C2k consortium including Hewlett-Packard, Cisco®, Northgate IS, Microsoft and Intel. Education usually requires more than a typical off-the-shelf enterprise solution. The strong C2k partnership, enabled by technology, has promoted the invention and the development investment necessary for long-term success.

While the C2k practice was being established, school budgets were protected. Cost benefits subsequently achieved through aggregation of ICT services were, in turn, retained by schools to reinvest in other, more core educational priorities.

The suite of services managed by C2k includes:

- The hosting and support of over 200 software toolsets to enrich learning, conduct administration tasks and access the national education network and the Internet
- Personalised, on-demand and secure access to those tools for authorised users (teachers, pupils and administrators)—enabled by the largest active directory of its kind in the world
- LearningNI, an integrated learning environment that offers a flexible and feature-rich platform to support classroom and distance learning
- Installation, training, fault-resolution and phone-support services driven by clear service-level agreements, which help improve reliability and user satisfaction

Helping front-line staff deliver tangible outcomes remains C2k's prime focus. "This is about improving education and using funding efficiently, not about technology or saving money," says Stewart.

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Jimmy Stewart, Director, C2k

Scotland: Bringing Education to Life

Scotland took charge of its own future with the creation in 1999 of a devolved government for Scotland. The Scottish Executive Education Department is responsible for Scotland's vision and national strategy for education.

As with Northern Ireland, Scotland also came to a clear conclusion: a cohesive national approach to the exploitation of ICT was essential if the required impacts on academic excellence and the use of national resources were to be achieved. ICT-enablement was previously driven by 32 different local authorities. It was recognised that both local flexibilities and national benefits would be enabled by having a clear overall framework and centrally provided infrastructure and services.

That conclusion and the successful progress made by the Scottish Executive Education Department to date owes much to the consultative approach adopted. In 2003, the Department began an 18 to 24 month consultation process, comprising meetings, workshops and focus groups with stakeholders to identify requirements. In parallel, external experience and perspective was sought from private-sector organisations, like Cisco, and from education leaders skilled in the area of large-scale education improvement, such as those in Alberta, Canada.

The outcome was the Scottish Schools Digital Network (SSDN)—a national, broadband-based intranet service, which connects Scotland's 50,000 teachers, 700,000 students and 3,000 schools across its 32 local authorities and five cities. SSDN was subsequently renamed Glow in readiness for its arrival in the classroom.

John Connell, who was Director for SSDN at the time, explains: "We began by trying to understand why some ICT projects were more successful than others. Our conclusion was that imposed change could be high risk, whereas a consultative model was most likely to ensure we built something that would be welcomed and used by teachers, schools and students."

Rollout of the national service is well underway, providing teachers with secure access to:

- A virtual learning environment in which to manage curriculum delivery, and assign, mark and automatically return work to pupils via the intranet
- On-line checks of pupil progress via individual and aggregated performance data
- Communication and collaboration toolsets that include e-mail, instant messaging, net conferencing, chat rooms and newsgroups
- Content hosting and distribution capability, which helps make lessons more engaging by enabling multimedia content, such as video clips and high-quality graphics, to be used no matter how a school is connected to the SSDN/Glow

Pupils benefit directly too, being able to share ideas and resources electronically. Parents will be able to use the services as well, whilst local authority staff also benefit through:

- More efficient, faster, and cost-effective communication
- Ongoing, automatically consolidated performance and tracking of data
- Greater commonality, hence, more cost-effective ICT service delivery

Connell is now Learning Futures Strategist for Learning and Teaching Scotland, helping to build on the strong national foundations now set.

"A consultative model was most likely to ensure we built something that would be welcomed and used."

John Connell, Former Director, Scottish Schools Digital Network

England: Information-Age Service, Organisation and Partnership

The Department for Education and Skills (DfES) is charged with educating 7.7 million students in nursery centres, schools, colleges and universities throughout England. This is a complex mandate which involves working with 150 local authorities to address the needs of 23,000 education institutions and 625,000 staff.

The phrase, "Education, Education, Education," was adopted by the British government in 1998 and made a top priority. Notable momentum was built in the five years that followed, helping individual schools by pursuing national targets such as increasing PC-to-pupil ratios and connecting every school to the Internet.

Two things became clear during that time from different global reference points:

- Effective use of information technology has a clear, beneficial effect on learning outcomes through improved motivation, interaction and pace and through less wasted time
- Focusing on input measures and adopting 23,000 potentially different approaches is not a sustainable or effective approach for long-term, national success.

This prompted David Miliband, the Minister of State for schools in England at that time, to say: "More of the same is not an option." The DfES commissioned several studies in 2003, including global research led by the Cisco® Internet Business Solutions Group (IBSG) for Miliband, to identify how ICT strategy could be further improved.

This led to the creation of an e-strategy in 2004 and the appointment of the DfES's first ever CIO, Michael Stevenson, to establish the foundations to deliver its goals. This included making technology an integral part of policy decisions at board level. Stevenson was clear: "This was central to delivering demonstrable outcomes and impact."

The national technology transformation programme that Stevenson and his team shaped moved thinking beyond creating isolated pockets of local excellence to addressing the critical, nation-wide enablers required for large-scale, tangible and sustainable success.

"By taking a systemwide approach, we can ensure the best, most sustainable benefits—at national and global levels."

Phil Hope, Minister for Skills, UK Government

Programme priorities include delivering a common digital networked infrastructure, integrated information and support services, and personalised learning spaces for England's 8 million school pupils. These enablers will also allow time burdens to be reduced for teachers—time which can be reinvested in core teaching. In parallel, the programme is developing the organisational capacities needed to establish the tools, process and services required, to help practitioners use them well, then to build on early successes.

The last point is particularly important, as noted by Kevin McLean, head of strategy and performance for the programme: "Strong leadership is essential—in schools and at the centre—if technology is to be used effectively."

Stevenson recalled a further key challenge: "The trick was to develop a consultative approach within an ambitious national framework. We had to strike the right balance between the needs for local choice and for suitable standardisation and aggregation." On Cisco's role, he added: "The clarity, honesty and sharpness of insight provided by IBSG throughout has helped greatly in seeing where we need to go and how to do so."

The distributed funding and purchasing model in England added complexity to the transformation programme and remains a challenge. As with any large enterprise, managing this funding/delivery equation will be central to sustainable success.

As part of this, the DfES and Government committed to helping remove burdens from front-line staff so that they, schools and local authorities can focus more on students, parents and communities and less on handling the many ICT-related support services. Alternate models being pursued to help achieve this include:

- Establishing firm interoperability standards so different systems work together
- Developing practical managed service and shared service arrangements
- Establishing national contracts with clear standards and negotiated discounts
- Strengthening national governance arrangements so that strategic intent is realised

Significant progress has been made so far, by taking a coherent approach across the whole education system. Minister for Skills, Phil Hope, confirms: "By taking a systemwide approach, we can ensure the best, most sustainable benefits—at national and global levels."

BUSINESS RESULTS

Improved Academic Excellence

While the approaches to transforming education differ in England, Scotland and Northern Ireland, the fundamentals of each approach are similar. Each country is drawing inspiration from the others, as are other national and large regional governments globally who are addressing similarly ambitious objectives.

The leaderships in each of the three countries have set a direction based on cohesive, national approaches to the exploitation of technology and are now reaping the rewards of a more connected education system—nationally, regionally and locally.

Real transformation is taking place inside the classroom. Free of the burden of managing unreliable technology, teachers in Northern Ireland now have more time to spend on core things, as well as access to a wealth of information, to other digital learning resources and to collaborative aids such as online libraries, discussion boards and real-time communication tools.

In Scotland, the creation of one of the world's largest content delivery infrastructures, based on Cisco technology, is enabling cost-effective access to multimedia and learning aids to enrich the teaching and learning experience.

In England, despite its greater complexity, notable benefits are already coming from the increased use of ICT to address practical daily challenges. For example, schools participating in a DfES ICT test bed are pioneering approaches to improve mobility for pupils and staff. When proven, these approaches have the potential to be scaled countrywide—linked to the personal digital portfolio project that is being rolled out nationally.

Technology is also having less obvious but equally important impacts. For example, pilot studies in individual schools, such as the Venerable Bede School in England, show how IP CCTV and better classroom communication can help reduce bullying among students by as much as 70 percent. When 27 schools adopt this collectively, as done by Newport City Council in nearby Wales, the benefits increase accordingly. If extended nationally, the improvement in academic achievement and in the working environment—hence, staff retention and recruitment—could be dramatic.

Systemwide benefit is also fundamental, looking across the journey from preschool to adulthood, not constrained by information silos. As Stevenson explains: "The end goal is to enable learners to plan educational paths and to move seamlessly between schools and higher or further education—helped at every step by ubiquitous access to the right information."

Each of the three countries has adopted an approach that focuses on building knowledge and information around the learner, whilst focusing on enabling the teacher. A recent survey of pupils in Northern Ireland shows that the way ICT is being used helps them concentrate and recall what they have learned, with newfound confidence and creative independence. An earlier survey of school staff showed that having a reliable ICT service, with effective training and accessible support, made their lives easier too—adding to the effectiveness of teaching.

Increased Efficiency

Connecting information, people, places and tools drives efficiency too, based on open standards, a common approach and an intelligent information network. One area in which it can do this is the management and administration of back- and front-office activities. The research commissioned by the DfES in 2003 identified how between 5 percent and 10 percent of total staff time and 15 percent of total ICT cost could be gained by reducing the waste caused by fragmented processes and systems.

Another source for efficiency gain is the increased scope for collaboration. For example, Northern Ireland's integrated learning environment provides access to video streaming and high-speed video conferencing, thereby enabling schools, libraries, colleges and local communities to develop joint teaching programmes.

Rural schools in England also use video conferencing to teach additional specialist classes by using remote tutors—although if done in isolation it is inevitably costly. Others, like Nottingham University and Hockerill Anglo-European College, in Bishop's Stortford, deploy video conferencing to enable student teachers at the university to observe lessons at the secondary school. This is a true case of cross-system collaboration, which could be replicated and made more cost-effective through a C2k-type shared service.

"By taking a cohesive approach to ICT, we are securing economies that would otherwise not be possible, and passing these directly back to schools to reinvest."

Jimmy Stewart, Director, C2k

Converging different networks offers further operating efficiencies using a common, digital system, as opposed to installing, linking, maintaining and updating disparate telephone, data, video and security networks. Many individual institutions in the UK have done so already, as have others globally. Notable savings, increased security and flexibility, and improved communication capabilities are typical benefits. If adopted systemwide and nationwide, the cumulative benefits would be considerable.

As well as reducing bullying among students, IP CCTV is helping to reduce costs due to vandalism and theft. Not only does this technology help save money on incident costs, it reduces insurance premiums and the time spent responding to incidents and initiating repair. At a city level, Newport City Council reduced vandalism-related costs by 40 percent within one year of installing CCTV in 27 schools over the council's IP network. Installation cost was less and benefits were greater than had the schools acted independently—suggesting even greater benefit if CCTV is able to be adopted on a larger scale.

At the national level, a cohesive approach helps government leaders make better use of national resources. "By taking a cohesive approach to ICT, we are securing economies that would otherwise not be possible, and passing these directly back to schools to reinvest," says Stewart.

Further information on the three case studies featured can be found at:
http://www.c2kni.org.uk/
http://www.glowscotland.org.uk/index.asp
http://www.dfes.gov.uk/technology/

MORE INFORMATION

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