Northumbria Research Link

Introduction

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These days we are bombarded with stories of the successes – and failures – of the electronic revolution. From dot.coms to wi-fi, the ways in which we get information, communicate with each other and engage in business are being transformed. Post-compulsory education – in all its different forms – is responding to these changes, and in some cases may be at the forefront of innovative development, particularly in the use of electronic media and networking for learning and teaching. But where post-compulsory education in the UK does lag behind the best practices of e-enterprise is in engaging with the implications of information and communications technology (ICT) for the whole nature of its services. This book argues that it is now becoming urgent for universities and colleges to grapple with the implications of ICT beyond simply automating existing processes, by understanding how new technologies enable better integration of university and college systems across the traditional divide of academic and administrative services.

Why, then, should we look to e-business practices as a place to learn lessons about new technologies for educational provision? I suggest there are several reasons:

■   The clear divide between 'business' and 'educational' provision is blurring, such that post-compulsory providers are now not only competing with other universities and colleges both in the UK and globally, but also with company-based and other private services. Universities and colleges can learn from the different approaches these competitors have taken.

■   There are important lessons to be learnt from contemporary changes in the business world, as relationships between customer, product and service are increasingly redefined – often, it will be proposed as something that is more like the long-term student/college relationship, rather than mere buy/sell transactions.

- Post-compulsory education is under huge financial pressure and needs to operate more effectively and more cheaply. Although ICT per se is not an immediate panacea to this problem, the integration of systems that new technologies enable and the related rethinking of organisational roles and services can offer benefits.
- Government and other funders are increasingly emphasising employability, both for vocational training and for 'knowledge' workers. ICT is already a core part of the capabilities demanded from our graduates and this trend can only continue.
- Post-compulsory education is under pressure to make its information resources, data management processes and transactions more 'business-like'. Effective, well-designed and integrated e-systems can both support a university's or college's educational objectives and meet these demands for better reporting and data tracking.

E-approaches are already well established in the post-compulsory education sector in the UK. Here, in order to build on that experience, we need to consider, first, why e-business approaches are relevant to universities and colleges, second, what we mean by e-business, and third, the key issues this raises for educational services provision.

Why look at e-business?

Most commentators agree that the ubiquity of the Internet and the emergence of ever-new ICTs is transforming older forms of business enterprise.[1] In addition to Web-enabled networks, we now have ever-increasing computer power in smaller and cheaper packages and high-speed broadband connectivity via a plethora of services and devices. All of this is enabling information storage and transfer of all sorts to be faster, more integrated, more customised and accessible anywhere, anytime. At the same time, vastly expanding virtual networks are enabling new forms of competition and collaboration and enhancing consumer knowledge. The impact of this on how businesses organise themselves and provide services is already far-reaching.

First, many businesses no longer simply provide products *or* services but instead offer an integration of products *and* services, aimed at fulfilling a wide range of needs and desires. In this process service providers and consumers are no longer separate but part of an interconnected Web of economic, information and social exchange. Buying and selling transactions have become more customer-centred, and with much more integrated and long-term linkages to associated services. Products can be 'mass-customised' and services truly personalised, with a much more interactive relationship between supplier and customers, and between customers themselves.

Second, organisations are becoming much more adaptable, flexible and less 'corporate', with even competitors learning to collaborate for mutual benefit. Where one institution begins and another ends is much more blurred as expertise is shared and/or outsourced. E-businesses focus on their core competencies and differentiating capabilities.

Third, organisational roles are also much more flexible, related to changing requirements rather than fixed job descriptions, with built-in on-the-job continuous professional development and training. This enables organisations to be much more responsive to dynamic and unpredictable change and to the needs of their customers and partners. Similarly, supporting infrastructures are moving beyond a conventional client/server model to more flexible, intelligent (and open source) technologies, which also can respond to change quickly and effectively.

Finally, personal communication devices (laptops, mobiles, PDAs, etc.) are becoming ubiquitous and multi-modal, requiring hardware and software technologies that enable interoperability and offer the potential of consumer choice across media and access modes. In parallel, communication software and tools are becoming more customer focused; with the next generation of Web-enabled services – Web 2.0 applications – being very much based on social interaction and the mass sharing of materials (for example, easily usable Web-blog tools, social fora such as MySpace and the sharing of photographs via Flickr or videos via YouTube).

Post-compulsory educational institutions are beginning to locate themselves in relation to these changes. This is not a simple process. Most post-compulsory education in the UK is not a commercial business. It is not financed in the same way nor is its public provision framed only by the profit motive. As I have already noted, education is also more like the blurred customer–supplier relationship that businesses are just beginning to notice. But are we clear about whether to conceptualise students as the clients, consumers, customers, employees, members or 'something else' of an educational institution? And how does that affect how we provide services? Universities and colleges are also exploring the implications of competition versus collaboration and the pros and cons of outsourcing or sharing non-core elements. They may be buying in cleaning and catering services. They may be franchising educational services to other institutions, providing accreditation to courses supplied elsewhere or developing new campuses globally. They are doing this in a marketplace that is increasingly global, challenged by other educational suppliers (both public and private), hedged around by government requirements and under tight financial constraints. How, then, in a risk-averse environment, can HE and FE education respond to opportunities through using ICT strategically, creatively and flexibly?

In the early days of the Internet, through the introduction of JANET and SUPERJANET, UK universities and colleges were at the forefront of the information revolution. All are now engaged in improving ICT infrastruc-

tures, hardware and connectivity – trying to keep up with the speed of technological change, within tight budgets. Most have some kind of e-learning provision, often linked to a management information system (MIS) or are implementing a managed learning environment (MLE). Many continue to innovate, particularly in the area of e-learning. However, the limitations of just automating a MIS or working from e-learning 'outwards' are becoming increasingly clear. Such an approach is not enabling educational institutions to think holistically about the services they provide to staff and students. Aspects of provision are tinkered with, piecemeal adaptations made, gaps and duplications perpetuated. Instead, we need to use the impact of emerging ICTs as an opportunity to rethink the *whole* business of education. Over ten years ago, Ernst *et al.* (1994) proposed that emerging technologies would enable HE to have *different* strategies to deal with reductions in resources and other changing trends, compared to their more traditional methods. These are listed under four imperatives (see Figure 1.1), which remain highly relevant.

This book argues that the best e-business approaches suggest ways of making such strategic-level shifts to an organisation, underpinned by the capabilities of new ICTs. The impact of such rethinking will vary considerably from institution to institution. In some cases it may result in only minor shifts, in others more radical change. Here, we aim to show some potential ways forward.

What is e-business?

What, then, do we mean by e-business and how is it relevant to the challenges faced by the post-compulsory education sector at the beginning of the twenty-first century? Most obvious is the potential for productivity gains offered by both the speeding up and the integration of communication and data. Individuals from different departments, organisations and countries can work efficiently together sharing knowledge and information across both functional and physical boundaries. Even more importantly, their customers and other stakeholders can access relevant information and communicate their requirements quickly, accurately and from any location. The term e-business – whatever its precise definition – means more than this, however. It is about building these key capabilities of speed and integration into the whole business process. Although there are different ways of interpreting this, the framework used in this book (see Chapter 3) is through the key issues of customer focus, organisational integration and common systems.

Customer focus

Business processes, applications and systems need to be designed to put the customer at the centre – to create added value by giving them more easily

Figure 1.1 New business imperatives.

Imperative: increase administrative productivity	
Adhocratic	**Planning centric**
Cut expenses across the board	■ Develop a vision ■ Identify academic priorities ■ Rethink mission/markets ■ Nurture internal growth sectors
Cut administration deeper	■ Redefine administration ■ Eliminate unnecessary work ■ Dismantle unproductive policy ■ Reengineer processes ■ Leverage the IT infrastructure ■ Attack paperwork
Tighten procedures and seek scale through centralisation	■ Empower employees ■ Leverage the private market ■ Embed procedural controls in IT infrastructure

Imperative: enhance controls and reporting	
Old strategies	**Emergent strategies**
■ Introduce new rules ■ Introduce new forms ■ Acquire additional signatures ■ Centralise approval authority	■ Specify desired outcomes ■ Negotiate acceptable risk ■ Embed controls in IT ■ Measure and elevate continually

Imperative: adopt a consumer orientation	
Old strategies	**Emergent strategies**
■ Do things right ■ Assure compliance ■ Foster specialisation ■ Manage by exception ■ Safeguard institutional data	■ Do the right things, right ■ Become a problem solver ■ Empower generalists ■ Create centres of competency ■ Promote access to information

Imperative: facilitate organisational change	
Old strategies	**Emergent strategies**
■ Add vertical layers ■ Enhance vertical communications ■ Create functional 'stovepipes' ■ Use the chain of command	■ Create a network of networks ■ Reduce information float ■ Promote cross-functional integration ■ Use the network

Source: Ernst et al. 1994.

accessible, timely and relevant information and by giving them more control over their own data. Although students may not be customers in the conventional market sense, their position at the centre of educational services means that they have an analogous role. Chapters 4 and 6 will address this issue in greater detail, arguing that students (and other stakeholders) are more like 'members' of an organisation than just its customers. It will show how some types of e-businesses have developed a 'community' model, based on user loyalty, and are already using the membership concept to enhance the quality and value of their services.

New technologies support customer/member focus because they enable data to be widely and commonly shared and to be precisely customised for and by each user. This may be by being able to make and track transactions online. It may be by enabling all kinds of formal and informal communications between users. It may be by exploiting the capacity to share data between customers, as with Amazon's book peer-review service. It may be by enabling people to amend their own personal data directly or share, add to and learn from a constantly updating online knowledge repository. The Guardian Unlimited online travel section, for example, enables readers to write and share reviews of holiday destinations, to share travel tips with others and to upload photographs. Where these ICT innovations work well the customer experience is enhanced and the business can also achieve productivity gains and competitive advantage.

Organisational integration

Electronic networks can now operate quickly and securely across functions, locations and conventional organisational boundaries, enabling both new patterns of collaboration and of customisation. Data can be communicated much more efficiently, while types and degrees of access can be carefully controlled – both by being tailored to different requirements and in terms of robust security. This has implications for how a business runs itself, the roles of the individuals within it and how it collaborates with others elsewhere. Such organisational integration requires a holistic and strategic approach. It must be based on making flexible and multi-layered relationships across and beyond the usual boundaries of separate organisations (or departments or faculties) and between administrative, learning support and academic staff, students, suppliers and other stakeholders.

Common systems

For this seamless integration of data to happen, underlying systems that need to communicate to each other will increasingly need to be standard-

ised or at least be compatible. This is essential in terms of business process, data management and communication. Thus, organisational integration has to be underpinned with appropriate business systems and ICT infrastructure. Educational institutions will need increasingly to differentiate between core services demanding common systems and standards, and more autonomous and less central activities, where separate operation does not impact on the effectiveness and connectivity of the organisation as a whole.

What, then, are the key issues in the relationships between a post-compulsory educational institution and the best e-business approaches? Three main themes underpin the different contributions to this book:

E-business approaches and post-compulsory education:
What do we mean by e-business approaches? In what ways might these be relevant to post-compulsory education? What kind of e-business is education?

Changing contexts:
What are the UK and global contexts for post-compulsory education that are affecting how universities and colleges can respond to revolutionary changes in ICT?

Improving educational services:
How are universities and colleges already using ICT to support their goals? How can post-compulsory education use new ICT technologies to improve its service to 'customers'? How will this affect organisational structures and roles? And what supporting technologies and standards are required?

Each of these will be briefly outlined in turn.

E-business approaches and post-compulsory education

Post-compulsory education in the UK is under constant pressure. It needs to respond quickly to changing contexts, whether economic, political or social. It must also predict and then adapt to the changing shape of the student body, to their study requirements and to shifts in employment and the economy. In addition, its public providers sit between the public and private sectors, and will have objectives that are not merely about cost effectiveness but also about ethics and the wider public interest. These are not easy tasks. But, at the same time, post-compulsory education is failing to learn lessons from the wider business world, partly because of a history of considerable ambivalence about the relationship of education to business. Post-compulsory education is objectively under many commercial and financial pressures, but at the same time its practi-

tioners often resist any suggestion that it might be more 'businesslike'. As Milton Greenberg puts it:

> *The underlying premise is that the application of managerial practices (i.e. personnel and fiscal controls known as 'administration') in the conduct of the academic enterprise will infiltrate faculty prerogatives and restrict the freedom to teach and learn. Faculty are the protectors and explicators of the true faith which must be defended against potential infidels, including their own administrators, who 'think about nothing but money'.*
>
> **(2004: 3)**

Some argue that this is because of a self-referential model of (particularly higher) education, basing its objectives only on the inwardly centred cycles of subject discipline and academic autonomy. De Long writes:

> *Professors do their research and teach classes for job-oriented undergraduate students who continue to be marketable to employers – where else would they recruit? The university improves its 'service' under the rubric of recruitment and retention, in order to maintain market share. Occasionally a superior student comes along who is nurtured in the scholarly ways and then hired to replenish the ranks of the professoriate. For those on the inside, it is a self-sustaining, self-contained world.*
>
> **(1997–8: 15)**

Greenberg argues that this common reaction to 'business' from academics is due to confusion between the *substance* of teaching, learning and research, which is (and should be) protected by academic freedom and professional standards and the *processes* through which these activities are undertaken; for example, in the continuing – and unnecessary – assumption that university education can only be provided by having thousands of teachers of differing skills across the country in many different places, teaching and assessing self-selected variations on a discipline theme.

   As already stated, this book is not suggesting that learning from e-business is about making education more commercial and profit-driven. Defining the *substance* of teaching, learning and research services is exactly about understanding the core business of a particular university or college. Here, learning from e-business is about being willing to change those aspects of educational provision that are not – ultimately – supporting customer focus (for example, in having complex, time-consuming enrolment procedures where students must queue for hours); that work against organisational integration (such as the continuing tendency to functional divisions and a 'silo' mentality); and that prevent common systems and standards where these could improve services to students (such as when the historically accumulative patterns of

departmental autonomy remain embedded and go on preventing effective sharing of data).

In the early days of the Internet, many believed that e-learning would develop quickly to overtake face-to-face contact and would 'inevitably' revolutionise post-compulsory education. This hasn't happened for a variety of reasons. Instead we have moved towards what has been called 'hybrid', 'enhanced' and 'blended' learning in universities and colleges, that is, where e-learning systems and materials supplement rather than replace campus-based study. Rather than merely extolling the benefits of e‑learning, in this book we are interested in exploring the implications of a whole variety of potential learning modes.[2] Table 1.1 summarises four kinds of relationships between online and conventional forms of teaching and learning that are now becoming common. Chapter 4 will consider the e-business characteristics of these different combinations in greater detail.

Gary Matkin has analysed e-learning trends and pressures (in the US context) and found a range of approaches; from classroom enhancement, through to virtual universities developed as separate entities, as new internal units, through consortia, as non-profit and for-profit spin-offs and via partnerships with for–profit organisations (Matkin 2002: 10). The 2001 University of California conference 'University Teaching as e-Business; Research and Policy Agendas', of which Matkin's contribution was part, provided some useful case studies for examining these different partnering combinations. As Goldstein notes, there are multiple variations possible:

Table 1.1 **Educational strategies, service provision and typical market**

Educational strategy	Service	Market
Distance learning	Instructor led *or* content led Individual or cohort-based Asynchronous delivery	Convenience (anytime, anywhere) Part-time
Hybrid (combination of online learning and classroom-based study)	Instructor-led *or* content-led Individual and cohort-based Synchronous and asynchronous delivery	Flexibility Mixed-mode
Blended (online materials supplement face-to-face learning)	Instructor-led Cohort-based Synchronous and asynchronous delivery	Service enhancement Full-time and part-time
Traditional learning	Instructor-led Cohort-based Synchronous delivery	Experience Full-time and part-time

we are seeing a hybridisation of providers, of non-profits that are partnering or creating for-profits, of public institutions that are partnering or creating for-profit entities.

(2002: 13)

He suggests that many of these new collaborations were generated by the assumed importance of three things: of branding (citing UNext's Cardean University, an online organisation that attempted co-branding by linking to four highly regarded American universities); of quality, meaning large-scale investment in content, which has yet to be proven to generate related returns; or of price, with some competitors deliberately aiming for the low end of the market (see Chapter 5). However, he suggests that, ultimately, convenience and service to the student have most impact in attracting and holding customers:

Where Phoenix (Online) is really, really good, and where most other institutions are really, really bad – and what we are learning really, really counts – is student service. We have had a lot of examples of institutions coming up with really good models of learning, and really good content, really well presented, and yet it fails to hold an audience. And the reason it fails to hold the audience is that when the student called with a question, nobody answered . . . in this regard, on-line is no different from the campus – a long registration line, whether snaking across the gym or while placed on hold, is a long line. And students hate it.

(Goldstein 2002: 14–15)

In the UK, the adding of an 'e' to educational services has tended to concentrate on quality enhancement, that is, as hybrid or blended learning, based on the addition of high-quality Web-based content to support traditional teaching. Unfortunately, there remains a basic contradiction here when this version of provision is combined with scarce resources and an autonomous instructor-led model of education. Individual academics are being asked to design high quality, online materials, but without the supporting expertise or resources. And their efforts most often merely go towards one particular course or module, that is, are not used many times. This, I would suggest, is not a workable business model for the long-term development of effective e-learning. It can be expensive, it does not guarantee quality and it is not scaleable.[3] Chapter 5 will explore attempts to improve the expansion and reuse of e-learning materials within UK universities and colleges. But as Sally Johnstone writes:

If you are just doing what we usually do in higher education, running the technology project like a cottage industry with a single faculty member serving

a group of students, it doesn't work too well in terms of ultimate cost. You also tend to burn out the faculty member.

(Johnstone 2002: 17–20)

As the Open Universities worldwide have shown for over 25 years, changing the type of educational service also demands different organisational models. The Open University (OU) in Britain invests in the design of good courseware by specialists – both academic and learning technologists – which is then taught across many sites, by correspondence and online, by teaching assistants. Not surprisingly, the conclusion of the University of California, Berkeley conference already mentioned is that, to date, it is provision of e-learning as a separate facility (whether as an autonomous in-house unit, partnership or as a new entity) that has been most successful for universities and colleges in business terms. This is mainly because it has provided not-for-profit educational institutions with a means to 'sidestep' the inherent difficulties caused by current assumptions about academic autonomy and control. To really integrate e-learning as a valuable asset for students and teachers alike in HE and FE, we may need to learn from aspects of private sector provision. This is not about undermining that autonomy; it is about rethinking institutional processes and organisational roles. As Johnstone goes on to say:

How do we sort through institutional models that can support the roles of individuals to make the use of these technologies feasible? The structure we have now really just doesn't work. We need to shift traditional faculty roles. We need to create additional definitions for professionals working within higher education on the teaching and learning process. We also need to balance what that means in terms of status and costs to the institution that is supporting them.

(2002: 17)

Post-compulsory education in a changing context

In the British context it is probably the further education sector that is feeling the most immediate pressures from commercial education providers. As of 2007, the UK government made it compete directly with private education providers for funding. Requiring FE colleges to operate against private provision is not new. Contestability – competition based on quality and price – is already happening; the key difference is that a slice of public funds (between 5 and 10 per cent) will be bid for in direct competition with private providers for the first time. In addition, as Francis Beckett put it in *The Guardian* newspaper:

Meanwhile, the work on delivering Train to Gain – the programme of free workplace training – will be handed out to a network of brokers, to be appointed by the Learning and Skills Council. The brokers will find out what employers want and commission workplace training to provide it. Colleges will be competing with companies to win over brokers.

(21 March 2006: 9)

As part of a process of making the FE sector more competitive, it has refocused on the 16–19 age group and individual colleges have collaborated and consolidated across regional areas. Such shifts may indicate potential changes across the post-compulsory sector as a whole. The UK government has already shown itself interested in public–private partnering, competition and in funding the private sector directly for services in other areas such as healthcare, schools and nurseries. There has also been a considerable growth in corporate universities, employer-led training and private education providers in the last few years; and an increasing take-up of their courses and training packages. For universities, both the competition and the potential for collaborative partnerships are most clearly seen in a global rather than a regional context. New alliances across national boundaries being attempted in many instances (see Chapter 5). In this context, universities and colleges need to have a clear idea of what they want their educational model to be, what kind of 'brand identity' they have (or could have) and how to offer high quality, appropriate and cost-effective educational services in a world where the e-revolution is becoming the norm.

What kind of e-business is education?

What, then, are alternative institutional models for these new hybrid forms of post-compulsory education? The e-business approach argues for defining core and subsidiary processes. Here, as an indication, I suggest that we might generically define the essential elements of the sector as:

- the provision of educational services;
- the granting of awards for educational achievement;
- the development of academic subject knowledge.

Yet these processes are not explicitly business- or even customer–driven; that is, they centre on knowledge and skills (and their validation), not on profit or loss. Even with the introduction of fees in the UK, there is no direct transactional relationship between applicant, student and tutor or specific service. Even applying to university is intermediated by UCAS. In this sense, education is *not* a straightforward business. At the same time, post-compulsory education has obligations to a whole range of stakeholders, from government agencies, local education authorities and

taxpayers through to its own customers and staff. All these groups have a legitimate interest in defining what kind of outcomes they expect universities and colleges to achieve, which may be at odds with how these services are defined and provided from within the institution. Research by Cunningham and Hood (1997) into these different perceptions outlines some of these conflicts and contradictions but also summarises what academic and other stakeholder perspectives share:

- courses should be reputable;
- students should be able to get jobs in their area of study;
- quality of life of a graduate should be enhanced by the university experience;
- graduates should contribute to the community both economically and socially;
- courses should make good use of resources;
- post-compulsory education should be available to all qualified citizens;
- knowledge has a central role in the mission of the university.

Education, then, is predominantly an 'experience' good, engaged with over a relatively long period of time, and not simply a product that can be consumed (see Chapter 4). I have already suggested that students might be seen more as members than customers of a particular educational institution. It is also clear that although there may be conflicts of interest over what the educational process is *for* (such as education for employment 'versus' education for life) the element of ethical and public service remains popular and strong. This framework, however, does not preclude post-compulsory education from having business drivers and objectives, some of which are listed in Table 1.2, adapted from the work of Dolence and Norris (1995).

This book will explore the lessons we can learn from e-business in order to respond creatively and constructively to the challenges of business objectives such as these. It will show how new information and communication technologies offer not just tools to support change, but also new kinds of *models* and *processes*.

Chapter 5 will explore what universities and colleges are already doing in integrating ICT into their everyday activities. Here, we need next to consider briefly how post-compulsory education can use new technologies to improve its service to 'customers'. How will this affect organisational structures and roles? And what supporting technologies and standards are required?

How can post-compulsory education improve its service to 'customers'?

Many academic and administrative staff may well argue that we already put students at the centre of our activities. The most immediate response is that

Table 1.2 **Example business drivers and objectives for post-compulsory education**

Example drivers	Example objectives
Cost pressures	Increase productivity Reduce costs Find new income streams Outsource non-central activities Improve retention, progression and achievement
Increased student expectations	Find new competitive advantage Improve facilities Improve student experience Add value to existing services
Increased competition	Improve brand identity Collaborate in areas of expertise Focus on specific markets
Increased regulation	Improve performance targets and measures Enhance performance monitoring and improvement processes

Source: adapted from Dolence and Norris 1995.

many university and college services are often still more focused on their internal and departmental objectives and are poorly integrated across the institution, making the student experience of the 'whole' fragmented, complicated and confusing. At the same time academics often have multiple individual goals and may be overloaded or under-resourced, potentially forced into limited or distracted relationships with students. Poor retention statistics are often an indicator that where problems arise, non-integrated knowledge of performance allows students to fall through the net and drop out.

It will be argued here that the best e-business practices can enable us to rethink both the student experience and student–staff relationships beyond just additive improvements to what already happens. It is about making educational services much more flexible and adaptive to their customers. Table 1.3 indicates some of the ways in which an e-business oriented education might differ from conventional patterns. Here, individual transactions between staff, students, suppliers and stakeholders are not functionally separate events, but fully integrated whether educational, management or financial. Services are not a 'one-way' delivery from institution to student, but start from the student experience (as part of a longer-term and increasingly reciprocal relationship between enquirer, applicant, student, alumni and lifelong learner).

More detailed considerations of an appropriate educational student experience for an e-world are discussed throughout this book.

Table 1.3 Conventional and e-business models of post-compulsory education

Conventional	e-Business oriented
Provider driven	Learner driven
Single institution study	Multiple provider and locational/ networked opportunities
Minimum entry standards, progression by level, minimum attainment standards	Entry, progression and achievement on demonstration of mastery
'One course suits all'	Multiple outcomes
Set whole cohort timetables and access	Customised, anywhere, anytime access
Education compartmentalised from employment	Integrated and lifelong learning
Fragmented services across academic, learning support and administrative areas	Seamless, student-oriented support via Web portal

Source: adapted from Dolence and Noriss 1995.

How will this affect organisational structures and roles?

Such an approach has many implications for how colleges and universities are organised. First, institutions need to consider what facilities and services they provide 'in-house' and what is better achieved via outsourcing or collaboration. What is their 'core' business and what is peripheral? How might they collaborate with other institutions to integrate aspects of the student's experience while separating out who supplies what? This 'multiple provider' model could have major implications for how, and where, students study and who awards their degrees.

Second, they need to rationalise their services as common and integrated processes. The e-business approach can only work where these core functions are not separate 'bunkers' using different systems, but work to agreed processes and standards. Finally, they need to explore making provision more customer-oriented and 'self-service' where appropriate. Table 1.4 indicates how roles might be considered differently.

What supporting technologies and standards are required?

Although the predicted shift to e-learning and the virtual university has not yet come to pass, and students (and staff) continue to prefer studying in real buildings with real people, emerging technologies continue to have

Table 1.4 **Conventional and e-business organisational structures and roles for post-compulsory education**

Conventional	e-Business oriented
Matching institutional and operational boundaries	Flexible relationships with competitors and collaborators
Rigid academic, administrative and departmental roles	Staff flexibility, mobility and ongoing CPD
Bureaucratic, inflexible and rule-driven procedures	Flexible and customised services
Separate, functionally organised	Integrated and hybrid process-oriented
Multiple, non-compatible processes	Seamless, appropriate access to data

Source: adapted from Dolence and Norris 1995.

implications not just for teaching and learning but for the 'business' of education as a whole. Web-enabled high-speed networks, coupled with increasing computer power, enable effective, robust and secure data integration and transfer, where these are supported with common standards and processes. Increasingly we are moving beyond a simple client/server model, where applications and hardware form a single bundle, towards more dynamic and flexible service-oriented architecture (see Chapter 9). Most post-compulsory educational institutions are already beginning to face up to these issues. They are making MIS systems more integrated, moving towards unified security and authentication processes, and developing portals to provide a single point of access to information. In the FE sector, in particular, networks linking colleges regionally are already in place in some cases. Again, we can look to Dolence and Norris (1995) for an outline of how under-standings of ICT are changing (see Table 1.5).

The future(s) for post-compulsory education

I have argued that, in important ways, HE and FE provision is different to mainstream business, and that learning from e-business is not about becoming a fully commercial organisation but about finding ways of responding constructively to the competition from private education providers as well as other pressures. The similarities and differences between post-compulsory education and e-business approaches need to be thought through. Some differences are important and will affect what types of lessons can be learnt. Others are just the accumulated result of tradition and practice – the cultural and historical baggage of post-compulsory education – which is working against improved forms of educational provision. How, for example, do we relate to assumptions

Table 1.5 **Conventional and e-business technologies for post-compulsory education**

Conventional	e-Business oriented
Classroom, lab and library with technological aids as 'add-ons'	ICT embedded and network oriented
Client/server infrastructure	On demand, flexible provision, through a variety of devices and network modes
Single mode delivery	Customised multi-modal choice (voice, text, graphic)
Separate databases and reporting with limited statistics and monitoring	Immediate, updating statistics and multiple forms of reporting
Poor market knowledge/slow response times	Good market intelligence/continuous improvement

Source: adapted from Dolence and Norris 1995.

of academic autonomy, so strongly held in HE (but not in FE) or the emphasis on research in the old universities, but not in post-1992 institutions? How much should we reorganise older functional departments and integrate researchers, academics, student support services and administrators?

Moving whole institutions towards much more integrated systems remains a difficult task. Most post-compulsory educational institutions are necessarily risk-averse. The process of implementing appropriate and integrated technologies can be costly and time-consuming and mistakes difficult to unravel. For business, the implementation of e-commerce is often critical to operations and survival. For university and college management its benefits may seem less obvious, and its development uncertain. In addition, some innovations can only occur from a nationwide or government initiative (particularly in terms of aligning common standards). The Signposter project, for example, aims to provide a single service for integrating educational information and learning opportunities for individuals into one national database (see Box 1.1). UniTEST is a generic university admissions test being developed (separate to current admissions processes of A levels and other prior qualifications) to assist universities in making admissions decisions and widen participation in higher education. Offered jointly by ACER and Cambridge Assessment, the providers argue that such a generic test 'can be used to make student selection and recruitment fairer than it is already, whilst bringing greater transparency to the admissions process.' (ACER and Cambridge Assessment 2006).

Although this book is committed to the central lessons and implications of good e-business practices – customer focus, organisational integration and common systems – it is not arguing that all universities and colleges need to redefine their every process. Some may introduce change

Box 1.1 Signposter

The commercially viable free information service for individual learners

Signposter is intended to provide free access to up-to-date relevant and complete information to individual learners from the age of 14 upwards. The service will reach all parts of the education sector including the emerging corporate university market and provide a unified learning and support service that includes, for example, advice about funding bodies in a sector that currently lacks coherence and is becoming more complex.

To avoid confusion it will be a unique system without competitors and will generate revenue from other activities such as advertising and sponsorship and not be funded by government grants. Signposter is a private–public partnership project and will attract investors from both sectors. The benefit is that it will deliver a level of service to investing partners at lower cost than they could achieve individually.

The system will provide mainstream access to comprehensive information through the national virtual network that Signposter will build in keeping with the recommendation of the Morrison Report. For example, if a learner requires an online course or materials the individual can register and pay for these resources, complete the course and do the assessment without coming out of the Signposter service. For institutions seeking to harness staff or courses, Signposter provides a route to market.

A self-diagnostic system will encourage learners to develop their own personal e-portfolio (learning profile), which will underpin a lifetime of learning. This is an intelligent system that will help the individual to select the most appropriate options and to recognise relevant opportunities to future learning. E-portfolio satisfies the QAA requirement that undergraduates have a personal training programme.

Signposter will be built on the 'Google model' by Signposter's technology partners, Fujitsu and Oracle.

How will services be resourced?

Information sources and content will come from a strategic network of alliances and partnerships. Significant areas are already covered by WorkTrain, learndirect, HotCourses and HEFCE, but additional resources are needed. These will come from professional bodies, chartered institutes, Sector Skills Councils Network, private sector job agencies and awarding and examining bodies.

There are many initiatives currently seeking to provide networked solutions to meet the various needs of government, education and employment, but the national virtual infrastructure will need to come from non-government sources that are not centrally controlled and Signposter will play a key role in the realisation of this national resource.

in specific areas only. Systems only need to be rationalised and common where sharing takes place; otherwise these can remain autonomous (see Chapter 3). Although most of what follows can be taken as relevant to both the HE and FE sectors in the UK, it will also be important to underline key differences and their implications. The FE sector is a huge and growing component of post-compulsory provision and is structured very differently to HE. In addition, we do not wish to blur some of the real differences between pre- and post-1992 UK universities. Each institution is therefore likely to prioritise their business drivers and objectives in different ways. This book is not offering a 'single' solution. It is up to each institution to understand its own business drivers and objectives and to implement relevant and appropriate improvements.

Levels of change

Throughout this book, we will use the MIT 90s model to define different levels in the use of technologies and their impact on customer focus, organisational integration and systems rationalisation. The MIT 90s programme took place in the early 1990s and involved 32 research projects and 40 research staff based at the Massachusetts Institute of Technology. The programme analysed the use of ICT in a number of business organisations. In the early 2000s we might think that such a model is a bit long in the tooth and no longer applicable. However, although much has happened in the years since this research was undertaken, the basic truths of the potential of ICT remain and are only fully exploited in some places and not others. It is a generic model, not tied to the implementation of any specific ICT architecture.

It is appropriate that the MIT 90s model is a descriptive one, as ICT impact and returns are often intangible. The model identifies five phases of success with ICT, which range from localised to innovative use. These phases are grouped into two stages. Stage 1 (with phases one and two) is regarded as an evolutionary stage covering a phase of 'localised use of ICT' leading to an 'internal integration' of use of ICT. Stage 2, regarded as revolutionary, has phases covering 'business process redesign', to 'business network redesign' and finally 'business scope redefinition'. The MIT 90s model is therefore clearly a business-centred model and as such supports our consideration of HE and FE institutions as e-businesses.

In considering how the MIT 90s model could be applied to the use of ICT in education, the National Council for Educational Technology (NCET – now Becta) further developed the model by identifying an additional stage, but retaining, although renaming, the five phases. In the NCET version of the model for educational ICT (see Figure 1.2), a transformative stage is identified. Redesigning business processes (as this phase is called in the original model) is clearly potentially transformational. However, expressing this as transformation rather than referring to business processes directly is likely to be more palatable

Figure 1.2 **MIT 90s model of levels of technological change.**
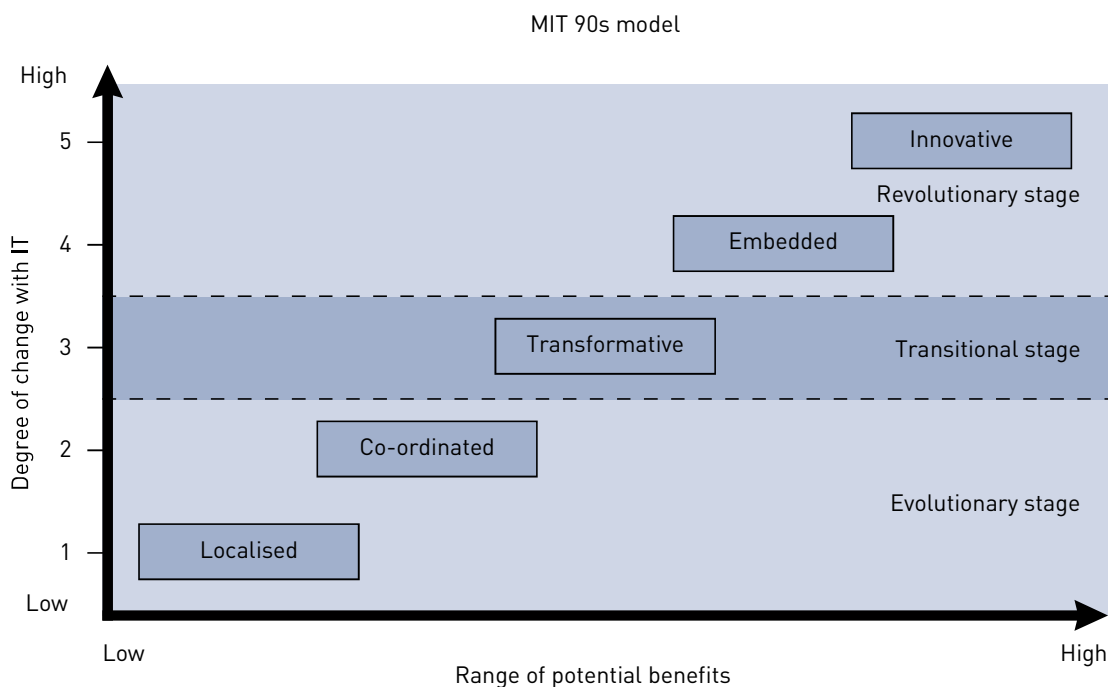
Source: adapted from Scott Morton 1991.

to many in the education sector. Transformation is currently a hot topic for education. The application of ICT in a way that acknowledges the essentially human nature of the enterprise and includes preparing people to 'exploit the new functionality' is what College Boards of Management and University Courts are striving to achieve.

The underlying assumption in this model is that the more ICT transforms an organisation, the greater the benefit to it. It is clear that the preliminary stages of localised and co-ordinated use are likely to involve automation of current processes whereas the higher levels of use are focused on embedding the use of ICT and developing innovative new processes. Of interest here is the transformational stage that involves the development of new processes that do things differently. This is the famous 'tipping point' identified by Malcolm Gladwell (2000), where a small subtle shift in the mix of factors in a situation is sufficient to 'tip' the system to produce a transformation. That difference in our context is when ICT actually starts to have a real effect on the organisation's institutional performance.

It is also clear, and this has considerable bearing on the success or failure to get real benefit from IT in education, that the early phases can be achieved with

the hard work and commitment of individual members of staff. The ICT evange-list and his or her friends can make phases 1 and 2 a reality. A phase 1 example might be developing blended learning within a department. A phase 2 example might be aspects of an MLE. However, the later stages, because they involve organisation-wide processes such as business process redesign and business network redesign, require commitment at the organisational level and, in partic-ular, of senior managers. Throughout this book, we will aim to offer a range of these alternative approaches.

A note on terminology

The term 'e-business' is used as a generic concept to describe businesses that develop their organisational structure to 'fit' newer forms of information and communication technologies. This is not just about automating processes but about new kinds of services for, and relationships with, different users and stakeholders. Other terms currently abound in relation to a perceived e-revolution – e-commerce, e-procurement, e-access and e-care – to give just some examples. At the same time, these terms were already becoming out of date as the book was being written. IBM, for instance, coined the phrase 'on-demand business' in order to describe the underlying process change rather than the technologies that enable it (see Chapter 9). It is also proposed that we are moving towards a society where ICT is so ubiquitous that it ceases even to be an issue. New ICTs become so embedded we can always assume the availability of seamless (anytime, anyplace) access to, and integration of, services and information. However e-business is defined, the focus must be on adapting and transforming existing roles, structures and processes, and of using technologies to support this aim.

The structure of the book

The book is structured into two sections. First, we explore what can be learnt from e-business in redefining the relationships between enterprises and their users, and in developing changing processes to improve services, effectiveness and competitive advantage (Chapters 2–6). This section also examines how to provide an integrated and appropriate technology solution linked to business objectives. It looks at differences across the sector, and at the pros and cons of e-business for education. It aims to show how improving administrative efficiency, faster access and response to informa-tion, enhanced skills and knowledge development can actually lead to more high-quality face-to-face contact with students and a better student experi-ence. Finally, this section explores the changing nature of educational services in the marketplace and the impact of private educational providers and global competition.

The second section (Chapters 7–9) looks at how post-compulsory education can get 'from here to there'. Initially it examines where the UK HE and FE sectors are now in terms of technological innovation and integration. It then looks in some detail at how to explore options and the kinds of leadership and vision required. It explores how risk assessment and cost–benefit type analyses might be applied to post-compulsory education. It shows how educational institutions can map what already exists and work towards redesigning organisational frameworks, relationships and roles: altering where, when and how things happen. It suggests techniques for overcoming barriers to change and successfully implementing improvements. Finally, it outlines the type of technologies required for an e-integrated educational provision.

Towards managing education in an e-world

This book argues that it is time for higher and further education to look again at how their businesses are managed, and to explore what can be learned from the best of e-business practices. It examines what post-compulsory education should be doing over the years ahead and how to manage the organisational and technological changes required. It is not intended to provide any kind of one-stop solution, or to underplay the complexities and difficulties faced by HE and FE institutions in the UK. But it does insist that these issues are urgent and relevant to the leaders and managers of post-compulsory education.

Notes

1   For a different view see, for example, Scott Morton, M.S. (1991); Ernst, D.J. *et al.* (1994); and Dolence, M. and Norris, D. (1995); and also Michael Porter 'Strategy and the Internet', *Harvard Business Review*, May 2001. Online. Available at **http://hbr.harvardbusiness.org/2001/03/strategy-and-the-internet/ar/1** (accessed 28 January 2009).
2   See, for example, Diana Laurillard (2002) and Steve Ryan *et al.* (2000).
3   See Paul McKey 'The Total Student Experience', NextEd Ltd for a good critique of conventional e-learning strategies from one of the new generation of commercial providers. Online. Available at **www.ascilite.org.au/conferences/brisbane99/papers/mckey.pdf** (accessed 9 February 2009).

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