

HUMANE

Heads of University Management & Administration Network in Europe

SEMINAR

University of Glasgow

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“E-commerce”

Summary

Terminology

The seminar opened with a brief overview of the various terms and concepts involved in this emerging area.

To the extent that the “e-“ in this whole area will refer to electronic, there is an apparent simplicity about the term. Indeed, one airline magazine ran a special supplement on the topic in 2001 which started with the sentence: “The definition of electronic commerce, e-commerce for short, is simple: conducting business using the electronic highway, especially via the Internet.” One does not have to be an extremely technical person to have immediate doubts about even the terms (for example, “electronic highway”) used in this definition. And typically, as soon as one moves from the airline publication to academic reports the various concepts immediately take on yet more complications. Thus, according to a very useful Glossary of e-terms published by the Nottingham Business School,

“electronic commerce remains a very widely defined and abused term”. Indeed, enquiries among colleagues using e-commerce in HE led to practical difficulties in that some people echoed the ideas of one colleague who stated that “the problem with responding to your email is that we tend to conflate e-business and e-commerce”.

The problems of definition are not helped by the tendency to speak in terms of acronyms or abbreviations. Almost all works on the subject will refer to the concepts of business-to-business (B2B) or business-to-consumer (B2C) links. These abbreviations represent the phonetic equivalence in English of the words “to” and “two” – thus, B2B is the same as B to B. The B2B formulation would typically refer to suppliers who would probably be in some kind of contractual relationship. A B2C relationship, on the other hand, is typified more by the shopper who looks at a catalogue before choosing one or more items and then contacting the business. This latter case might be seen as the student viewing a prospectus or catalogue of courses.

In the context of universities it is possible to maintain this general distinction by seeing e-business as the possibility of using the Internet for any development of business practices – for example, students who can apply for courses, check their results, or engage in distance learning by using the Web. The seminar acknowledged all these possibilities, but tried to focus rather on the exchange of value in individual transactions.

One of the fundamental questions which appeared in the seminar was that of whether universities could really see themselves as being different from other types of business. For a comparison, one might consider the world of financial services, which has changed rapidly over recent years. In Britain it had been found that the main “high street” banks were rather less good at introducing e-banking than those companies which were set up purely as internet banks. Some major problems were encountered with security, which is of course the greatest single element in judging the success of such systems - in 2000 one bank had to close its system after customers discovered that they could view the details of others. Those which have succeeded recognise that speed is less important than accuracy. The same is almost certainly true for the introduction of e-commerce in universities. These issues were addressed head-on in the first presentation.

Session 1

Universal Themes in e-commerce

Jon Ivers, Director of e-commerce, Standard Life Group

The presentation was based on the analogy between the apparently dissimilar worlds of financial services and universities. Jon Ivers' argument was based on the fact that both "industries" have products, customers, marketing and suppliers, etc, and that in an uncertain world managers have similar strategic concerns in looking towards uncharted territory and the risk of uncharted perils but also uncertain rewards. The question for a senior manager might well be whether to invest x million euros in an e-commerce programme. The answer might be indicated by understanding:

- the likely success factors
- the nature of the business drivers
- the important (and the uncertain) elements

Equally, the strategy will benefit from:

- the creation of scenarios
- highlighting early indicators
- relying on small investments or "bets" rather than wholesale changes in one stroke.

If this gradualist approach is adopted it is easier to understand that e-commerce is a route rather than a destination. In other words, it is a tool with which to achieve business success, and should be used to support plans, not to be a major strategy in its own right.

The argument advanced by Jon Ivers claims that for higher education as for financial institutions, customers expect consistency, empathy and efficiency. One of the most obvious obstacles to such an approach is the emergence of organisational silos where certain parts of the organisation remain cut off from others. This does not conflict with the above recommendation of "small bets", since those trials will be overseen from the centre as part of a guided operation. Indeed, the development of alternative models would be a good thing, since different parts of a financial company or university would have different needs and aims within the overall strategy. It would be wrong to assume that one approach fits all. However, once it is accepted that there can be valid variations of approach it is absolutely necessary to ensure that processes are integrated.

The evolution of e-commerce can be seen in terms of starting with small pockets of work and experiments, leading on to coalitions between groups and later, formal alliances. At a later, and final stage there may be a centralised programme. The important point to remember is that it is unlikely that such an overview will be unlikely to emerge at the outset, and that there is nothing wrong with a gradual approach.

Jon Ivers concluded his presentation by recommending the following steps:

Identify themes for investigation

- look at the financial planning cycle

Find out the Facts

- carry out desk research
- speak to practitioners
- speak to colleagues with experience
- speak to suppliers

Draw conclusions

- set up techniques such as scenario planning, or impact assessments

Make recommendations

- presentations to senior management
- position statements.

Several questions and comments from participants brought out the problem of the use of the Web - for example, the question of knowing at what point in the business cycle the Web becomes

important. Do students choose universities because of the Web, or is it rather something which they use to find out more about the institution they have already chosen? The answer to such a question would determine much of the content or development.

Members were unanimously sure that security was vital. Any possibility of corruption of data could be disastrous in business terms. One member noted how a new system at his university, designed to let students view their exam results on-line, had contained a programming fault which allowed them to see other students' results as well. This had led to student protests and appeals based on data protection legislation.

One of the areas which caused most doubt was that of the development of small pockets of interest. Particularly in universities, which at the best of times are fissiparous in nature, this was seen as a dangerous development which might encourage the very silos which had been flagged as a problem. Jon Ivers recognised the theoretical problem, but felt that it was better to have the small pockets than nothing. Despite this reassurance, participants generally felt that there was an important distinction to be drawn between (for example) the development of an e-purchasing scheme based on achieving lower costs and other efficiencies, and where one would want to involve as many units as possible, and, on the other hand, the delivery of certain products through the internet such as individual courses, in which case pockets of activity might be acceptable.

Session 2

How E-Commerce Can Improve Utilities Management & Reduce Energy Costs

David Somervell, Energy & Environment Manager, University of Edinburgh

The presentation focussed on the emerging opportunities for exploiting the power of the Internet in the routine management of Utilities – one of the largest controllable spends in the University sector. It also explored new ways for the Energy Manager to measure and monitor as the first step towards managing utilities effectively.

The paper used as a case study the University of Edinburgh - a large metropolitan multi-departmental, multi-building University with a total annual Utilities spend of over six million euros, of which about 75% was on 60 million kWh of electricity. Since the 1980s the University has been using basic database technologies in order to monitor utility consumption and spend. This has involved

manual re-keying of data from hundreds of paper invoices received each month and the subsequent analysis in Energy Monitoring and Targeting software packages. These methods are now being replaced as part of a partnership with a major power supplier.

David Somervell outlined his own role as Energy Manager, focussing on recent changes in the UK Energy Supply Industries which led to a situation where energy (for example, electricity) could be obtained from various suppliers. In the light of such potential price competition there is an increasing importance of effective procurement strategies and techniques, which require accurate data. In addition to procurement, the other key role of the Energy Manager in managing resources effectively can be seen to be in the area of trend monitoring and exception reporting. The presentation illustrated the tools used to achieve these. These tools and methods all provide the opportunity to log reductions in consumption – following investment in energy efficiency improvements.

The presentation used information and screen shots from a large electricity supply company (Scottish Power) in order to display their Internet Invoicing System and other related web technology offerings. These can improve administration of Utility accounts, massively increasing the quality and quantity of data available, and can enhance the ability to swiftly identify exceptions to normal patterns of consumption due to waste. Comparisons of weekday and weekend consumption patterns, or of load profiles for particular days, were shown – and as in the case of other universities it was found that there is a basic, underlying consumption which goes on throughout the year, and all times. It was argued that it is here that the really big cumulative savings can be made, not in minor gestures such as switching off individual lights.

In addition to the “bespoke” systems of one supplier, the presentation showed other more simple variants which have been devised over the previous year – such as the way in which the provider of gas supplies sends simple spreadsheets of costs and consumption on a monthly basis as email attachments. Similarly the local Water Company has recently developed “Smart Water Meters” – which log consumption every 15 minutes and store them electronically for uploading via digital modem telephony to a central location. They are then mounted onto a web database and available to the customer within 24 hours of the recording.

Discussion of these points led several participants to query the benefit to the supplier in such a system – the value to the University of data such as those in the power consumption reports was clear, but surely it was in the interest of suppliers to supply more resource at greater cost, rather than reducing supplies? It was explained that processes such as the issuing of bills were a business cost for the supplier, and that any move towards direct charging therefore reduced costs. Meanwhile, the loyalty factor was very significant, in that a customer who was satisfied with the deal

would stay, even if prices elsewhere were marginally better. This raised the whole question of procurement and cost-benefit, since the more an institution became involved in a partnership, and the more data was exchanged, the more pressure there would be to remain in the same link irrespective of costs. Some wondered about the attitude of internal auditors to such competing interests, but it was stated that until now there had been no perceived clash of interests.

It was noted that at Edinburgh at least there was no possibility at present of making departments pay for the energy consumed. To this extent the knowledge of consumption figures was not exploited to the full. At certain other UK institutions, however, costs were re-allocated to departments. David Somervell did point out that for some years Edinburgh had had a policy of investing 5% of its energy budget on energy savings.

In summary, the principal benefits of the system were seen as being increased quality and quantity of management information, the elimination of manual re-keying and the opportunity for electronic checking and validation of data. In particular, the concentration on exception reporting, whereby only abnormal consumption patterns were isolated for analysis, allowed a much more efficient processing of data. All these were found to improve the effective management of expensive resources and led to cost savings. Meanwhile, looking into the future, it was noted that according to the consultants PriceWaterHouseCoopers (2000), "utility companies expect 75% of business customers to be accessing their services via the Internet by 2005".

Session 3

The Paperless Invoice: an Experiment with Electronic Ordering and Billing System

Esa Ahonen: Director of Administration, Helsinki School of Economics and Business Administration

In December 2000 the Helsinki School of Economics and Business Administration (HSEBA) was given permission by government authorities to be the first university in Finland to experiment with an electronic billing system which could also be expanded to submit orders. Before this permission was received, all processes related to the handling of invoices had been scrutinised closely and completely revised in order to match the requirements of the new electronic system.

It had been recognised that under the traditional process a major part of the costs of procurement related to invoice handling and financial routines. With decentralised or delegated purchasing the amount of invoices had naturally increased, but more significantly every invoice was seen as a problem case, each one to be analysed and checked. Resources were being used on unnecessary checking, since much of the information from order through packing slip to invoice was exactly the same.

The new system of handling electronic bills, called *Rondo*, was introduced in the beginning of 2001. In a first stage all bills received by the pilot units, including supporting documents and receipts, are scanned into the system and sent electronically to the budget holders for checking and approval. An electronic signature is given in the form of a personal password.

The introduction of this new system immediately brought several benefits. It is quick and reliable, as all bills move around without delay, just like e-mail. Bills are – hopefully - never lost, and “enclosures” follow as attachments in the same file. There would be no need for handling paper mail and envelopes, or for staff who currently deliver all this to different people around the system. However, benefits are greatly increased when invoices are received electronically instead of in the shape of paper invoices which then need to be scanned into the system.

The School had been aware that even bigger benefits would follow when the whole ordering system was electronic. HSEBA had also started a pilot programme in 2001 with Hansel Ltd (formerly, the Government Procurement Centre) that has developed “Merkaattori” (Mercator), a modern electronic ordering system which now combines products from 400 suppliers, with more joining the system almost daily. Hansel thus works as an electronic portal towards suppliers. Another integrated system is called “Kontrolleri (Controller)” that is used for sending Electronic invoices. The Electronic Commerce researchers at HSEBA had been involved in developing the system for Hansel, which clearly requires integration of the ordering system with the suppliers’ systems.

The benefits of this system had become very clear. Processes related to ordering were more efficient, while regular orders could be handled by defining typical shopping baskets. Specifications for all special items are now easy to find, using one of the many look-up

criteria, and the system also tells the price, delivery time and other useful information. Competitive tendering procedures according to EU and other requirements have already been done by Hansel for all products. Some consulting companies estimate that transaction costs for one order can be cut from 150 euros to just 6 euros by using best electronic tools and processes.

The presentation included a demonstration of the *Rondo* desk-top system, going through the process from an initial log-on with secure password to the choice of bills or documents and the decisions on whether to accept or reject invoices, and of the Mercator set-up whereby electronic invoices could be transformed from coded messages to easily readable formats on screen.

Esa Ahonen concluded by noting that since May 2001 HSEBA had been able to handle the whole process of ordering, receiving the invoice and handling and approving it within the university electronically without using any paper. *Rondo* involved the circulation and approval of invoices, while Mercator was being tested in five pilot units. The advantages included major savings in cost and time, a reduction in duplicated work, and the prevention of errors at an early stage, since the system recognised what were eligible or non-eligible orders and data. The system also recognises who is allowed to check transactions while a named user is away for any length of time. Reporting systems and archives are also built in to the system, thus facilitating comparisons with past transactions, and links are available to allow the retrieval of any kind of document including vouchers, text or even pictures and voice messages.

Experience had not been entirely trouble-free, of course. Although users declare themselves happy with the overall picture, the true costs of the process and especially of staff are not fully understood. It had taken a great deal of time and effort to define all the connections between the ordering system and the *Rondo* document handling system, and the translation of electronic invoices into user-friendly format still posed some problems. And as in all such cases, there had been problems with cultural change.

However, for Esa it was clear that this kind of development will have very deep consequences on financial administration during the next five years. Some people predict that 90% of the time now used in finance offices could be released and even a conservative estimate would suggest that it would be no less than 50%. This means that very significant resources will be released from routine tasks to more creative work. Once again, this underlines the fact that IT developments have major Human Resource implications, and that planning across institutions needs to be integrated.

Session 4

An e-commerce Application (BBP by SAP) at the University of Göttingen

Hans-Peter Ittemann, Finance Director, University of Göttingen

This presentation opened with a series of pictures of what was delightfully called the “UniverCity” of Göttingen – the university is not only spread over various parts of the city but it is also, in its academic part, based on about 200 different institutes which are very independent. The physical distances between buildings were great, and the financial systems were also old.

The e-commerce solution had been the only way which the University could see to solve the problem of becoming a university with modern financial structures and a commercial accounting system. This would allow it to develop, concentrate and confirm its negotiating position with suppliers while on the other hand ensuring, as far as possible, the independence of our institutes.

Until 2000 there had been a “cameral” system of line-item budgeting, but from 2001 the government of Lower Saxony had introduced a system of global budgets and commercial accounting based on a form of SAP. All universities had had to adopt this software, and the fact that the government was prepared to help with set-up costs made the development a little easier.

This form of e-commerce had allowed the university to reconcile its aims of concentrating financial power in the centre with preserving the relative autonomy of the institutes. The B2B ordering system had meant that errors in procurement were reduced. There had still been problems, however, notably when customising BBP to meet situations or conditions which were not in line with normal market requirements. It had to be admitted that the system was designed to help procurement rather than internal communication, and the catalogues whereby goods were selected and ordered needed to be expanded - in fact, the system was limited to consumables, of which about 10% in value (4 or 5 million DM out of 40 million) were in the catalogues.

Most worryingly, there were still system crashes which experts could not explain, and this tended to damage staff acceptance. However, the benefits from the system when it was working well were so clear that despite the obvious difficulties senior management remained optimistic.

Some participants had experience of bringing in such software on a gradual basis, and were interested in the reasons for wholesale introduction. It was explained that since the software had been stipulated by the government there was no choice, but that the university in any case preferred to have everyone in the new system at the same time. Partial development would have reinforced the divided nature of departments.

There was also discussion of the methods which had been used to persuade staff of the advantages of the system. The shift towards global budgeting had been a major factor here, as was the more recent ability to carry forward some limited funds from one year to the next.

Once again, this raised the issues of freedom from rules or constraints, and led to illustrations of how some universities gave credit cards to those staff who had purchasing authority, so that they could make purchases directly, with less paperwork in invoices, etc and with significant reductions of transaction costs. But just as the level of autonomy varied across Europe, so the various fiscal regimes led to a situation where the provision of items such as credit cards could be seen as a tax benefit, with a negative effect on the employee.

Session 5

Recent Developments in Purchasing in Denmark

Jakob Klingert: Uni-C, Copenhagen

Jakob Klingert extended the example of regional government control in Germany to show how the Danish government had taken a major policy initiative to encourage or indeed compel State bodies to use e-commerce in purchasing. He opened his remarks by describing the European context whereby the European Commission was developing supra-national policies, and also the national context in which a major share of government policy making in Denmark is done during the autumn when minority governments struggle to get the following year's budget through Parliament. In many cases, a deal is struck with opposition parties which then determines a significant part of the legislation of the coming year. A further result of this is that in order to fund the new programmes and legislation which emerge from discussions various savings have to be made.

One consequence of the deal on the budget for the year 2000 was a decision according to which government efficiency should be increased through improvements in the way State purchasing was done, including increased use of e-commerce. Accordingly, all state agencies and institutions – including the universities – became subject to an across-the-board cut of 2.5

per cent on their budgets for goods and services. The intended aim is lower prices through volume, greater transparency and competition, plus administrative savings through more streamlined procedures.

In December 1999, a circular letter from the Treasury department had thus prescribed that all ministries should develop plans for improvements in purchasing in order to facilitate the objective of increased efficiency. Accordingly, in the spring of 2001 the Ministry of Education – which since December 2000 had once again become responsible for the Danish universities – published its plan for improvements in purchasing.

At the same time, the infrastructure that will facilitate the purchasing of the State institutions is in the process of being improved. All government job advertisements are now accessible on the internet on www.job-i-staten.dk and travel booking for the State's business travel can now be done through a single agency at www.tjenesterejser.dk.

Most importantly, as was explained, an e-commerce portal for the public sector in Denmark was in the process of being developed and was expected to be available to all municipalities and State institutions later in 2001. This, in connection with increased efforts towards digital administration by the Danish government, was aimed at giving a boost to the amount of e-commerce conducted by Danish State institutions.

Both in the presentation and in discussion there was an exploration of the motives involved. On the one hand there was a perceived reduction in costs, but also the simple motivation of keeping up with the competition. The latter factor applied both to suppliers of equipment and to customers. Certainly at University level cheaper prices were a crucial factor, but the main advantage was seen as the optimisation of administrative procedures. Invoices and requisitions were automatically compared and – rather as for the exception reporting noted in the Edinburgh case study [session 2 of this seminar] – it was possible to concentrate effort solely on those items where there was a discrepancy. Participants had experience of systems where the tolerance of any such discrepancy could be adjusted, so that minor price fluctuations were accepted but any difference of more than x% would be flagged.

It was felt that there was not always a clear view of the aims of implementation – especially when HEIs had free choice rather than being compelled by government. On the one hand there were the routine attractive promises from suppliers whereby costs of ordering and procurement could be radically reduced, but on the other there was a feeling that in higher education, with its high proportion of fixed staff costs, any reductions in materials would be insignificant, and that the streamlining of procedures was therefore more important. Several participants felt very definitely that the reduction of costs was a secondary issue to improving service.

However, this whole area led to debate on whether, as practitioners, members actually believed the rhetoric of the process. Were jobs really saved? (There was some experience of creating posts merely to look after the software.) Was work really more rewarding? Undoubtedly the example of Edinburgh had shown that it was beneficial and less time-consuming to cut out the paperwork and the thousands of bills in separate envelopes, but the case of Göttingen, with its technical problems increasing the time taken, was a valid warning [session 4]. Moreover, many developments in B2B technologies are based around Extensible Markup Language (XML), which is itself (in 2001) still under development and which can easily be responsible for incompatibilities between business applications. Particular care is therefore needed in B2B developments.

Discussion returned to the general context of IT innovation. The example was given whereby apparently in the Netherlands houses were traditionally bought via an agent or broker in 80% of cases; now, however, IT had been developed in such a way that 70% of clients used IT to buy a house. The direct use of IT for such things as tax returns or visa requirements illustrated how major government agencies were shifting in their approach, with the advantage that software could be developed so that erroneous answers or information simply could not be submitted. It was agreed that universities could not afford to stand back and claim that they were somehow different.

In general terms, discussion showed that although the word e-commerce looked very similar in its various forms across Europe, the development of e-commerce itself was influenced heavily by different regimes and cultures. For example, all such development will depend to a large degree on the extent to which the Internet has penetrated a particular culture, while in HE we see that there are differences in the extent to which national systems might be able to use e-commerce. For example, the advent of ticketless air travel offered by “no frills” airlines has led to the possibility of much cheaper business travel. From Scotland to London the savings could mean reducing a fare of some 450 euros to around 100 euros for a same-day return flight. Yet some universities still have regulations which instruct staff to make use of the official University travel agent – who will almost certainly not deal with the low-cost airlines. Instead, the customer will use the Internet to make the direct booking. The University will no doubt find it in the best interests to ignore the technical avoidance of the official route. However, in other systems – and our members indicate that this is

the case in Germany – it would not even be possible to undertake the Web purchase in the first place.

Clearly, the more that one has regulated systems, the less scope there is to make use of what is undoubtedly vast saving potential. The illustrations provided at our Glasgow seminar showed that whereas in Denmark the government itself required universities to engage in electronic purchasing, in Germany government regulations made it necessary to have all official correspondence on paper, thus limiting the extent of any e-commerce developments. Meanwhile, one of our UK members quotes an example of implementing an integrated Personnel and Payroll system, only to find that internal auditors disliked the fact that the smooth new system did not have any paper records to “prove” that a new member of staff should in fact be paid. Therefore, both at governmental level and within institutions there is a great danger that the advantages of new technology may be lost because of an attachment to old systems which seem to be safer.

Vocabulary

The following glossary was offered to participants at the Glasgow seminar. It offers a brief summary of the likely meanings of fairly technical words which might be encountered in documents and meetings.

Bill(ing)	A <u>bill</u> is what tells you how much you pay for anything from a meal to a complete computer system. When sent by a business it is formally called an <u>invoice</u> . A “billing system” is a system for dealing with bills (a similar formation is seen later in “ordering system”).
Deal	In business terms, an agreement, usually with some negotiation. To strike a deal is to make an agreement. (“It’s a deal!”, when shaking hands.)
Enclosures	Here the word might also be “attachments”.
Invoice	See “bill”, above.
Look-up criteria	To <u>look</u> something <u>up</u> is to consult or examine some kind of reference work (for example a dictionary, but also a newspaper). A look-up table, in pc terms, offers a range of options to make searching more efficient.
Receipt	(Pronounced “re-seat”). This is (traditionally) a piece of paper which proves that you have <u>received</u> something.
Scan	To <u>scan</u> is to examine or look across a range (of mountains, to see a particular peak or a crash survivor; or columns in a newspaper to find a certain story). A <u>scanner</u> is the machine which electronically records and reproduces text or images from one paper location to another.
Tendering	<u>To</u> tender for a contract means to submit an estimate or quotation for the job. <u>A</u> tender is the document which expresses this quotation. It implies competition, but when rules on competition are particularly clear (as in EU procurement) “competitive tendering procedures” operate.

Other terms used in the seminar include:

B2B	"Business-to-business" transactions and process integration. It is predicted that this will soon represent about 90% of e-commerce activity, relative to the smaller activities in B2C (next item).
B2C	"Business-to-consumer" relationships, often typified as consumers consulting a catalogue (or students with a prospectus?) before ordering goods.
Dot-coms	Companies which are entirely reliant on e-business, and whose main contact with the customer is via the Internet. Since Internet addresses make significant use of the full stop (.) or "dot", these companies tend to have addresses ending ".com"

A table of useful terms is attached as an appendix.

To log = to record

To "get [it] through Parliament" means to succeed in having the law accepted by Parliament (or: to achieve the passage of the law through Parliament). The university equivalent might be getting some kind of proposal through Senate.

A boost is an increase. To boost is similarly to increase, usually in a "good" context, where there is an idea of productivity (so one would boost one's income by a second job, or boost one's chances of a new job). The phrase in the abstract could also be expressed as "aimed at boosting the amount...".

This concept is closely linked to the question of institutional autonomy, on which HUMANE has prepared an additional report.