

eCommerce/eBusiness Education: Pedagogy or New Product Development?

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Abstract

eCommerce/eBusiness has been developing at a tremendous pace over the past few years – indeed, since the creation of the NASDAQ index, eBusiness has become one of the most widely-discussed and rapidly-growing parts of the business world. New types of businesses are evolving within this New Economy and, with them, new business models (or modified versions of traditional business models) are being created to cater for the new business activities and new transactions which are taking place.

Education, too, is undergoing significant changes. The increasing demand for skilled and experienced I.T. people with both technical and creative skills has combined with an already serious pre-existing shortage of staff having such qualifications to produce an almost insatiable demand for training at all levels – post-graduate, under-graduate and technical. Universities, many of which are in any case under pressure to bring in industry funding to fill the gap left by lower levels of government support, are responding by developing specialist subjects, degrees and diplomas at under-graduate and, particularly, at graduate level. The rate of development and the reactive nature of many of these offerings, however, suggest that what is occurring is not so much an exercise in pedagogy as a marketing activity.

Over the past two years, the rate at which eCommerce/eBusiness university programs have been introduced around the world has escalated dramatically. This chapter looks at the underlying issues prompting universities to engage in this flurry of new program/course creation. We make use of some preliminary statistics gathered in the Asia-Pacific region to suggest that what is actually taking place is new product development, rather than new program development; and then consider the implications of this marketing-based approach to degree/program/course creation.

1. Introduction

The introduction of the World Wide Web in 1992/3 had a profound impact on the then primarily business-focused Electronic Commerce market, offering a consistent and usable interface which was readily available to SMEs and even individuals (Poon and Swatman 1999). Since that time, Electronic Commerce has evolved rapidly – becoming, in the process, a more universal and complex phenomenon than the EDI pioneers of the 1970's and 1980's could ever have imagined. Towards the end of the 1990's there was a US-based move to rechristen the overall trend of electronically-enabled business activities eBusiness – and to reserve the previous generic term eCommerce for the actual (and more limited) exchange of value-based goods and services (see, for example, the discussion in Mesenbourg 1999). In this chapter we use the terms eCommerce and eBusiness interchangeably, largely because many of the authors we cite are themselves still unsure of which term has become the de facto “standard”.

The rise of the Information Economy has had significant effects across most business sectors – both public and private. The University of Texas at Austin's Center for Research in Electronic Commerce notes that *‘the Internet Economy supported an additional 650,000 jobs in 1999 as revenues soared to over half a trillion dollars’* (University of Texas 2000). As more and more businesses turn to the Internet to gain strategic advantage – or even just to keep up with their competitors – the demand for employees skilled in a variety of I.T, and creative functions grows. Unfortunately, this demand has come at a time when there was already a shortage of skilled workers, and has therefore exacerbated the existing scarcity in this area (FACTOTUM 1996, AIIA 1999). As companies vie with one another to attract the most skilled and most entrepreneurial staff, demand is placed on educational institutions to provide graduates who can fill these gaps (Snoke & Underwood 1998, Young & Keen 1998, Castleman & Coulthard 1999, Rao 1999). The Australian government's National Office of the Information Economy (NOIE) points out that: *‘the demand for IT&T skills has risen strongly over the past decade. An adequate supply and appropriate mix of IT&T skills is crucial in ensuring that the skill requirements of industry are met’* (NOIE 2000).

Educational institutions at all levels – universities, polytechnics and technical colleges – are rushing to offer programs and courses in a variety of eCommerce/eBusiness areas. While one obvious area is the technical skills required to design and build web sites, there is substantial demand for experienced people with managerial ability who also have a good understanding of eBusiness and related fields such as eMarketing, logistics, or the legal implications of the developing New Economy (Chan & Swatman 1999, 2000). This rapid growth in eCommerce/eBusiness education programs can be seen in virtually every part of the world. Numbers of programs have grown dramatically over the past two years. For example, in 1998 only two US universities offered accredited degrees in eCommerce (Nickell 1999), but by 2000 there were:

- 7 bachelors degrees with a major in Electronic Commerce (AACSB 2000a)
- 15 eBusiness/eCommerce masters programs (AACSB 2000b) and
- 47 Master's degree with an eBusiness/eCommerce concentration (AACSB 2000c).

This dramatic growth is not limited to the United States – although 6 out of 8 universities in Hong Kong are already offering eBusiness/eCommerce programs the Hong Kong government's Education and Manpower Bureau believes that there will still be a shortage of 56,000 IT professionals in 10 years' time. Consequently, the Hong Kong government has provided funding to the City University of Hong

Kong to support 120 places in an Associate Degree in eBusiness which will start in September 2001 (Australian Chinese Daily 2000).

Although the creation of tertiary programs in the eBusiness/eCommerce field is solving some of the immediate problems of skill shortages, this rapid development creates problems of its own. Traditionally, university degrees are offered after a careful analysis of the market's needs, the expertise available within the offering institution and the resources which can be drawn upon for new initiatives. eCommerce/eBusiness degree development does not appear to be following that pattern.

This chapter initially looks at the issues for service industries in the New Economy, touching on disintermediation, re-intermediation and the rise of the cybermediary; and then considers the role which marketing and, in particular, new product development techniques can play in assisting the developers of new service products to match their expertise to market requirements. We then discuss the issue of eCommerce/eBusiness program/course development and, using a preliminary survey of new eCommerce/eBusiness offerings in the Asia-Pacific region as a case example, argue that it appears that many (if not all) the educational institutions offering new eCommerce programs are actually following a new product development strategy, rather than the traditional pedagogic development process and are themselves becoming cybermediaries – with all the complications such a change in market positioning can bring. Finally, we consider the issues for academics faced with a need for rapid program/course development in a domain where skilled staff are as hard to find as they are in industry; and where expertise in marketing techniques is not widespread.

We appreciate that business-to-consumer (B2C) eCommerce activities (those transactions which occur between a business organisation and its end-customers) make up only a small component of the total eCommerce marketplace – indeed, the investment and consulting company Goldman Sachs suggests that B2C may eventually provide as little as 5% of total eCommerce. Our focus, however, is on eCommerce education which, while clearly a B2C activity, is nonetheless a significant contributor to the overall economy in almost all developed countries. It seems likely that the rapid growth of what might be termed 'eEducation' will increase the proportion of B2C activities well beyond the 5% mark (University of Texas 2000). International Data Corporation (IDC) estimates that the number of college students enrolled in distance learning courses will reach 2.2 million by the year 2002, up from 710,000 students in 1998 and eCollege.com reported US\$4.7 million in revenues for 1999 (a 178% increase on 1998).

2. Disintermediation and reintermediation in the New Economy

Intermediaries offer a wide range of service and facilities, including agents, traders, brokers, dealers, wholesalers/distributors and providers of specialised information – among many others. Some of the facilities available through the service industry can be replicated by the determined citizen, while others are difficult to replace (the purchase of large quantities of foreign currency, for example, can only occur legally through the official foreign exchange market, operated by a bank or reputable NBFI).

The role of the intermediary has been well understood since at least the days of the pharaohs, but the commercialisation of the Internet and the development of the World Wide Web have changed the role of the intermediary almost beyond recognition. The Web allows each individual to search for his or her

own information and to make purchases of goods or services directly from the provider, without needing assistance from a broker or dealer. The World Wide Web (the Web) offers a perfect medium for the disintermediation of the middleman. Davenport (1996) summarised the defining attributes of disintermediating technologies as being broadly available, so that almost any potential buyer can reach the seller; easy to use; able to truly portray the product being sold (i.e. being able to display colour, audio and video images); and able to offer information in whatever way is required (i.e. brief, succinct – or more detailed, once the would-be buyer's interest is piqued).

Yet there is another side to the intermediation coin. While many companies – and even industries, such as the travel industry – have suffered badly from direct consumer access to the Internet, the business-to-business (B2B) market is thriving (see, for example, Hicks 1999, Berst 2000). Those organisations (or individuals) clever enough to recognise the opportunities provided by the Web are reinventing themselves as 'cybermediaries' – intermediaries offering value-added services to consumers and vendors over the Internet. While sellers really only need to be put in contact with purchasers, buyers have many needs which can be met by cybermediaries, ranging from price/quality information to online interest calculators, specialist advice on problems, or online alerts to the advent of a particular occurrence, such as the imminent auction of a work of art (Tillett 2000).

Nunes & Papas (1998) call this 'modelling the electronic channel system' and identify five roles for cybermediaries (or 'electronic intermediaries' as they name them):

- Seller agents, who make markets more accessible to;
- Buyer agents, who search and evaluate goods and services for purchasers; and provide decision support advice to consumers;
- Context providers, who are essentially portal;
- Payment enablers who manage the financial side of Internet purchases; and
- Fulfillment specialists who move the goods from the manufacturer to the consumer.

The creation of new online service industries is an example of 're-intermediation', which has evolved as the previous generation of service offerings are slowly disappearing. The ever-increasing number of 'hubs', 'portals', 'aggregators', 'clearinghouses' and 'exchanges', to name but a few of the terms currently being used to describe B2B Internet-based eCommerce, show that entirely new ways of doing business are being created (see, for example, Democker 2000, McKeown & Watson 1997). The development of business models is tending to follow the creation of the actual business, so great is the speed of uptake and innovation in this area.

One area in which disintermediation and re-intermediation is only just beginning to be understood is the education market. Universities have tended to see themselves as the sole providers of high-quality education for adults – and many are struggling to come to terms with the growth of cybermediaries who offer not merely short courses, but even full degree programs over the Internet in a manner designed to be very attractive to cash-rich/time-poor New Economy citizens (see, for example, OnlineEd 2000, EdSurf 2000, or ApTech 2000, which provide a good picture of the variety of programs and courses available online through commercial vendors). These education cybermediaries, being primarily profit-focused, are very much aware of the marketing issues involved in offering new education 'products' to a hungry audience. Universities which cannot recognise this challenge may well find themselves disintermediated in their own market sector.

3. New Product and New Service Product Issues

A considerable amount of research has been undertaken in the area of new product and service development since the beginning of the 1990's. To cite merely a few, in 1991 Mahajan & Wind conducted a survey of 69 firms to assess the role of 24 new product models. They found that the use of new product models was not widespread but that, despite their infrequent use, developers tended to use these models to improve the success rate of new products, as well as to identify problems with the product and alternative marketing strategies. In the same year, Lovelock (1991) developed a framework for understanding the services market. Urban & Hauser (1993) suggested a new product design process for customers' needs. Wind & Mahajan (1997) addressed 18 critical issues in new product development (NPD). They believed that current approaches to NPD and marketing research and modelling for NPD were inadequate. Rao (1997) noted a need for advanced books on research methods and models for NPD which would include some of the recent methodological advances in the analysis of customer perceptions, preferences, and choices. Langford & Cosenza (1998) suggested using Service/Good analysis to develop good service strategy.

This plethora of research into the development of new goods and services does not, however, clarify the distinction between physical products and service products. Corkindale *et al.* (1989) distinguished two basic types of services: service products and product services. Service products are marketed purely as services, e.g. banking, insurance, consultancy and education. Product services, by contrast, are quite frequently an inseparable part of a package, such as computer installation and maintenance, customer training for after-sales, and other similar 'add-ons'. Lovelock *et al.* (1998) distinguished between physical products and service products as follows: the performance of service products are intangible; customers have greater involvement in the production process in service products; people are a part of a service product; there are greater difficulties in maintaining quality control standards in service products; it is more difficult for customers to evaluate service products; there is an absence of inventory in service products (as service cannot be stored); the time factor is important in service products; and, finally, the structure and nature of the distribution channels are different in the case of service products.

4. Designing a New Service Product

A new service product is composed of the following attributes: level of innovation, distinguishable characteristics, types and scope of services, naming and branding, accompanying goods and supplementary services, added value for customers, duration of ownership, business and customer relationships, delivery channels; and, finally, the price of the product and its method of payment (McCarthy *et al.* 1997; Hart 1999).

4.1 Innovation

When designing a new service product, it is important to clarify the level of innovation which is involved. Generally speaking, the higher the level the longer the development time and the greater the risk of the new product – although more innovative products are also those which yield the highest potential returns. Gruenwald (1992) stated that being new is important; and that being different is also important. Being both new and different provides a major impetus to new product success.

4.2 Distinguishing characteristics

The distinguishing characteristics of a new service product bring with them the chance of greater success – or of greater lack of success. For example, as Bebko (2000) points out: *'It has been argued that the single most important difference between products and services is the characteristic of intangibility. In fact, it has been said that intangibility is the key to determining whether or not an offering is a service or product (Zeithaml and Bitner, 1996). This characteristic has a profound effect on the marketing of services (Lovelock, 1991; Rushton and Carson, 1989). Levitt (1981) argued that special difficulties arise from this intangibility which lead to quality control problems for the producer and evaluation problems for the consumer. It is this intangibility, or lack of physical attributes, that most likely is the reason for service variability, inseparability and perishability.'* (Bebko 2000: 9).

4.3 Type and scope

These are among the attributes of a service product which determine its development time and cost. Service products which require significant lead times for development will require significantly greater sales volumes or higher prices for success, while whose scope is wide-ranging and/or which require significant amounts of hands-on support are likely to be expensive to maintain and to require highly skilled support staff.

4.4 Naming and branding

These attributes will influence the acceptance of a new service product by its customers. It is clear that well-established brands have less difficulty in gaining acceptance of new service products than do brands which are relatively unknown to the consumer. Similarly, service products which can take advantage of the names of well-known existing physical products face fewer obstacles in achieving success. Ries & Ries (2000) describe the 'Eleven Laws of Internet Branding' which cover the aspects of: business tool, interactivity, common name, proper name, singularity, advertizing, globalism, speed, vanity, divergence and transformation.

4.5 Other attributes

Other relevant attributes may include (i) accompanying goods and supplementary services, (ii) whether the product offers added value for customers, (iii) the duration of ownership (the length of time over which the service is provided), (iv) the relationship between customers and the business (Lovelock *et al.* 1998) and (v) delivery channels. A further important issue is whether this relationship continues after the service has been provided.

4.6 Price and payment methods

The final attribute is the *price of the service product and the payment method(s) available*. Here market research and modelling are needed to arrive at the optimum price which can be charged for a new offering. New payment methods in B2C transactions such as e-Cash, e-Check or security credit-card charging should certainly be considered for their appropriateness (Turban *et al.* 1999:291-299), although the little evidence we have to date suggests that customers continue to prefer their familiar credit card when paying for electronic services. Once the new service product is designed, an action plan for marketing should, ideally, be produced by the organisation to implement its new concept.

These attributes, which are clearly applicable to physical goods in a physical consumer marketplace, are equally applicable to education products in an online education market-space.

5. eCommerce/eBusiness Education – Applying a Service Product Logic

We have, for some time, been investigating the explosive development of tertiary eCommerce programs in universities within the Asia-Pacific region. During the early days of this research project we focused on the issues of curriculum development associated with this rapid program development process – but it became apparent over time that these courses and programs were being developed in a manner which was more akin to the concept of ‘service products’ than to traditional pedagogic curriculum development. Universities were offering programs and courses with great rapidity and, it appeared, little regard to the eCommerce domain expertise available within the institution. Market demand was clearly the driving force behind this phenomenon – how else could we explain such examples as the development and offering of an eCommerce degree at either under-graduate or graduate level (or even both), over a period of two years, by six of Hong Kong’s eight universities?

Among the earliest of these offerings were single subject general introductions to eCommerce, usually offered by Business or Information Systems Schools/Departments in universities (see, for example, Hampe 1998; McCubbrey 1999; Davis *et al.* 1999 or Hecht 2000). Wang & Williams (1997) divided the continuum of eCommerce subjects into eight components: Management Information Systems, Technical Fundamentals of IT, Accounting Information Systems, Business Law, Organization Theory, Marketing, Policy and General Management – a coverage which shows just how broadly-based the eCommerce phenomenon is, even within a Business faculty. Figure 1 shows that Universities, like private sector corporations, have a value chain which must be kept in mind by the developers of new programs and courses – universities which do not consider the ‘purchaser’ of their ‘product’ (in this case, both the student and the ultimate employer of that student) run the risk of creating a valueless product.

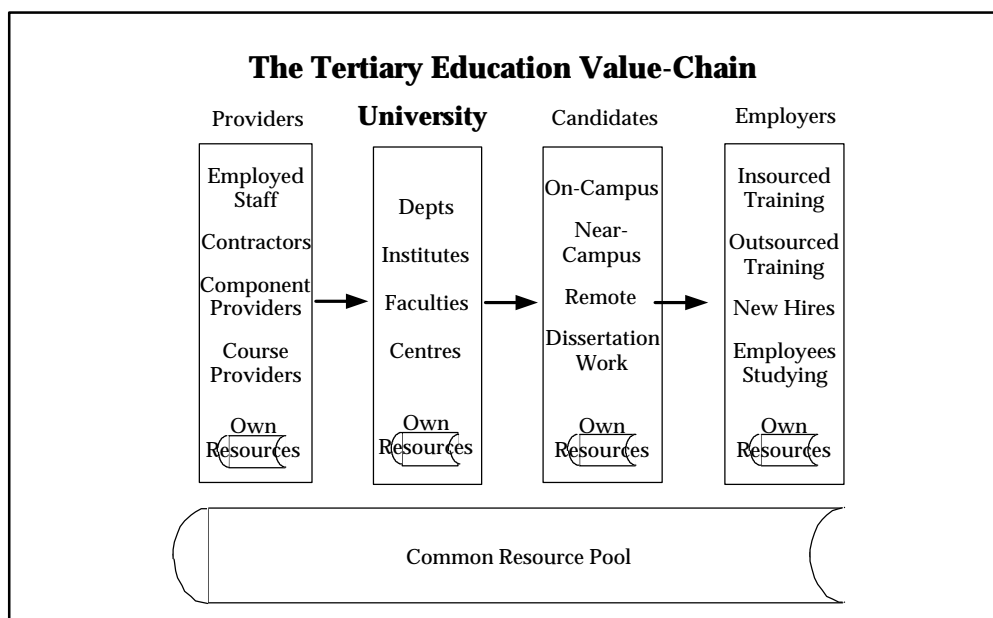


Fig. 1: Higher Education also has a value-chain (Clarke 2000)

If we look once again at the new service product attributes identified from the work of McCarthy *et al.* (1997) and Hart (1999), listed in the previous section, we can see that the same attributes apply to the development of new and fashionable degree programs:

5.1 Innovation

In terms of developing an eCommerce/eBusiness educational program, where the new program is based on a core of existing subjects with the addition of only a few new eCommerce subjects, less development time is required than for a program in which all subjects are developed *ab initio*. In terms of innovation, the first program is clearly far less innovative, takes less time to develop, is less risky for the offering institution – but offers less market visibility and, potentially, has a lower long-term return. A university which develops an entirely new program, composed of entirely new subjects, has the potential to reap a richer reward.

5.2 Distinguishing characteristics

eCommerce/eBusiness educational programs are currently in very high demand (particularly at the graduate level). What are the characteristics which distinguish this service product from other, apparently similar service products, such as Information Systems or Information Technology? In some cases there may be little difference apart from the name of the degree or the subjects which comprise that degree. In other cases, however, the new eCommerce offerings are significantly different from IS/IT programs and are composed of tailored and newly developed subjects. Bebko points out that: *'There are five dimensions by which consumers evaluate service quality:*

1. *Tangibles. The appearance of physical facilities, equipment, personnel and communications material.*
2. *Reliability. The ability to perform the promised service dependably and accurately.*
3. *Responsiveness. The willingness to help customers and provide prompt service.*
4. *Assurance. The knowledge and courtesy of employees and their ability to convey trust and confidence.*
5. *Empathy. The caring, individualized attention the firm provides its customers.'* (Bebko 2000:11).

Clearly, there is considerable room for differentiation within these five criteria – students undertaking new eCommerce/eBusiness programs will be evaluating their degree on these issues, as well as on the actual content of the subjects offered.

5.3 Type and scope

As the Internet enables global product and service offerings, degree programs are also becoming international commodities, which can be sold cheaply and effectively to students around the world. For example, a number of prestigious European and US universities, supported by a grant from the European Commission, are jointly offering a Master of eCommerce program – the GEM program – which will provide an executive masters degree, based on a mix of online and residential education over a 15-month period (GEM 2000). eCommerce/eBusiness programs are finding enthusiastic markets in both their original locations and offshore, both in face-to-face offerings in other countries, and as online offerings. One major disadvantage of this rush to offer programs offshore, however, is the need for high quality, knowledgeable staff who can teach both in the local program and at the offshore locations as well. These degrees are very labour-intensive, requiring constant updating of course content and an excellent understanding of the issues and real-world problems involved. Students paying high prices for imported degrees will not be satisfied with 'ring-ins' having less knowledge and/or commitment than the staff teaching at the home campus.

5.4 Naming and branding

This criterion exists at two levels – the branding of the offering institution, as well as the branding/naming of the degree itself. It is interesting to note that, whereas the earlier degree and program offerings almost universally had the term eCommerce in their title, more recent offerings are tending to use the newer term eBusiness. One risk for universities moving their eCommerce/eBusiness offerings online, of course, is that if all universities' eBusiness degrees are available over the web, the basis on which students select their institution will become ever more important. Why would a student select an online degree from a smallish, local university when s/he could enrol in one offered by a big-name, prestige institution? Clearly, service (in the sense of the quality of delivery and course content) will be crucial ingredients in this decision.

5.5 Other attributes

Other attributes which were touched on earlier are just as relevant to eCommerce/eBusiness degree 'products':

- (i) accompanying goods and supplementary services – this is likely to relate to the quality of online facilities and course materials
- (ii) whether the product offers added value for customers – do students really believe that they have improved their employment prospects as a result of studying the program? And do they feel that they have learned useful information and gained a valuable network of contacts during the teaching process?
- (iii) the duration of ownership (the length of time over which the service is provided) – there is a conflict here between students' eagerness to complete their degree, and their desire for a high-quality outcome. Degree offerings vary widely in length and number of subjects across institutions
- (iv) the relationship between customers and the business – this tends to relate back to issues of perceived quality, both in terms of course content and in terms of management of students by teaching and administrative staff
- (v) whether the relationship continues after the service has been provided – this is not an area in which universities outside North America have tended to shine in the past, but effective management of alumni programmes is crucial to long-term success of these degree products
- (vi) delivery channels - whether the programs are delivered through the web, electronic mall or email.

5.6 Price and payments methods

Finally, the *price of the service product and the payment method(s) available* are an important differentiating factor for eCommerce/eBusiness degrees. Universities are, understandably, anxious to maximise income from these fashionable new degrees – but a trade-off must be made between the price the market will bear and the quality of facilities and staff expected in return for a high-priced, premium product. Universities which charge high fees without providing excellent facilities in return will tend to suffer long-term damage to reputation and student numbers.

Such an approach has both risks and returns – and these are significantly increased for those universities delivering their new programs not only within the country of origin of the degree, but offshore as well (as many of the universities in our sample are doing). Offshore programs and online delivery of programs and courses can place the offering institution in the role of intermediary (in the latter case, indeed, potentially in the role of cybermediary). Such a strategy is not dissimilar to those

adopted by 'dotcoms' (both the 'clicks and mortar' variety which combine online access with a physical distribution network, as well as the 'pure play' online-only companies). Universities and other educational institutions which enter the cybermediary business without awareness of its risks may well not reap the benefits available to more Internet-aware organisations.

This brief introduction to the issues underpinning the offering of eCommerce/eBusiness degree products can be highlighted by some 'real' data illustrating the activities in at least part of the world. In the next section of this chapter, we briefly present the results of a survey of new eCommerce/eBusiness programs developed in four countries within the Asia-Pacific region – Australia, New Zealand, Hong Kong and Singapore – which casts some light on the service product approach to eCommerce/eBusiness education development.

6. eCommerce/eBusiness academic programs in the Asia-Pacific Region

Surprisingly little research has been undertaken into online eCommerce/eBusiness education. The first survey of eCommerce/eBusiness education programs was carried out by Davis, Hajnal, de Matteis and Henderson (see Davis *et al.* 1999) and investigated nearly 50 US and Canadian university-based eCommerce courses for which syllabi are available on the World Wide Web between 1995-1998. The survey results suggested that early eCommerce subjects, developed around 1995, were designed to provide instruction in the use of Web technologies. But, as the technology itself progressed, by 1998 most universities were routinely offering technical or remedial courses in web skills to students, thus relieving eCommerce courses from the task of diffusing web skills. The authors also found that eCommerce courses make abundant use of on-line resources, although a few of the subjects in their sample were still using a combination of online resources and paper handouts. Many of the eCommerce courses originated in the IS department, where instructors possessed a greater degree of technological literacy than the average university educator – suggesting that lack of confidence with the technology was a hurdle to subject development as recently as 1998 in North America.

eCommerce/eBusiness academic programs have grown so quickly over such a short period of time that the lack of theory underpinning the development process in many of the examples seen on web sites such AACSB (1999) or Chan (2000) is hardly surprising. Our survey of eCommerce/eBusiness programs covered the period 1998-2000 and focused on the Asia Pacific region countries of Australia, New Zealand, Hong Kong and Singapore. Our intention has been to identify all academic eCommerce/eBusiness offerings in these institutions – full degree programs at any level, major streams, minor streams and single subjects.

6.1 Survey Methodology

We used a combination of email and web pages to obtain the data for the survey (the interested reader may refer to Smith (1997) or Comley (1996) for a more thorough discussion of the use of the Internet for survey data collection). Smith points out that '*persuasive arguments for using e-mail include extreme cost reduction and quick turnaround time, facilitative interaction between survey authors and respondents, collapsed geographic boundaries, user-convenience and, arguably, more candid and extensive response quality*' (Smith, 1997:2). All these arguments applied to our own research design and intentions – and we used email to invite participants to fill in the actual survey form, which was available through a web site and made as user-friendly as possible.

Beginning in November, 1998, we sent out letters to the Course Coordinators of eCommerce and Heads of Information Systems, Management, Business Computing, Marketing, and Accounting/Finance Departments within the Business Faculty or Business School of all the universities in Australia, Hong Kong and many other countries. They were requested to fill in our questionnaire on the web at URL <http://www.businessit.bf.rmit.edu.au/elsieEC/survey1.htm>. At the same time, the universities' web pages were surfed to identify any materials which might have been omitted from the survey responses. 'Electronic Commerce' or 'Electronic Business' were used as key words in our search, with the result that we have gathered only those subjects or courses/programs which are called eCommerce/eBusiness by their offering institutions. We have further restricted our search of eCommerce/eBusiness subjects/programs to those where information is available on-line:

- for the survey of Australian universities, we included all Australian universities which are members of the Australian Vice-Chancellor's Committee (AVCC), i.e. 39 universities
- in New Zealand, we included all New Zealand universities which are members of the New Zealand Vice-Chancellor's Committee (NZVCC), i.e. 8 universities
- in Hong Kong, we surveyed all 8 universities and
- in Singapore, we surveyed all 3 universities and ignored the polytechnics and institutes of technical education.

A list of the universities surveyed can be found in Appendix 1.

To avoid the almost inevitable confusion which cross-cultural academic curriculum discussion generates, we define the terms 'subject' and 'course/program' used in this paper:

- A 'subject' in this paper is the smallest object which contributes to a course / program – it cannot be further divided. The term 'course' adopted in North American universities, the expression 'unit' or 'module' used in some Australian universities and the term 'paper' used in some New Zealand universities, are equivalent to the term 'subject' we have used here;
- The terms 'course/program' we use in this paper refer to the gathering of several study objects (subjects) into a complete qualification, e.g. the course/program of a Bachelor's degree, a Graduate Diploma or a Master's degree etc. These terms are therefore equivalent to the term 'program' used in the US and Canada.

The following example illustrates our use of these terms: 20345 Electronic Commerce is a core *subject* for the *course / program* (degree) of Bachelor of Business.

6.2 Asia-Pacific eCommerce/eBusiness program survey results

A market segment in this field may be composed of courses with common characteristics, catering for similar purchasing behaviour (needs), and consumption patterns. Effective segmentation means grouping all these courses into segments of high similarity in terms of their relevant characteristics. This was the approach adopted in the present survey. eCommerce/eBusiness programs ranged from, at the lower end, half day courses targeted for business professionals to, at the higher end, 3-5 year PhD research projects. The short courses are offered by TAFE (Australia's Tertiary and Further Education vocational training sector), the private sector, or universities. Since the majority of the short courses are *ad hoc* and thus fairly dynamic in terms of content, they were difficult to include in our survey. The Masters by research and PhD courses are, of course, specifically designed by supervisor and student for that particular student's needs – and we have therefore excluded them from our survey as well.

19 Australian universities out of 39 (48.7%) were offering eCommerce/eBusiness undergraduate and postgraduate programs at the time the data were collected. At a slightly lower level, 3 out of 8 universities in New Zealand (37.5%) were offering eCommerce/eBusiness undergraduate and postgraduate programs at the time of data collection. The similarity of these proportions suggests that levels of interest in eCommerce/eBusiness are also similar in the two countries, although New Zealand appears to be at a slightly earlier stage in new degree development.

In Hong Kong, Kwok (2000) stated that “*the first ever degree programme in Electronic Commerce was started less than a year ago (1999) in Hong Kong. By this September (2000), nearly all the universities in Hong Kong will offer some form of Electronic Commerce degree or diploma programme*”. In fact, Kwok’s findings matched very closely with our own survey results, i.e., 6 out of 8 universities (75%) in Hong Kong offered eCommerce/eBusiness programs at the time we were gathering our data. Clearly, development time is an important criterion in what might be described as the more ‘fashionable’ end of the education spectrum – if it takes a long time to develop a service product, the result may already be out of date when the product is launched onto the market. Products that are designed closer to the time they are introduced are, naturally, less subject to technological and market changes (Moore and Pessemier 1993).

Singapore, by contrast with the other three countries surveyed, shows a very different pattern. Although the Singapore government is a most enthusiastic sponsor and promoter of eCommerce, there has been very little interest in offering eBusiness/eCommerce educational programs by Singaporean universities and institutes of technology. Singapore has, for example, a number of government-run eCommerce Programmes, including:

- the central eCommerce web site (www.ec.gov.sg/);
- the eCitizen programme (www.ecitizen.gov.sg/);
- the eCard with Singaporean photos for web visitors to send to their friends (www.gov.sg/sgip/ecards/)

and yet only a few technical institutions offer eCommerce/eBusiness short courses or diplomas/certificates in eCommerce/eBusiness (Electronic Commerce Singapore 1999). One university began to offer an eCommerce degree during the 2000 academic year; and a number of overseas universities are now offering bachelors and masters degree to local students (Management Development Institute of Singapore 2000a, 2000b). This apparently contradictory result is difficult to explain on the basis of the survey results alone. The enthusiasm with which offshore eCommerce/eBusiness degrees are being taken up in Singapore suggests that demand there is similar to that in the rest of Asia – clearly, more detailed investigation is required to clarify the issues in Singapore.

Appendix 2 summarises the results of the survey, and includes the details of New Zealand and Singaporean universities.

6.3 Segmentation of Programs

The 29 universities listed in Appendix 2 were offering 81 eCommerce/eBusiness programs (or something very similar). We have classified these into 7 segments:

Type	Description
Undergraduate degree with eCommerce major concentration	Students are required to finish a certain number of core subjects and, in addition, to take a 'stream' of eCommerce subjects. In terms of level of innovation this is comparatively low, because it adapts some/many existing subjects. However, in terms of resources, this degree type is fully utilised – it shares resources with other degree programs. For details, refer to Appendix 3.A.
eCommerce as a joint undergraduate degree with other disciplines	Only one university appears to provide this type of program. Monash University offers a Bachelor of Business and Electronic Commerce – both on campus and by distance education. For details, refer to Appendix 3.B.
Bachelor of eCommerce	A number of universities have chosen not to offer this degree, which differs from one offering institution to another, on the assumption that potential employers will not understand what it means in terms of skills provided. Its distinguishing characteristics need to be made explicit if it is to succeed. For details, refer to Appendix 3.C.
Graduate / Postgraduate Certificate / Diploma in eCommerce/eBusiness	These programs are primarily designed for those who wish to move into a new area, i.e. potential students may already have a degree in some other area(s). Undertaking a full degree will take too long, so this shorter program, which effectively offers the core of a degree without the electives, fills a market niche. For details, refer to Appendix 3.D.
Masters degree with eCommerce/eBusiness as a specialisation	These programs aim to provide students with advanced knowledge and skills in contemporary Electronic Commerce technologies and their applications within business, as part of a lifelong learning or professional development program. For details, refer to Appendix 3.E.
Master of eCommerce/eBusiness	Usually offered by Information Systems Departments/Schools, although increasingly being whole-of-Business-Faculty offerings, the technical foundations, strategic and management issues, development, information management issues in Electronic Commerce are studied in these programs. For details, refer to Appendix 3.F.
Master of eCommerce/eBusiness and other discipline joint degrees	Bond University provides this type of program. It offers candidates the opportunity to gain a double masters degree. For details, refer to Appendix 3.G.

The majority of universities world-wide initially offered eCommerce/eBusiness content in the form of a single subject(s). Subject titles commonly found included 'Electronic Commerce' and 'Introduction to Electronic Commerce'. For details, refer to Appendix 4.

6.4 Distinguishing characteristics of the eCommerce/eBusiness programs

How do eCommerce/eBusiness academic programs distinguish themselves from other, apparently similar degrees? We drew up these lists on the basis of an analysis of 33 Bachelors' degree programs in 22 universities and 30 Masters degree programs in 18 universities. We categorised subjects on the basis of our Electronic Commerce Component Model (Chan & Swatman 1999) into 3 major components: infrastructure, services and legal (see Appendices 5 and 6 for the full analysis). For Bachelors degrees, students usually complete about 24 subjects over 3 years' full time study. The subjects listed in Appendix 5 may be studied as elective or core subjects for the degree. For Masters degrees, students usually complete about 12-16 postgraduate level subjects with/without an eCommerce or eBusiness project in 3 to 4 semesters' full-time study. The subjects listed in Appendix 6 may be studied as elective or core subjects for the Masters degree.

The subjects listed in Appendices 5 and 6 provide some idea of the scope covered by eCommerce/eBusiness programs. It is clear that there is considerable overlap among the subjects currently on offer (for example, there are many variations on the theme of e-marketing), and a number of areas are not yet being covered (for example, areas such as mobile commerce or e-health do not yet appear to be included in the material on offer). We currently anticipate that there will be some rationalisation of these subject offerings over time – there is presently too much redundancy and not enough focus on each university's area(s) of specialisation and expertise. In addition, the similarity of many of the programs listed will make it difficult for students to select their preferred university – successful new product developers understand the importance of targeting their market niche, a skill universities will also need to learn.

6.5 Discussion of findings

It is important to reiterate that this survey represents one of the only two investigations of eCommerce/eBusiness teaching currently available (we briefly discuss the other such survey – Davis *et al.* 1999 – in the introduction to section 6 of this chapter). Findings are thus indicative, rather than providing a firm, generalisable basis for extrapolation. With that in mind, however, a number of interesting facts emerge from the data. We begin by discussing the results which emerge directly from the data – and then consider the broader issue of tertiary education in eCommerce/eBusiness as potential service product offerings.

1. The first point we noted was that our market segmentation of 7 types, while useful in categorising types of eCommerce/eBusiness programs available, did not provide mutually exclusive or orthogonal findings. Our survey results indicated a number of what appeared to be anomalies in the pattern:
 - eCommerce/eBusiness can be offered by a number of different departments within a single university. They may not necessarily work together to provide a unified program, e.g. the University of Wollongong, Monash University and the Open University of Hong Kong, in all of which several departments offer similar (and, it would appear, competing) programs. From the organisation (university) point of view, as long as their school/department can fulfil the market demand, this may still be feasible, although companies producing physical products which appear to compete are usually targeting specified market segments very carefully.
 - eCommerce/eBusiness programs are normally offered by Information Systems Schools/Departments, Business Schools, or Computer Science Departments. In fact, eCommerce is/should be a cross-discipline area (since it combines materials from Information Technology, Information Systems, Law, Computer Science, Business, Marketing, Management, Accounting, Logistics, Finance, Economics and many other disciplines). In terms of service product offerings, it is clear that the producers/developers of these programs have not yet resolved many of the issues involved in new product development (such as identifying target markets, identifying the most appropriate providers, or identifying market requirements).
 - With the exception of Monash University, which has two separate teaching units with Electronic Commerce in their title across two faculties, the universities in the sample have not chosen to develop a teaching unit specifically for delivering eCommerce/eBusiness subjects and programs, preferring to run both eCommerce teaching and research centres/units within existing schools/faculties. The new product implications of this very general decision would seem to be

that the eCommerce/eBusiness service product is seen as an extension of existing service product offerings, rather than as an entirely new service product, by almost all developers.

2. The number of courses/programs being offered has grown significantly over the past twelve months. This phenomenon replicates the North American experience (Tabor 1999; Moran 1999), but is built on a far smaller population base – and leads to a very important issue, that of availability of staff with sufficient expertise to teach the very challenging eCommerce/eBusiness programs which business and students alike are demanding.

A combination of the ‘newness’ of the discipline and the high salaries currently being offered to eCommerce professionals in the private sector has meant that some universities find it difficult to staff their academic programs in this area. Jackson (1999), writing in ‘The Australian’ newspaper in October 1999, stated that Australian universities are offering innovative eCommerce and Internet courses, but their capacity to staff them is in question. This issue raises the question of just how many new eCommerce/eBusiness courses/programs can be staffed effectively in the Asia-Pacific region – and places an equivalent question mark over the introduction of eCommerce degrees in other nations.

3. The variety of the offerings which this preliminary survey has elicited also raises the question of whether there is such a thing as an ‘ideal’ program in eCommerce/eBusiness. The differing needs of the institutions themselves, their varying levels of staff expertise, the type(s) of students attracted to any particular tertiary institution, and the delivery modes which may be required all combine to suggest that what may form an ideal program in Institution A may not necessarily be equally ‘ideal’ in Institution B. What should an eCommerce/eBusiness program focus upon? In terms of new product development, it is clear that considerably more work is required to identify market needs and target markets for these programs.

It is clear from the fairly raw data presented in the appendices that there are a myriad of degrees, courses and individual subjects being offered by the universities in our sample. It is equally clear, from even a cursory glance at the subject and degree titles, that offering institutions appear to be taking a ‘scattergun’ approach to eCommerce/eBusiness in which they endeavour to cover all bases, rather than attempting to specialise and/or play to the institution’s particular strengths or expertise. As a long-term strategy for product development (whether of physical or service product) this approach is not an effective one. With so few staff having expertise in this field at all (although this problem may diminish somewhat as new, younger academics with recent degrees come ‘on stream’ to assist with the teaching) attempting to cover all subjects and all areas must surely be seen as a dangerous strategy. In terms of product differentiation, it is clear that this is still in its infancy – with only a few institutions targeting particular niche student groups.

While more (and more detailed) data are clearly required before authoritative statements can be made about the service product development strategies underway, these preliminary data do suggest that the developers of many, if not most, of the degrees shown in the appendices are likely to have been motivated more by the need to produce programs quickly than by the desire to match as many as possible of the criteria for a successful new service product launch. A cursory glance at the eCommerce/eBusiness offerings in North America (the richest field for degrees in this field) suggests that these results may well hold true in that continent too.

7. Conclusion

As the popularity of eCommerce/eBusiness continues apparently unabated, universities are tending to compete in offering such programs – possibly without spending as long in development as they would for a new offering in a more established discipline such as, say, Accounting or Computer Science. The combination of multiple offerings, limited staff with expert knowledge, and intense student and industry demand may well lead to serious quality issues in the creation of courses/ programs.

Our findings to date suggest that new courses are likely to appear in even greater numbers over the next 18-24 months – and that these new courses may well offer greater variety than the programs we have seen to date, possibly including a multi-disciplinary focus, multiple delivery modes, or collaborative efforts in terms of curriculum development. Further research into B2C new service product development and services marketing, particularly based around electronic delivery, is clearly needed in this area.

One of the problems for academics striving to put together new degree programs and individual courses in the eCommerce/eBusiness field is that the majority of them do not have a background in marketing of any sort – let alone the specific field of service marketing. It is one of the difficulties of managing higher education at this time that, just as new courses and programs are most urgently needed, academic staff in many parts of the world are under greater pressure to achieve more and more than they have ever been (in terms of program/course development, publishing and other scholarly activity, and the obtaining of external funding from the private sector). Such pressure makes it both more difficult and, at the same time, more urgent than ever to develop degree programs in a sustainable way. We believe that a conscious awareness of the issues involved in new service product development would add to the quality of many of the degrees currently available (or under development); and that attention to market needs and target markets might well add further value to the new programs appearing with such incredibly rapidity around the world.

One aspect of the eCommerce/eBusiness program development process which we did not investigate is the offering of such degrees in locations other than their geographic ‘home’ – this applies both to online offerings and to offshore presentation of the degrees/programs by the developing institution. Both these approaches are gaining considerable popularity as the demand for eCommerce education in the Asian market grows to ever higher levels. Both these approaches also affect the new product development strategy which should be adopted by offering institutions. A number of considerations should be borne in mind when creating these new programs, for example:

- Subjects offered online need to be designed in formats which permit ready redevelopment for the requirements of Internet-based presentation and study
- Subjects offered offshore may need to be taught many times each year (depending on the number of locations at which they are offered and the frequency with which they are offered in each location). If the principal lecturer (lecturer-in-charge) of that subject cannot teach at all locations, adequate substitutes must be available and prepared to travel as required
- Multiple assessment methods may need to be developed for each subject, to cater for varying needs in different locations
- Additional subjects may need to be developed to cater for the lack of availability of pre-requisite subjects which are taken for granted in the ‘home’ country’s institution.

Even this very brief summary of considerations shows that the new product development process for would-be education cybermediaries is considerably more complex than it might at first sight appear – particularly for those which are universities and thus comparatively inexperienced in aggressive consumer product marketing. Teams developing education programs which must be brought to market rapidly, and which are likely to require constant updating to retain their currency, need to consider the benefits which new product development techniques and theories can offer their endeavours. Merely getting a degree offered or, more particularly, getting an online degree onto the World Wide Web, provides no guarantee of success in an increasingly sophisticated market-space. If potential ‘customers’ can choose between eCommerce/eBusiness degrees offered around the world, they are likely to choose the best-designed – or even to choose the degree(s) offered by the most prestigious university. Only the quality of the service product offering can affect such an outcome.

Biographical Note

Professor Paula M. C. Swatman has worked in eCommerce (both in business and academe) since the mid-1980’s. Her academic interests focus on eBusiness strategy and implementation, and the impact of eCommerce on organisations. She was appointed Australia’s first Professor of eCommerce and, after three years at RMIT University in Melbourne, moved in 2001 to the University of Koblenz-Landau in Germany, where she is Professor of eBusiness.

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Appendix 1. A list of universities in the survey.

Australia	
Bond University	http://www.bond.edu.au/
Central Queensland University	http://www.cqu.edu.au/
Charles Sturt University	http://www.csu.edu.au/
Curtin University of Technology	http://www.curtin.edu.au/
Deakin University	http://www.deakin.edu.au/
Edith Cowan University	http://www.cowan.edu.au/
Griffith University	http://www.gu.edu.au/
James Cook University	http://www.jcu.edu.au/
La Trobe University	http://www.latrobe.edu.au/
Macquarie University	http://www.mq.edu.au/
Monash University	http://www.monash.edu.au/
Murdoch University	http://www.murdoch.edu.au/
Northern Territory University	http://www.ntu.edu.au/
Queensland University of Technology	http://www.qut.edu.au/
RMIT University	http://www.rmit.edu.au/
Southern Cross University	http://www.scu.edu.au/main.html
Swinburne University of Technology	http://www.swin.edu.au/
The Australian Catholic University	http://www.acu.edu.au/
The Australian National University	http://www.anu.edu.au/
The Flinders University of South Australia	http://www.flinders.edu.au/
The University of Adelaide	http://www.adelaide.edu.au/
The University of Melbourne	http://www.unimelb.edu.au/
The University of New England	http://www.une.edu.au/
The University of New South Wales	http://www.unsw.edu.au/
The University of Newcastle	http://www.newcastle.edu.au/
The University of Queensland	http://www.uq.edu.au/
The University of Sydney	http://www.usyd.edu.au/
The University of Western Australia	http://www.uwa.edu.au/
The University of Western Sydney	http://www.uws.edu.au/
University of Ballarat	http://www.ballarat.edu.au/
University of Canberra	http://www.canberra.edu.au/
University of Notre Dame Australia	http://www.nd.edu.au/
University of South Australia	http://www.unisa.edu.au/
University of Southern Queensland	http://www.usq.edu.au/
University of Tasmania	http://www.utas.edu.au/
University of Technology, Sydney	http://www.uts.edu.au/
University of the Sunshine Coast	http://www.usc.edu.au/
University of Wollongong	http://www.uow.edu.au/
Victoria University of Technology	http://www.vut.edu.au/
New Zealand	
Auckland University of Technology	http://www.aut.ac.nz/external.shtml
Lincoln University	http://www.lincoln.ac.nz/
Massey University	http://www.massey.ac.nz/
The University of Auckland	http://www.auckland.ac.nz/
The University of Canterbury	http://www.canterbury.ac.nz/
The University of Waikato	http://www.waikato.ac.nz/
Victoria University of Wellington	http://www.vuw.ac.nz/index.shtml
University of Otago	http://www.otago.ac.nz/
Hong Kong	
City University of Hong Kong	http://www.cityu.edu.hk/
Hong Kong Baptist University	http://www.hkbu.edu.hk/
Hong Kong University of Science and Technology	http://www.ust.hk/
Lingnan University	http://www.ln.edu.hk/
The Chinese University of Hong Kong	http://www.cuhk.hk/
The Hong Kong Polytechnic University	http://www.polyu.edu.hk/

The Open University of Hong Kong	http://www.ouhk.edu.hk/
The University of Hong Kong	http://www.hku.hk/
Singapore	
Nanyang Technological University	http://www.ntu.edu.sg/index_lo.htm
National University of Singapore	http://www.nus.edu.sg/
Singapore Management University	http://www.smu.edu.sg/

Appendix 2: eCommerce/eBusiness Programs offered by universities in Australia, New Zealand, Hong Kong and Singapore

Legends:

- (A) Undergraduate degree with eCommerce / eBusiness major concentration
- (B) eCommerce as a joint under-graduate degree with other disciplines
- (C) Bachelor of eCommerce /eBusiness
- (D) Graduate Certificate / Diploma in eCommerce /eBusiness
- (E) Master degree with eCommerce/ eBusiness as a specialisation
- (F) Master of eCommerce / eBusiness
- (G) Master of eCommerce / eBusiness and other discipline joint degrees

Name of University	Dept/School/Faculty	(A)	(B)	(C)	(D)	(E)	(F)	(G)
Australia								
Bond University	School of Law							√
Bond University	School of Business			√			√	√
Central Queensland University	Faculty of Informatics and Communication			√	√		√	
Charles Sturt University	Faculty of Commerce	√			√			
Curtin University of Technology	School of Information Systems	√			√	√	√	
Deakin University	School of Management Information Systems	√			√		√	
Edith Cowan University	School of Management Information Systems	√			√		√	
La Trobe University	School of Business			√	√			
Monash University	School of Business and Electronic Commerce		√		√			
Monash University	School of Electronic Commerce			√				
Murdoch University	Department of Commerce	√			√		√	
RMIT University	Faculty of Business				√		√	
Southern Cross University	School of Multimedia and Information Technology	√				√		
Swinburne University of Technology	School of Business				√			√
The University Of New England	Faculty of Economics Business & Law Faculty of the Sciences				√			
The University of Queensland	Department of Commerce			√		√		
The University of Western Australia	Department of Information Management and Marketing	√				√		
University of South Australia	School of Accounting and Information Systems				√	√		
University of Tasmania	School of Information Systems	√						
University of Wollongong	Faculty of Commerce	√						

Name of University	Dept/School/Faculty	(A)	(B)	(C)	(D)	(E)	(F)	(G)
University of Wollongong	School of IT and Computer Science	√						
Victoria University	School of Information Systems	√						
New Zealand								
Auckland University of Technology	Business Faculty	√						
The University of Waikato	Department of Management Systems			√				
Victoria University of Wellington	School of Communications and Information Management	√						
Hong Kong								
City University of Hong Kong	Faculty of Business Administration					√		
City University of Hong Kong	Faculty of Engineering					√		
Hong Kong University of Science and Technology	Department of Information and Systems Management					√		
The Chinese University of Hong Kong	Faculty of Business Administration					√		
The Chinese University of Hong Kong	Faculty of Engineering					√		
The Hong Kong Polytechnic University	Department of Computing						√	
The Open University of Hong Kong	School of Business and Administration			√				
The University of Hong Kong	Faculty of Engineering					√		
Singapore								
National University of Singapore	Business School School of Computing	√				√		

Appendix 3 Different types of courses/programs related to eCommerce /eBusiness offered by universities in Australia, New Zealand Hong Kong and Singapore.

Appendix 3.A Undergraduate degree with eCommerce/eBusiness major concentration

Name of University	Faculty /School/Department	Name of Degree
Auckland University of Technology http://www.aut.ac.nz/external.shtml	Business Faculty http://www.aut.ac.nz/faculties/business/structurebus.shtml	Bachelor of Business (eBusiness) http://www.aut.ac.nz/faculties/business/undergraduate/diploma/degree/bbus.shtml
Charles Sturt University http://www.csu.edu.au/	Faculty of Commerce http://www.csu.edu.au/faculty/commerce/	Bachelor of Business (Specialisation EC) http://wwwdb.csu.edu.au/division/marketing/courses/undergrad/ug-comm/bcbus/bcbuscou.htm#ecomm
Curtin University of Technology http://www.curtin.edu.au/	School of Information Systems http://www.cbs.curtin.edu.au/is/	Bachelor of Commerce (Electronic Commerce Major) http://www.curtin.edu.au/curtin/handbook2000/courses/is/230205.HTM Bachelor of Commerce (Banking and Electronic Commerce Double Major) http://www.curtin.edu.au/curtin/handbook2000/courses/ef/234804.HTM Bachelor of Commerce (Finance and Electronic Commerce Double Major) http://www.curtin.edu.au/curtin/handbook2000/courses/ef/234811.HTM Bachelor of Commerce (Information Systems and Electronic Commerce Double Degree) http://www.curtin.edu.au/curtin/handbook2000/courses/is/234809.HTM Bachelor of Commerce (Information Technology and Electronic Commerce Double Major) http://www.curtin.edu.au/curtin/handbook2000/courses/is/234810.HTM Bachelor of Commerce (International Business and Electronic Commerce Double Major) http://www.curtin.edu.au/curtin/handbook2000/courses/man/234814.HTM Bachelor of Commerce (Marketing and Electronic Commerce) http://www.curtin.edu.au/curtin/handbook2000/courses/mkt/234818.HTM
Deakin University http://www.deakin.edu.au/	School of Management Information Systems http://mis.deakin.edu.au/	Bachelor of Commerce (Electronic Commerce Major sequence) http://mis.deakin.edu.au/Course_info/Under_grad/elec_comm.htm
Edith Cowan University http://www.cowan.edu.au	School of Management Information Systems http://www-business.ecu.edu.au/mis/	Bachelor of Business (Major Electronic Commerce) http://www-business.ecu.edu.au/mis/planners/ecomm.htm
Murdoch University http://www.murdoch.edu.au	Department of Commerce http://wwwbusiness.murdoch.edu.au/commerce/index.htm	Bachelor of Commerce (Electronic Commerce Stream) http://wwwbusiness.murdoch.edu.au/commerce/undergrad/electcom.html#primary
National University of Singapore http://www.nus.edu.sg/	Business School http://www.fba.nus.edu.sg/postgrad/gsb/ School of Computing http://www.comp.nus.edu.sg/	Bachelor of Business Administration (e-Business) http://www.fba.nus.edu.sg/undergrad/BBA.htm
Southern Cross University http://www.scu.edu.au/	School of Multimedia and Information Technology http://www.scu.edu.au/schools/smit/	Bachelor of Information Technology (Electronic Commerce) Bachelor of Business (Electronic Commerce) (These programs will be offered in 2001).
The University of Western	Department of Information	Bachelor of Commerce (Major in Electronic Commerce)

Name of University	Faculty /School/Department	Name of Degree
Australia http://www.uwa.edu.au	Management and Marketing http://imm.uwa.edu.au	http://www.imm.ecel.uwa.edu.au/imm/major_in_electronic_commerce.htm
University of Tasmania http://www.utas.edu.au/	School of Information Systems http://www.infosys.utas.edu.au/	Bachelor of Information Systems (Electronic Commerce Program) http://www.infosys.utas.edu.au/courses/BIS-EC.html
University of Western Sydney (Macarthur) http://www.macarthur.uws.edu.au/	Department of Computing and Information Systems http://fistserv.macarthur.uws.edu.au/cis/	Bachelor of Business Computing (E-Business)
University of Western Sydney (Macarthur) http://www.macarthur.uws.edu.au/	Department of Computing and Information Systems http://fistserv.macarthur.uws.edu.au/cis/ Faculty of Business http://bus.macarthur.uws.edu.au/	Bachelor of Commerce (E-Business)
University of Wollongong http://www.uow.edu.au/	Faculty of Commerce http://www.uow.edu.au/commerce/	Bachelor of Commerce (Combined specialisations with Electronic Commerce) Specialisations: Accounting, Business Information Systems, Economics, Finance, Marketing and Management http://www.uow.edu.au/commerce/ecommerce.html
University of Wollongong http://www.uow.edu.au/	School of IT and Computer Science http://www.itacs.uow.edu.au/	Bachelor of Information and Communication Technology (Combined Specialisations with Electronic Commerce) Specialisations: Software Development, Network Management, Telecommunications, Business Information Systems http://www.itacs.uow.edu.au/undergrad/iact/binfotechsch.html
Victoria University http://www.vu.edu.au/	School of Information Systems http://www.business.vu.edu.au/inform_systems_about_depart.htm	Bachelor of Business in Electronic Commerce Bachelor of Business in Accounting and Electronic Commerce http://www.vu.edu.au/handbook/fob/2000Bus-38.pdf
Victoria University of Wellington http://www.vuw.ac.nz/index.shtml	School of Communications and Information Management http://www.scim.vuw.ac.nz/	Bachelor of Commerce and Administration (Electronic Commerce and Multimedia) http://www.vuw.ac.nz/home/undergraduate/subjects/elcm.html

Appendix 3.B eCommerce/eBusiness and other disciplines as Joint Degree

Name of University	Faculty /School/Department	Name of Degree
Monash University http://www.monash.edu.au	Faculty of Business and Electronic Commerce http://www.buseco.monash.edu.au/Schools/SOBEC/	Bachelor of Business and Electronic Commerce http://www.monash.edu.au/pubs/handbooks/undergrad/ug0212.htm

Appendix 3.C Bachelor of eCommerce/eBusiness

Name of University	Faculty /School/Department	Names of Degrees
Bond University http://www.bond.edu.au	School of Business http://www.bond.edu.au/bus/index	Bachelor of Electronic Commerce http://www.bond.edu.au/bus/degrees/ugpro/Ug-

Name of University	Faculty /School/Department	Names of Degrees
	htm	becom.htm
Central Queensland University http://www.cqu.edu.au/	Faculty of Informatics and Communications http://www.infocom.cqu.edu.au/	Bachelor of Electronic Commerce http://handbook.cqu.edu.au/2001pdf/ugprograms.pdf
La Trobe University http://www.latrobe.edu.au/	School of Business http://www.business.latrobe.edu.au/	Bachelor of Electronic Commerce http://www.latrobe.edu.au/handbook/wodonga/courses_aw.htm#P465_21894
Monash University http://www.monash.edu.au	School of Electronic Commerce http://www.ecom.monash.edu.au/overview.html	Bachelor of Electronic Commerce http://www.ecom.monash.edu.au/Course/
The Open University of Hong Kong http://www.ouhk.edu.hk	School of Business and Administration http://balinux.ouhk.edu.hk/~school/bec/index1.htm	Bachelor of Electronic Commerce Bachelor of Electronic Commerce (Honours) http://balinux.ouhk.edu.hk/~school/bec/overview.htm
The University of Queensland http://www.uq.edu.au/	Department of Commerce http://www.commerce.uq.edu.au/	Bachelor of Electronic Commerce http://www.commerce.uq.edu.au/ecom/brochure.html#brochure
The University of Waikato http://www.waikato.ac.nz/	Department of Management Systems http://www.mngt.waikato.ac.nz/depts/mnss/Home.htm	Bachelor of Electronic Commerce http://www.waikato.ac.nz/slice/degrees/becomm.shtml

Appendix 3.D Graduate Certificate / Diploma in eCommerce/eBusiness

Name of University	Faculty /School/Department	Name of Grad Certificate / Diploma
Central Queensland University http://www.cqu.edu.au/	Faculty of Informatics and Communications http://www.infocom.cqu.edu.au/	Graduate Diploma in Electronic Commerce http://handbook.cqu.edu.au/2001pdf/pgprograms.pdf
Charles Sturt University http://www.csu.edu.au/	Faculty of Commerce http://www.csu.edu.au/faculty/commerce/	Graduate Certificate in Electronic Commerce http://www.db.csu.edu.au/division/marketing/courses/gradcert/gc-comm/egctqm/egctqmcou.htm
Curtin University of Technology http://www.curtin.edu.au/	School of Information Systems http://www.cbs.curtin.edu.au/is/	Graduate Certificate in Electronic Commerce http://www.cbs.curtin.edu.au/UNITS/PDFliers/IS/GCert-El-Comm.pdf Postgraduate Diploma in Business (Electronic Commerce) http://www.cbs.curtin.edu.au/UNITS/PDFliers/IS/Pgd-EC.pdf
Deakin University http://www.deakin.edu.au/	School of Management Information Systems http://mis.deakin.edu.au/	Graduate Diploma of Electronic Commerce http://www.detc.deakin.edu.au/MECom/graddip.asp Graduate Certificate of Electronic Commerce http://www.detc.deakin.edu.au/MECom/gradcert.asp
Edith Cowan University http://www.cowan.edu.au/	School of Management Information Systems http://www-business.ecu.edu.au/mis/	Graduate/Executive Certificate in Electronic Commerce http://www-business.ecu.edu.au/mis/planners/ecertecom.htm Graduate/Executive Diploma in Business (Electronic Commerce)
La Trobe University http://www.latrobe.edu.au/	School of Business http://www.business.latrobe.edu.au/	Graduate Diploma in Electronic Commerce http://www.aw.latrobe.edu.au/depart/dbus/gdipec.htm
Monash University http://www.monash.edu.au	School of Business and Electronic Commerce http://www.buseco.monash.edu.au/Schools/SOBEC/	Graduate Certificate in Electronic Commerce http://www.monash.edu.au/pubs/1999handbooks/buseco/be0210.htm Graduate Diploma in Electronic Commerce http://www.monash.edu.au/pubs/1999handbooks/distance/de0069.htm
Murdoch University http://www.murdoch.edu.au/	Department of Commerce http://www.business.murdoch.edu.a	Postgraduate Certificate in Electronic Commerce http://www.business.murdoch.edu.au/commerce/degree/pc

	u/commerce/index.htm	ec.htm Postgraduate Diploma in Electronic Commerce http://www.business.murdoch.edu.au/commerce/degree/pd/ec.htm
The University of New England http://www.une.edu.au/	Faculty of Economics Business & Law http://www.une.edu.au/febl/ Faculty of the Sciences http://www.une.edu.au/sciences/index.html	Graduate Certificate in E-Commerce http://www.une.edu.au/febl/awards/ecom.htm
Swinburne University of Technology http://www.swin.edu.au	School of Business http://www.swin.edu.au/business/	Grad Cert of Business (eBusiness and Communication) http://www.ld.swin.edu.au/ebusiness/html/subjects.htm#top
RMIT University http://www.rmit.edu.au	Faculty of Business http://www.bf.rmit.edu.au	Grad. Certificate in E-Business Grad. Diploma in E-Business http://www.bf.rmit.edu.au/e-commerce/html/course_structure.html
University of South Australia http://www.unisa.edu.au/	School of Accounting and Information Systems http://business.unisa.edu.au/infosys/index.htm	Grad Cert and Grad Dip in Business (e-Business) http://business.unisa.edu.au/infosys/courses/
University of Western Sydney (Macarthur) http://www.macarthur.uws.edu.au/	Department of Computing and Information Systems http://fistserv.macarthur.uws.edu.au/cis/	Graduate Diploma in Information Technology (E-Business)

Appendix 3.E Master degree with eCommerce/eBusiness as specialisations

Name of University	Faculty /School/Department	Name of Master Degrees
City University of Hong Kong http://www.cityu.edu.hk/	Faculty of Business http://www.cityu.edu.hk/fb/homepage/index.htm	Master of Science in Electronic Commerce http://www.cityu.edu.hk/fb/homepage/CourseOfferings.htm Master of Arts in Electronic Business http://www.is.cityu.edu.hk/maeb/rationale.html
Curtin University of Technology http://www.curtin.edu.au/	School of Information Systems http://www.cbs.curtin.edu.au/is/	Master of Commerce - Electronic Commerce http://www.cbs.curtin.edu.au/UNITS/PDFliers/IS/MCom-EC.pdf
Hong Kong University of Science and Technology http://www.ust.edu.hk/	Department of Information and Systems Management http://www.ismt.ust.hk/	Master of Science in Information System Management (Electronic Commerce Concentration) http://www.bm.ust.hk/mscis/curriculum.html
National University of Singapore http://www.nus.edu.sg/	Business School http://www.fba.nus.edu.sg/postgrad/gsb/ School of Computing http://www.comp.nus.edu.sg/	Master of Science in e-Business http://www.fba.nus.edu.sg/postgrad/gsb/eBusiness/master_of_science_in_e.htm
Southern Cross University http://www.scu.edu.au/	School of Multimedia and Information Technology http://www.scu.edu.au/schools/smit/	Master of Information Systems (Electronic Commerce Stream) This program will be offered in 2001.
The Chinese University of Hong Kong http://www.cuhk.hk/	Faculty of Business Administration http://www.cuhk.edu.hk/baf/	Master of Science in E-Commerce (Business Program) http://www.cuhk.edu.hk/msc-programs-in-e-commerce/business_ecom.htm
The Chinese University of Hong Kong	Faculty of Engineering http://www.erg.cuhk.edu.hk/	Master of Science in E-Commerce (Technologies Program)

http://www.cuhk.hk/		http://www.cuhk.edu.hk/msc-programs-in-ecommerce/engine_ecom.htm
The Hong Kong Polytechnic University http://www.polyu.edu.hk/	Department of Computing http://www.comp.polyu.edu.hk/ Faculty of Business and Information System http://www.polyu.edu.hk/fbis/	MSc in E-Commerce MSc in E-Commerce (Executive Stream) http://www.comp.polyu.edu.hk/mscec/content.htm
The University of Hong Kong http://www.hku.hk/	Faculty of Engineering http://engg.hku.hk/	Master of Science (Engineering) in Electronic Commerce http://aajc.hku.hk/ecomprogram.html
The University of Queensland http://www.uq.edu.au/	Department of Commerce http://www.commerce.uq.edu.au/	Master of Commerce Concentration in Electronic Commerce http://www.commerce.uq.edu.au/ecom/master_of_commerce.htm
The University of Western Australia http://www.uwa.edu.au	Department of Information Management and Marketing http://imm.uwa.edu.au/	Master of Electronic Marketing and Information Management http://www.imm.ecel.uwa.edu.au/imm/M_in_EC.htm
University of South Australia http://www.unisa.edu.au/	School of Accounting and Information Systems http://business.unisa.edu.au/infosys/index.htm	Master of Business (e-Business) http://business.unisa.edu.au/infosys/courses/mbebu.html

Appendix 3F Master of eCommerce/eBusiness

Name of University	Faculty /School/Department	Name of Master Degrees
Bond University http://www.bond.edu.au/	School of Business http://www.bond.edu.au/bus/index.htm	Master of Electronic Commerce http://www.bond.edu.au/bus/degrees/pgpro/pg-mEcomm.htm
Central Queensland University http://www.cqu.edu.au/	Faculty of Informatics and Communications http://www.infocom.cqu.edu.au/	Master of Electronic Commerce http://handbook.cqu.edu.au/2001pdf/pgprograms.pdf
Curtin University of Technology http://www.curtin.edu.au/	School of Information Systems http://www.cbs.curtin.edu.au/is/	Master of Electronic Commerce http://www.curtin.edu.au/curtin/handbook2000/courses/is/296515.HTM
Deakin University http://www.deakin.edu.au/	School of Management Information Systems http://mis.deakin.edu.au/	Master of Electronic Commerce http://www.detc.deakin.edu.au/MECom/mec.asp
Edith Cowan University http://www.cowan.edu.au/	School of Management Information Systems http://www-business.ecu.edu.au/mis/	Master in Electronic Commerce (will change to Master of E-Business in 2001) http://www-business.ecu.edu.au/mis/planners/MEC.htm
Murdoch University http://www.murdoch.edu.au/	Department of Commerce http://wwwbusiness.murdoch.edu.au/commerce/index.htm	Master of Electronic Commerce http://wwwbusiness.murdoch.edu.au/commerce/degree/mec.htm
RMIT University http://www.rmit.edu.au/	Faculty of Business http://www.bf.rmit.edu.au/	Master of E-Business Master of E-Business (Research) http://www.bf.rmit.edu.au/e-commerce/html/course_structure.html

Appendix 3.G Master of eCommerce/eBusiness and other disciplines joint degrees

Name of University	Faculty /School/Department	Name of Master Degrees (Joint)
Bond University http://www.bond.edu.au/	School of Law http://www.bond.edu.au/law/	Master of Electronic Commerce and Master of Laws Master of Electronic Commerce and Master of Jurisprudence Master of Electronic Commerce and Master of Business Law http://www.bond.edu.au/law/degrees/pg/Combined.htm
Bond University http://www.bond.edu.au/	School of Business http://www.bond.edu.au/bus/index.htm	MBA/Master of Electronic Commerce MIT/ Master of Electronic Commerce Master of Finance / Master of Electronic Commerce Master of Accounting / Master of Electronic Commerce http://www.bond.edu.au/bus/degrees/pgpro/pg-mEcomm.htm
Swinburne University of Technology http://www.swin.edu.au	School of Business http://www.swin.edu.au/business/	Master in eBusiness and Communication http://www.ld.swin.edu.au/ebusiness/html/outline.htm

Appendix 4 eCommerce/eBusiness offered as single subjects

Name of University	Faculty/School/Department	Name of Subject
Massey University http://www.massey.ac.nz/	Graduate School of Business http://ied.massey.ac.nz/mba.html	115.760 Electronic Commerce http://www.massey.ac.nz/~DViehlan/115760.html 157.754 Electronic Commerce Systems http://www.massey.ac.nz/~DViehlan/157754.html
The University of Melbourne http://www.unimelb.edu.au/	Department of Information Systems http://www.dis.unimelb.edu.au/	615655 Electronic Commerce http://www.dis.unimelb.edu.au/courses/subjects/pghandbook/615-655.htm
University of Canberra http://www.canberra.edu.au/	Division of Management and Technology http://www.canberra.edu.au/uc/faculties/div_man_tech.html	005456 Electronic Commerce: Technical Issues 005457 Electronic Commerce: Business Issues
University of Notre Dame Australia http://www.nd.edu.au/	College of Business http://www.nd.edu.au/colleges_departments/business/	CO225 Electronic Commerce http://www.nd.edu.au/colleges_departments/business/units/
University of Southern Queensland http://www.usq.edu.au/	Faulty of Commerce http://www.usq.edu.au/faculty/commerce/	51170 Introduction To Electronic Commerce http://www.usq.edu.au/unit/synopsis/51170.htm

Appendix 5. Subjects which may be studied as elective or core for an undergraduate eCommerce/eBusiness degree.

Infrastructure

Commerce and WWW Applications Systems	Data Communication	Developing Electronic Commerce
Electronic and Desktop Publishing	Electronic Commerce applications	Electronic Commerce Fundamental
Electronic Commerce Laboratory	Electronic Commerce Systems	Electronic Commerce Technologies
Electronic Document Design	Electronic Meeting System	Fundamentals of Computing and
Electronic Commerce		
Future Direction	Information Technology	Infrastructure for electronic commerce
Innovation and Electronic Commerce	Instruction to business on the Internet	Internet Function and Facilities
Introduction to Electronic Commerce	Introduction to the Internet	Java Programming and the Internet
Multimedia and Internet	Security Control	Supra-organisational Systems
Technology Infrastructure Management	Web Site Design and Management	Electronic Solutions

Services

Business Applications Commerce	Business On-line	Commercial Aspects of Electronic
Decision Support		
Economics of Information Electronic Commerce	Electronic Commerce and Marketing	Electronic Commerce and the
Electronic Trading	Business Interfaces	Electronic Marketing
Commerce Strategy Internet Commerce	Global Electronic Finance	Information Systems ad Electronic
	Inter-organisational systems	Management and Electronic Business
Marketing on the Commercial Internet Commerce	Marketing on the Internet	Network applications and Electronic
Supply Chain management	Trading Systems	

Legal

Commerce Law	Electronic Commerce and Law	Cyber Law
Management and Legal Implications of Electronic Commerce		
Legal Foundations of Electronic Commerce		

Appendix 6. Subjects which may be studied as elective or core for a masters degree in eCommerce/eBusiness.

Infrastructure

Advanced Electronic Business Application Development Systems	Analysis and Design of Electronic Business
Business Focused E-commerce and Managing E-commerce Systems	Development
Contemporary topics in Electronic Business	Cryptography, Information Security and E-Commerce
eBusiness Software and Technology	E-Business Strategy
E-Commerce Data Mining Techniques	Electronic Business Resources
Foundations of Electronic Business Systems	Fundamentals of E-Commerce Technologies
Fundamentals of Electronic Commerce	Information Systems and E-commerce Strategy
Infrastructure and security management for electronic commerce	Internet and Computer Communications
Internet and the World Wide Web	Internet Communications Campaigns
Internet for Business	Internet Programming
Issues in E-Business	Java and information technology for executives
Network and Web Programming	Open Systems for E-Commerce
Web Advertising and Web Publishing	Web-publishing: design and creation

Service

Business transformation and process re-engineering	Business-to-business Electronic Commerce
Customer Focused E-commerce	Cyber Marketing and Customer Relationship
Management	
E-Business Fulfilment	E-Business Supply Chains
E-Business Planing and Implementation	Economics of Electronic Commerce
E-Financing	Electronic Business Strategies and Management
Electronic commerce on the Internet	Electronic Payment Systems
E-Marketing	Information Technology Based Organization
Transformation	
Internet and Computer Communications	Internet and Electronic Commerce Marketing
Internet Computing for Managers	Internet Marketing
Logistics Management	Online Marketing
Supply Chain Management	The Electronic Business Regulatory Environment: An executive perspective
Underlying Technologies for E-Commerce - A managerial perspective	Web Design and Management

Legal

E-Business Law	Legal Aspects of Electronic Commerce
E-Commerce Law	Legal aspects of information technology and electronic commerce