

E-BUSINESS SKILL AND TRAINING NEEDS ACROSS FOUR INDUSTRY SECTORS

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ABSTRACT

During November 2003 – February 2004, the Swinburne University of Technology TAFE Division's Centre for Collaborative Business Innovation (CCBI) conducted research to determine current and emerging skill and training needs for e-business across four industry sectors. This research was funded via a grant from the Victorian Office of Training and Tertiary Education (OTTE), and it focussed on SMEs in the Culture & Recreation, Food Processing, Community Services & Health and Transport & Distribution sectors.

Using structured in-depth interviews with SMEs of various types, missions and locations across the four sectors, combined with structured in-depth interviews with business systems consultants, the current status of e-business uptake was clarified. Training needs and preferences in relation to e-business skill formation were also identified.

While the uptake of certain aspects of e-business was found to be strong amongst SMEs in all four sectors, most organisations are not exploiting the full potential that e-business offers. Few firms fully understand e-business, and few integrate e-business practices effectively into their overall business systems. The main barriers to further e-business expansion and integration were found to be cost and time constraints, a lack of skilled staff, and the unavailability of appropriate training options.

A distinct lack of knowledge about existing e-business networks, support and training options was evident. Nevertheless, there is a clear preference for e-business training that is short, self-paced and relevant to immediate business needs, focussed on such things as the implementation and management of integrated e-business systems, vendor relationship management, and software for managing client relationships.

INTRODUCTION

In its *2002 – 5 Strategic Plan*, the Victorian Office of Training and Tertiary Education (OTTE) identified a need for the VET network to respond actively to the Government's strategic priorities, and to the needs of individuals, enterprises and communities. OTTE is committed to evidence-based policy making, and this commitment led to it commissioning the Swinburne University of Technology TAFE Division's Centre for Collaborative Business Innovation (CCBI) to research current and emerging e-business skill needs of SMEs across four industry sectors: Community Services & Health, Culture & Recreation, Food Processing, and Transport & Distribution. The specific research objectives were to:

- ?? investigate and report on the current extent and nature of e-business in the sectors
- ?? identify the extent and nature of emerging skill requirements relating to e-business in SMEs across the sectors
- ?? identify relevant industry sub-sectors and stakeholders within them, to determine the characteristics of their e-business models
- ?? review current methods of skill formation for e-business across the four sectors to identify: 1) available training package products; 2) the availability of appropriate training delivery models; 3) the need for customisation of existing products and new approaches to delivery; and 4) required program developments, at the leading edge of e-business training, to address the identified needs.

In consultation with relevant Industry Training Advisory Bodies (ITABs) and other industry networks, specific research focus areas were determined for each sector, viz.:

- ?? Community Services & Health – community health centres
- ?? Culture & Recreation – commercial galleries
- ?? Food Processing – retail bakeries
- ?? Transport & Distribution – road freight companies

METHODS

Following a review of the literature to determine trends and predictions for the four industry sectors, structured interview *pro formae* were developed to assist in gathering data from SMEs and from business re-engineering consultancies. Organisations to be included in the study were identified in consultation with ITABs, industry associations, Victorian business centres and other networks. Three organisations were chosen for each of the four sectors – one ‘non-starter’ or ‘new developer’, one at an ‘intermediate’ stage of e-business take-up, and one at an ‘advanced’ level of e-business take-up.

In-depth individual interviews were then conducted during November 2003 – February 2004 with the principals of the selected SMEs and consultancies in metropolitan Melbourne and Victorian regional centres. The data gathered were used to identify key skill and training needs, including delivery model preferences.

Finally, existing e-business training programs were analysed in relation to the identified training needs, and gaps in the available training provision were clarified. This enabled the formulation of recommendations on e-business curriculum development and customisation for the four sectors.

RESULTS

Discounting the interviews conducted with systems consultants, in-depth interviews were conducted with senior representatives of twelve organisations – three from each of the four industry sectors (Table 1). Four of these organisations are based in country locations, with the remainder in Greater Melbourne.

Table 1 – SMEs interviewed for the study

Sector/business	Stage of e-business take-up	Location	Personnel (n)
Community Services & Health			
Victorian Indigenous Health Centre	New developer	inner Melbourne	50 at 2 sites, plus clinicians
Surfcoast Community & Mental Health	Intermediate	Geelong	33 at 6 sites, plus clinicians
Women's Health East	Advanced	suburban Melbourne	5.5
Culture & Recreation			
Geelong Framers & Art Gallery	Non-starter	Geelong	3
Kimberley Art	Intermediate	inner Melbourne	2.5
Red Gallery	Advanced	Inner Melbourne	3
Food Processing			
Degani Bakery	New developer	inner Melbourne	7.5 plus franchise staff
Gaffney's Bakery	Intermediate	suburban Melbourne	8
Yarram Bakery/ Paul the Pieman	Advanced	Gippsland	10
Transport & Distribution			
Devlin Bros. Transport	Non-starter	Geelong	49 plus 7 contract drivers
Couriers Express	Intermediate	suburban Melbourne	35 plus 150 contractors
Pack & Send	Advanced	Dandenong	2
All industry sectors	12	12	

Interviews were also conducted with senior staff from five e-business consultancies (Table 2). Some of these consultancies specialise in a particular facet of e-business or a specific industry sector, while others have a more general mission and scope. Collectively, they represent a range from large to much smaller operations, based in both metropolitan and regional locations.

Table 2 – E-business consultants interviewed for the study

Consultancy	Specialisation (if any) and services provided	Location	Personnel (n)	Clients (n)
Callista	Tertiary education ??customer relationship management ??tertiary student management systems	Geelong	93	12
Eclipse Group	General e-business services ??systems strategy ??system design and integration	Melbourne	125	30
Internet Vision Technologies	General e-business services ??Internet Service Provider, ??customer relationship management ??e-marketing systems	suburban Melbourne	11	400
KPS Services	SME business systems	suburban Melbourne	4	12
Thinking People	Food, hospitality and events ??e-business facilitation ??e-business coaching	suburban Melbourne	1	10

Of the twelve ‘client’ enterprises interviewed, ten (83%) had an e-business strategy of some kind and at least one computer connected to the Internet, and all but one of them had a website. Most cited the need to provide enhanced customer service as their main reason for adopting e-business approaches, and the use of email for external and internal communication was the most common e-business operation. Online product review, online banking and order placement were also important (Figure 1), with websites used for online marketing and advertising, to improve business operations, and to grow the client base (Figure 2).

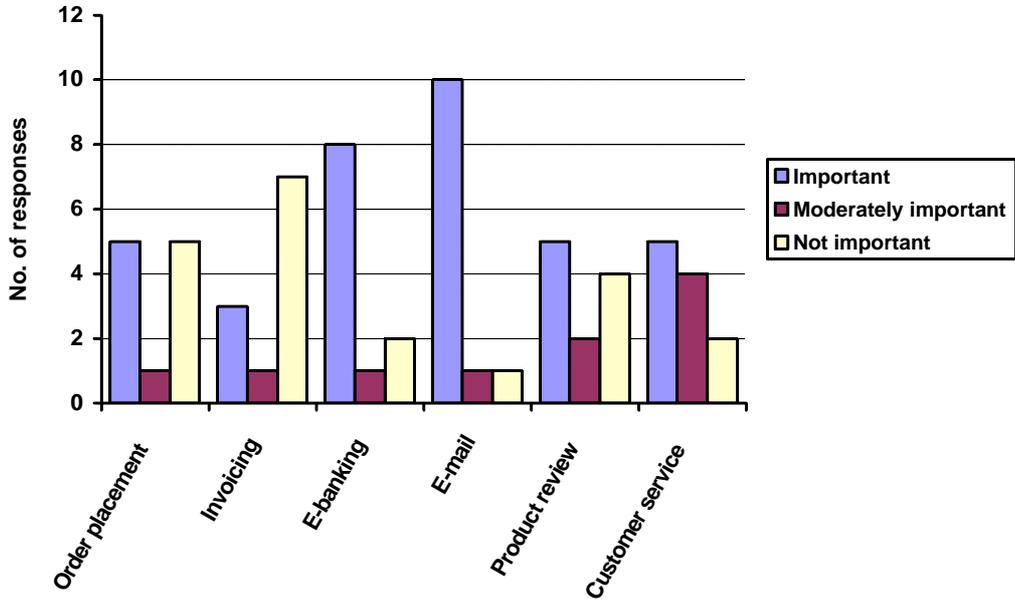


Figure 1 – Relative importance of different facets of e-business activity

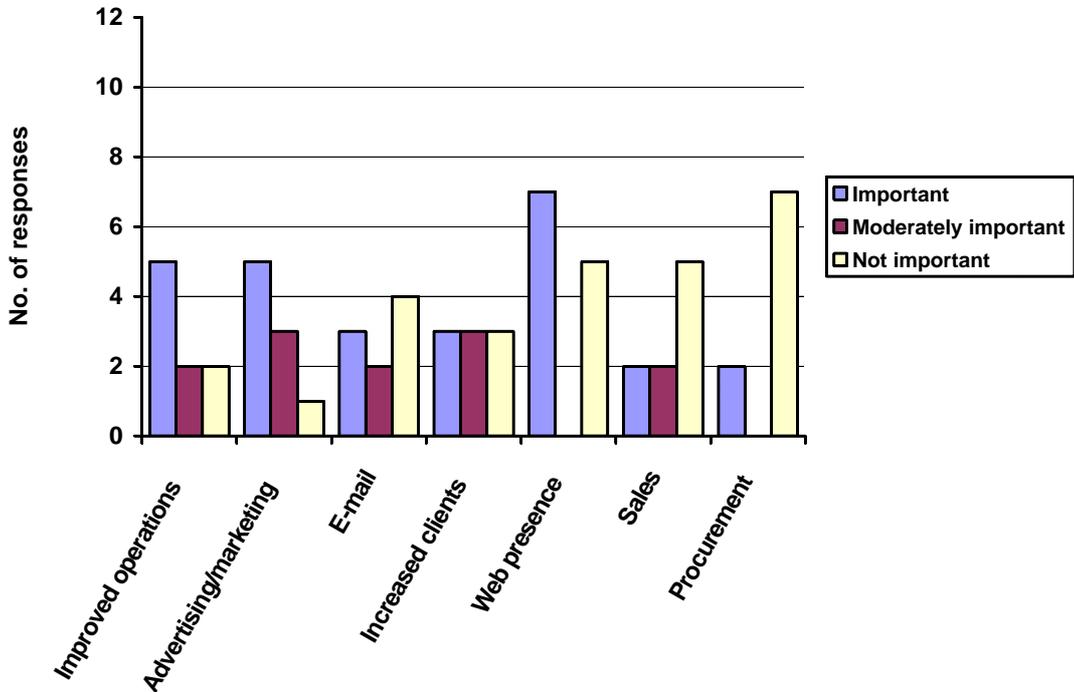


Figure 2 – Relative importance of different facets of website functionality

All of the enterprises that had implemented e-business systems had sought external advice and practical assistance. The vast majority of them (80%) had used private independent advisors – generally IT consultants – as opposed to government agencies. These consultants had invariably been referred through personal contacts. Regardless of their experience with consultants, however, most enterprises acknowledged that they could and should be doing more with e-business. For example, few were exploiting online transaction opportunities, with only two (from the road freight segment) taking online bookings and receiving payments via their website.

Various barriers to e-business growth were identified – especially system maintenance costs and the lack of experienced/trained personnel (Figure 3).

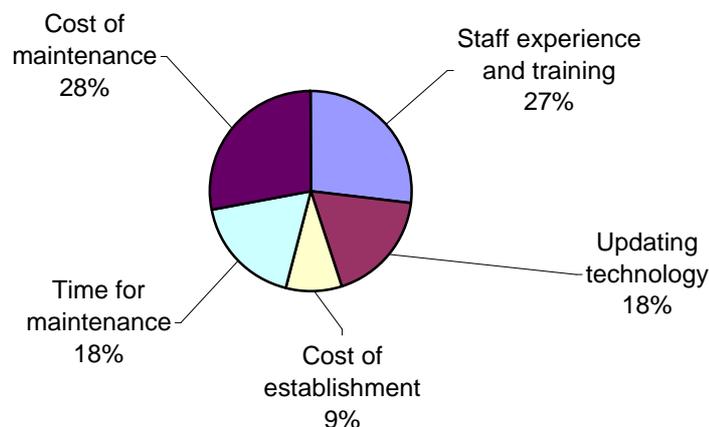


Figure 3 – Barriers to e-business growth.

The consultants interviewed saw things differently. They identified the main threat to SME e-business effectiveness as being senior management’s lack of knowledge and skills in managing e-business adoption, deployment and ongoing development. In particular, SME management was thought to lack the necessary expertise to:

- ?? select an appropriate external e-business adviser, and manage the ongoing partnership
- ?? undertake either strategic or operational e-business planning
- ?? marshal the necessary e-business and ICT skills and resources for system establishment, expansion and ongoing maintenance

Most of the SMEs included in the study used IBM or IBM clone microcomputers, Windows operating environments, and Microsoft software products. Microsoft Outlook was the most common email product. IVT SiteBuilder and Navision were the main software products used for client relationship management, the latter apparently assuming a leadership position in the Transport & Distribution sector.

Only two of the businesses interviewed had no plans for e-business expansion – a regional road freight business that already implemented email and online banking, and a regional commercial gallery that had no plans to implement any form of e-business. These organisations felt that they had little to gain given their lack of desire for business growth, and cost and time constraints.

Training for e-business

In 2001, 59 e-business competencies were endorsed as part of the Business Services Training Package (BSB01). These competencies were packaged into the following specialist e-business qualifications:

- ?? Certificate III in e-Business
- ?? Certificate IV in e-Business
- ?? Certificate IV in e-Business Development
- ?? Diploma of e-Business
- ?? Diploma of Strategic e-Business Development
- ?? Diploma of e-Learning
- ?? Advanced Diploma of e-Business
- ?? Advanced Diploma of Strategic e-Business Development

By 2004, however, few Victorian TAFE institutes were delivering these qualifications, with only the Swinburne TAFE Division offering a full suite of e-business qualifications from Certificate III to Advanced Diploma and beyond. Moreover, little suitable e-business training is available via private providers. While some offer single accredited e-business qualifications, most of these programs have limited applicability because they have been customised to meet the needs of large client businesses or networks. Similarly, most of the many commercial e-business short courses on offer are unattractive to SMEs because they lack accreditation, because they are costly, or because they lack focus or flexibility.

Only one interviewee had ever attended an e-business seminar or any form of e-business training, or had any awareness of the government assistance available for e-business implementation. Moreover, none of the organisations interviewed were members of e-business networks or other networks which support e-business development.

This lack of past or current involvement in e-business networks and training did not prevent the interviewees from expressing enthusiasm for training in the future. All but two of them were desirous of training, with a consensus that e-business training needs to be short, customised and relevant to immediate needs. Suggestions were as follows:

- ?? short courses in general e-business skills, followed by workshops customised to the specific industry sector or business
- ?? training in the use and customisation of client (customer) relationship management software (CRM software)
- ?? online self-paced courses structured so that small portions of training can be completed during downtime at work, or accessed from home
- ?? short workshops (up to one day) delivered onsite or off-site for small groups
- ?? e-business skills training linked into accredited industry specific training
- ?? e-business 'fellowships' for one employee
- ?? e-business training only when a system has been installed, to ensure that learning can be applied immediately.

The system consultants interviewed also emphasised the importance of e-business training, although only one of the five employed certified trainers. Each of them provided training for their existing clients, with requirements identified through individualised business and systems analyses. Most adopted approaches based on 'client-driven collaborative education', with common elements reported to include:

- ?? product and hardware specific workshops for technical staff
- ?? train-the-trainer workshops for delivery to end-users
- ?? paperless supporting documentation
- ?? interactive self-paced tutorials.

DISCUSSION AND RECOMMENDATIONS

Although the sample size was small, data from the present study suggest that the great majority of SMEs are now connected to the Internet, most of them with their own websites. This represents significant growth in recent years, given that ABS data indicated that only 55 per cent of SMEs had Internet access in 2000 (compared with 85 per cent of large businesses at that time).

Less impressive has been the growth in use and diversity of e-business processes, despite the fact that most SMEs cite a desire to improve customer service as the principal driver for introducing web-based technologies and systems. In 2001, for example, according to the July Yellow Pages Survey:

- ?? 27 per cent of SMEs placed orders over the Internet for products and services.
- ?? 24 per cent of SMEs paid for goods and services over the Internet.
- ?? 20 per cent of SMEs took orders over the Internet.
- ?? 14 per cent of SMEs received payments over the Internet.

In the present study, 40 per cent of respondents were placing orders for goods and services online, but only 16% were taking orders and accepting payments online. This suggests that barriers to the adoption of e-business procurement 2001 may still apply today – perhaps associated with a lack of access to knowledge and skills. This is despite the view that even very small (< \$15,000) investments in e-business usually generate useful revenue benefits (*Advancing with eCommerce*; NOIE/Ernst & Young Report, 2001).

Then and now, reasons given for the somewhat limited take-up of e-business by SMEs relate to a lack of access to information and skills, and a lack of practical understanding of the case for e-business. While the inherent issues are complex, they can be broadly defined as falling into four (interrelated) categories: (1) difficulty in quantifying the business case; (2) e-business enabler issues – particularly problems in accessing appropriate training; (3) security and legal considerations; and (4) time and cost issues.

Though the Federal and Victorian Governments have been active in driving SME e-business adoption through awareness campaigns, the results of this and other studies suggest that many Victorian SMEs are isolated from industry networks and unaware of the training opportunities available. It is vital, however, that SME workforce competency is upgraded on an ongoing basis in response to technological innovation, shifts in relative cost relationships, emergence of new customer needs, and other socio-environmental changes (*Vocational Education and Training Priorities in an Innovation Economy*: VLESC Report, 2003).

This VLESC Report also notes the lack of incentive in the profile funding arrangements for TAFE institutes to take up new areas of provision, and this has been reflected in the sector's reluctance to embrace new skill demands and implement curriculum changes. As suggested earlier, although eight e-business qualifications based on a suite of fifty-nine competencies have been endorsed recently, few TAFE institutes deliver the relevant training programs. Furthermore, and perhaps more importantly, there is a marked absence of e-business competencies packaged into other qualifications.

The problem is exacerbated at the industry and enterprise levels, in regard to both generic and specialised e-business skills. Few ITAB training plans identify training needs relating to e-business, although the transport and distribution sector provides an interesting exception because key stakeholders demanded that firms provide accountable, 24 hour service online (*Transport & Distribution Industry Strategic Industry VET Plan 2003 – 2008*). Indeed, the vast majority of calls for tender in this sector seek responses only from organizations with integrated e-business systems (*Transport & Distribution Industry Strategic Plan 2002-2003*).

Interestingly, the lack of ITAB-driven support for e-business training did not prevent the enterprises interviewed in this study from expressing strong interest in e-business training, and clear views about the nature of that training in terms of its focus and delivery. Clearly, the focus for SMEs should be on building knowledge and skills around the processes involved in all aspects of e-business, from concept to end-user, including:

- ?? strategic and operational planning, to build an understanding of the processes of implementing, developing and managing e-business systems
- ?? knowledge and skills, to address the lack of access to staff skilled developing, using and maintaining e-business applications

It is almost impossible to overstate the importance of SME e-business to Australia's standing in the global economy. For example, while business-to-business e-commerce transactions in Australia were estimated to be worth \$6.2 billion in 2001, their value has been tipped to rise to as much as \$87 billion by 2006 (*Australia B2B eCommerce Forecast, 2001 – 2006*; IDC Report, March 2002). Given the growing significance of SMEs in the economy, the need to address their e-business skill and training requirements has assumed paramount importance (Mitchell, J., 2002 *The impact of e-business on Australia's vocational education and training sector*. In: 2nd World Congress of Colleges and Polytechnics: papers. World Federation of Associations of Colleges and Polytechnics).

Recommendations

In the short term – perhaps during the next 12 months, it is recommended that:

- ?? a new short course be developed to educate middle to senior management of SMEs on the processes of business analysis, and the implementation, development and management of integrated e-business systems
- ?? a strong focus on e-business strategic and operational planning be incorporated within current e-business courses, addressing issues relating to the implementation, development and management of integrated e-business systems
- ?? a new short course be developed to educate SME operators in regard to vendor relationship management
- ?? one or more new short courses be developed to educate SME operators in the selection, implementation and customisation of client relationship software (CRM software)

In the longer term – perhaps over the next 2 – 3 years, it is recommended that end user e-business competencies be included in Certificate III and IV courses for all business applications, across the industry sectors. Specific customisations should target key roles within the industry sub-sectors studied – for example, bakery operations, transport administration, art gallery operations and medical reception.

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