Barriers to E-business adoption

Dr. Guillermo Aranda-Mena
Project Partners and Deliverables

Literature review report
Information Booklet
Information Website
5 Case Studies:

- Qld. D. of Main Road
- John Holland
- Building Commission of Victoria
- CH2 - Council Housing Melbourne
E-business environment

Technological Enablers: connectivity, security and interoperability

Organisational and Cultural Enablers

Societal and Economical Readiness

Pre registration
Document exchange
Tendering
Invoicing and Payments
Repairs and Maintenance

Small and Medium Enterprises [SMEs]
Construction Industry [Cl]
Private Client [Priv Client]
Government [Pub Client]
E-business definition

• The undertaking of business related transactions and information exchanges utilising and electronic format and environment (e-MORI 2001).

• The creation of networks that act as electronic supply chain (NOEI 2001)

• The creation of commercial efficiency with subsequent benefits for all stakeholders (Ribeiro 2001).
### E-business Process [NOIE 2003]

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-procurement</td>
<td>Procuring direct or indirect projects, parts, components, materials, plant services, experts and manpower, as well as handling added services. Disseminating and gathering information about projects, components, services or plant.</td>
</tr>
<tr>
<td>e-transactions</td>
<td>Transactions across the space between the buyer and seller in the supply chain involving, projects, parts, components, materials or plant.</td>
</tr>
<tr>
<td>e-logistics</td>
<td>Delivering parts, components, materials, plant, information, energy to the point where they are needed.</td>
</tr>
<tr>
<td>e-collaboration</td>
<td>Facilitates coordination of various decisions and activities beyond transactions among supply chain partners. Collaboration among teams in a virtual space such as collaborative design, planning and project management. Information across business partners such as order, invoices or plans and specifications.</td>
</tr>
</tbody>
</table>
# Levels of e-business adoption by sector [NOIE 2003]

<table>
<thead>
<tr>
<th>Activity</th>
<th>All</th>
<th>Manufacturing</th>
<th>Building &amp; Construction</th>
<th>Retail</th>
<th>Wholesale</th>
<th>Storage</th>
<th>Transport</th>
<th>Services</th>
<th>Business</th>
<th>Services</th>
<th>Personal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Computers</td>
<td>85%</td>
<td>81%</td>
<td>77%</td>
<td>81%</td>
<td>85%</td>
<td>94%</td>
<td>85%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet connected</td>
<td>61%</td>
<td>59%</td>
<td>50%</td>
<td>51%</td>
<td>60%</td>
<td>81%</td>
<td>59%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place orders using the Internet</td>
<td>17%</td>
<td>14%</td>
<td>7%</td>
<td>17%</td>
<td>17%</td>
<td>22%</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make payment on the Internet</td>
<td>12%</td>
<td>11%</td>
<td>6%</td>
<td>11%</td>
<td>10%</td>
<td>15%</td>
<td>12%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive orders using the Internet</td>
<td>15%</td>
<td>14%</td>
<td>6%</td>
<td>15%</td>
<td>25%</td>
<td>15%</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive payment using the Internet</td>
<td>7%</td>
<td>8%</td>
<td>2%</td>
<td>7%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Environmental Constraints / Barriers
[as by project agreement]

These relate to impediments resulting from the nature of
• industrial culture,
• economic structure,
• societal relationships and
• organisational profiles.

These have a direct impact on
• Technology adoption profile
• Procurement process
• Nature of its supply chain and industrial organisation
• Skills and organisational development –
• Audits of technology and skills would show readiness
to organisational uptake of e-business
E-business environment

Technological Enablers: connectivity, security and interoperability

Organisational and Cultural Enablers

Societal and Economical Readiness

Dr. Guillermo Aranda-Mena
Review of official web sites

• Multiple sources – both Nationally and Internationally
• Journal papers
• Conference proceedings
• Official websites
• Review support available including case studies, how to guides and explanations of major issues (such as security)
• Government and corporate reports
  ie: E-MORI, NOIE, OECD, e-Watch, PWCoopers, Eurostats: e-BI
E-Commerce

This section provides information previously provided on the E-Commerce Centre website.

From these pages you can link to sources of information to help you understand and use e-commerce in your business.

If you have any other information that you feel would be valuable or would like to make an enquiry please email Cynthia.Ng@doir.wa.gov.au or call +61 8 9222 5808.
Welcome to the website of the NSW Office of Information and Communications Technology (OICT).

Information and Communications Technology (ICT) is a key priority of the NSW Government. The Department of Commerce through the OICT plays a leadership role in developing and driving whole of government initiatives for the use and management of ICT within government, industry and the community. It is the NSW Government’s lead agency for ICT issues and electronic services.

The role of OICT is to use ICT to foster improved value, customer focused services, and improved processes for government activity.

Please refer to the Strategies section of this site for further information or Contact Us.
Regional public sector

multimedia victoria

eCommerce

Victoria has emerged as Australia’s leader in business-to-business and business-to-consumer eCommerce. High internet usage rates and world-class infrastructure make our state a test-bed for eCommerce companies.

The growth of electronic commerce (eCommerce) is providing opportunities for Victorian companies to expand into new markets and make their operations more efficient.

Multimedia Victoria has a lead role in delivering Victorian Government eCommerce initiatives to boost the uptake of eCommerce in Victoria.

Victoria’s E-commerce Advantage -
a framework for increasing e-commerce uptake

Launched in 2001, Victoria’s E-commerce Advantage is the first e-commerce policy ever produced by a Victorian...
Regional private sector

Welcome to the official site of the Tasmanian Electronic Commerce Centre Pty Ltd

Features

The TECC is the leading provider of electronic commerce assistance to rural, regional and remote Australia. Through its activities, the TECC provides and supports a clear pathway of activity for businesses considering and adopting electronic commerce.

Current Initiatives.
- Launceston Company Set to Lead the Nation in Online Digital Photography
- Tasmanian Dog & Cat Newspapers among $1.8 million in national funding for broadband entertainment
- Broadband Projects Create Digital Magic

Business Tools
- Register to be a part of the Tasmanian IT EC Registry
- Help Sheets
- TCCI Questionnaire
- TECC Online Discussion Forum

Quick Vote
What is the thing you like most about broadband?


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http://www.ebusiness-watch.org/

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The IT Construction Forum

Welcome to The IT Construction Forum

A one-stop source of information and guidance on the benefits of effective use of IT in the UK construction industry.

IT Construction Forum (ITCF) supports companies in the construction sector to make better use of IT in their business and management practices. It is a service of the government-funded Construction Excellence Initiative.

What's New

New case study available to download

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Construct IT For Business has been set up to coordinate and promote innovation and research in IT in Construction in the UK to improve competitive performance of the UK construction industry and to act as a catalyst for academic and industrial collaboration.

This site will allow you to access reports covering the activities and research carried out by Construct IT, presentations from Member’s Meetings, construction IT related updates/bulletins and on-line resources.

If you have any suggestions or comments concerning this website, please e-mail the Webmaster.
Achieving best practice in your business

Communications & IT

How IT and better communications with your customers and suppliers can improve your business. Look out for all the 'New' content in this section.

Topics:
- Internet, e-mail & broadband
- Wireless & mobile
- Security
- Integration

Useful links:
- Practical support
- Business support solutions
- Business Link
- Help
- Contact Best Practice

3 good reasons to register
- A free monthly newsletter
- Our 'Ask an Expert' service
- Interactive business tools

Best practice problem?

http://www.dti.gov.uk/bestpractice/technology/
Generation of a searchable index of some 200 documents on e-business adoption across sectors.

- Academic papers
- Government reports
- Business reports
- General articles and reports
Indexing papers
Content Coding

Barriers to business Internet access 1999 - 2000

At June 2000, an estimated 125,000 businesses with computers did not have Internet access. Of these businesses the top barriers to Internet use were:

- Not suited to nature of business (54% of businesses with computers and no Internet access), down from the 60% reported at June 1999;
- Lack of interest (26%), not identified separately at June 1999;
- Lack of skilled/learning in use of the Internet (23%), 24% at June 1999;
- Costs too high (19%), significantly down from 32% at June 1999, and
- Security concerns (17%), not identified separately at June 1999.

International benchmarking: business online
Global strategies for SME-business: applying the SMALL framework

Emanuel Tetteh and Janice Barn

Introduction
The growth of electronic business has surprised even the most optimistic of forecasters. The US Government Working Group on Electronic Commerce (1999) notes that:

five countries have forecast the economic revival we have experienced. ... When we took office they were only 2.5 million computers connected to the Internet, so worldwide there are 56.2 million. Seven years ago there were fewer than 5 million Americans using the Internet, today the number is over 100 million. When we opened the Electronic Commerce Working Group a mere three years ago the number of consumers connected over the Internet was less than $10 billion; now it is projected to exceed $1 trillion in the next five years (p. 1).

With this astounding growth has come the realization that SMES, comprising, as they do, a very large part of the global economy, and often small scale, e-business, are crucial to continued economic success throughout the world.

Web-based business can be an extremely attractive option for many SMES to extend their customer base into a global market.
The issue is back at the 3D cad - sort of thing - we do not have much engineering in house these days, if we are designing we employ consultants for that purpose. Some are employed in a regular basis some are for specific projects if you like. I suppose the issue is: how we receive the information, on a hard dollar contract? If we receive the information as a IFC database - or whatever - then we are able to extract it and use it. Because of the way we go about planning at the moment, I would say it is less likely to be a tool which focuses on hard dollar contractor like ourselves and would focus more on the designer, the cost planner and at that part of the process. That is where it really adds value. When we get into construction and visualization, he reckons that his company would commission them and science into getting right a
<table>
<thead>
<tr>
<th>Barrier</th>
<th>Boolean query criteria</th>
<th>Number of Documents</th>
<th>Number of Instances</th>
<th>Context for interpretation – this column provides examples on how individual instances from search results were contextualised and en relevance assessed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence / Trust</td>
<td>confidence ^ trust</td>
<td>81</td>
<td>662</td>
<td>“Many privacy concerns stem from a fear of the unknown. Participation in electronic transactions requires a ‘leap of faith’ for many users. Trust is important as customers and SMEs feel they lose control of personal information when using electronic technologies for transactions (Brown 2002). “Lack of confidence and trust contributed to 29% for non-adoption to an empirical survey and 17% were concerned with uncertainties in contract, delivery and guarantees”. (Colto 2001).</td>
</tr>
<tr>
<td>IT skills training / literacy</td>
<td>Skills &amp; (training</td>
<td>84</td>
<td>845</td>
<td>PricewaterhouseCoopers (2001) found that the lack of e-commerce skills and training were the main internal barriers to the deployment of e-commerce in the UK consulting firms.</td>
</tr>
<tr>
<td>Cultural change</td>
<td>Exact term</td>
<td>16</td>
<td>27</td>
<td>Improving staff’s competence can motivate them to work harder and commit to changes. New practices or changes will shake the status quo of the current operations. Without the commitment of staff, new culture cannot be aligned with new common goals and objectives (Cheng and Love 2001).</td>
</tr>
<tr>
<td>Business process change</td>
<td>Process change &amp; change management</td>
<td>11</td>
<td>16</td>
<td>Moving to digital delivery requires new specialist skills such as IT skills and organisational change management skills and internal retraining and updating skills in support of the business transformation (Laidlaw 2001).</td>
</tr>
</tbody>
</table>

Dr. Guillermo Aranda-Mena
### Content Coding

<table>
<thead>
<tr>
<th>Low impact (1)</th>
<th>Value (2)</th>
<th>Value (3)</th>
<th>Value (4)</th>
<th>High impact (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authors’ comments, observations and opinions.</td>
<td>Single and multiple case study results.</td>
<td>Multiple case study results and descriptive survey.</td>
<td>Statement drawn from multiple references.</td>
<td>Survey with statistical significance.</td>
</tr>
</tbody>
</table>

Barrier impact level relationships were then assigned to the following four groups:
- SMEs
- Suppliers
- Contractors
- Consultants
Content Coding

5 Point scale using GridSuite™
Bi-polar relational arrangement:
Level of impact and organisational type.

The level of impact applies in various
degrees according to organisational type.
Outcome:

- Adobe Acrobat Document Index
- Industrial booklet preparation
- Framework to measure against case studies
Industry Information Booklet

- Providing insights into the current nature and use of electronic supply within the Australian Construction Industry [SMEs].
- Aims to inform raise awareness and demonstrate the key issues, concerns and advantages when conducting e-business
- It has a wider perspective on adopting new technologies
- 20-40 pages in length
- Will be sent to 15,000 builders through the Building Commission of Victoria

computers in building & construction
... adopting e-business

Dr. Guillermo Aranda-Mena
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12. Do you want to know more? 29

Q: Is e-business for me?
A: If you want to stay in today’s competitive construction market and create new opportunities for your business and increased value for your clients then you should be considering e-business. You should check out the company case studies of companies who are embracing e-business and who are referred to in Sections 1.2. Do you want to know more?

Q: What are the real benefits for a small business like mine?
A: You can increase your business opportunities and create profit and growth in a simple way. E-business applications will help you strengthen your relationships with other businesses and clients, they can reduce risk for your project and also help you to realise the costs of doing business. In most cases, the electronic files will help you with establishing and processing claims for variation to works and identifying exactly what pricing or specification has changed during the construction period.

Q: Is e-business safe?
A: E-business really isn’t any riskier than traditional ways of doing business. By doing your business electronically all your transactions should be recorded and saved. In Australia, legislation has already been enacted to give electronic communications and digital files the same status as written communications and files at law, which is known as the Electronic Transactions Acts. The Act facilitates e-business in Australia by removing existing legal impediments that may prevent businesses using e-business applications to satisfy legal obligations under the Commonwealth Law. If you use the web based e-business services then the transactions can be secure and service providers automatically secure and backup the project data for you. Details can be found on:

### Getting started

**So how do we get started and how do we ensure that e-business will deliver value to our daily operations?**

We suggest you consider following these steps:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Firstly identify whether your business is an innovator, early adopter or a follower. Businesses in the first two categories are rare, and those in the last group tend to reduce the perceived level of risk by adopting only proven or mainstream processes.</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>Review how customer needs are changing and what operational benefits can be achieved by new business process designs.</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>List all of your major business processes, and rank them in order of importance to your customers and business and by their contribution to the bottom line.</td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td>In doing this identify which of the existing business processes require collaboration and information exchange. For these you will have to consider common information exchange formats and how collaboration will be maintained.</td>
</tr>
<tr>
<td><strong>Step 5</strong></td>
<td>Review the e-business case studies and best practice examples when deciding on which processes will be re-designed.</td>
</tr>
</tbody>
</table>

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**Step 6** | Scan the emerging technologies, as they affect customer needs and customer buying behavior that influence business designs. Eventually these business designs will affect processes which in turn will influence the next generation of technologies and increasing customer satisfaction. |
**Step 7** | Examine the applications existing service providers offer, and the range of existing generic applications, and measure their fit with your specific needs. You probably should do this within your cluster of working associates so that collaboration on projects can be improved. |
**Step 8** | Develop your e-business plan and justification. Ensure that it has a focus on the customer, that it is a plan of action, not a plan of signal form, and it has a forward looking application architecture to enable integration with other systems while reducing |
**Step 9** | Examine your internal skills and abilities to deliver the e-business plan and aim to acquire any skills that cannot be readily found within your business. Of course senior management support and involvement and adequate training of staff are also going to be essential for success of your activities. So make allowances for this within the plan |
**Step 10** | Finally while making certain that you have a narrow focus for each e-business design, ensure that there is an overall strategy in place to move from task oriented to functional then to integrated cross functional applications. |
discussion