ICT Strategy: An SME Perspective

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Prof. Jim Norton
Senior Policy Adviser
UK Institute of Directors
Chair IET IT Sector Panel
External Board Member
Parliamentary Office of
Science & Technology

www.profjimnorton.com

Issues to be covered

- Setting the scene - the impact of exponential growth.
- ICT both benefit and threat?
- IoD Member research results:
  - Uses and applications
  - Challenges
  - Business change not IT change
- Summing up - fertile soil.
The second half of the chessboard


The cost-performance of electronics doubles every 18-24 months (Moore’s Law)

Moore’s Law in Action:
Intel Microprocessors

The family of processors known as Penryn are based on circuits just 45 nanometres wide, reduced from the 65 nanometres of the current generation. Penryn chips will have 820m transistors compared with 580m in the previous 65nm generation and the die size will still be smaller.

Source: Intel & Silicon Image

Moore’s Law v Biology?

Source: Carnegie Mellon University Field Robotics Centre 1997
Opto-electronics follow the same path (Moore’s Law operates in telecoms, too)

Techniques such as Dense Wave Division Multiplexing now allow the transmission of up to 160 wavelengths down one fibre cable, with photonic integrated circuits capable of carrying 1.6Tb/s [Kish07].


Exponential growth in US WAN fibre bandwidth

Source: Cisco & Silicon Image
The cost-performance of magnetic storage doubles roughly every 18 months...


Magnetic disk costs (3.5” platters)

Source: IDC & Silicon Image
Cooper’s law for wireless

Cooper’s Law, (after ArrayComm Chairman, Martin Cooper), states that the number of conversations (voice and data) conducted over a given area, in all of the useful radio spectrum, has doubled every two and a half years for the last 105 years, ever since Marconi discovered radio in 1895.

Source: ArrayComm

But we have seen this before in the context of the telegraph...

Miles of wire in the USA

Source: Tom Standage, The Economist, “The Victorian Internet”
The structure of the economy is changing

- Structural demand for communications and IT
- Cost of basic technologies
- Cost to users
- Short term demand

Source: Analysys

The first half of the chessboard has already delivered some surprises

Microsoft Corporation, 1978
All these devices are now mobile enabled...

...welcome to the world of m-business

We are drowning in data....
Where is the life we have lost in living?
Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?

T S Eliot, Choruses from ‘The Rock’, 1934

And a codicil for the 21st century...
Where is the information we have lost in data?

The amount of information created, stored and replicated in 2006 has been calculated to be 161 Exabytes- equivalent to three million times the information in all books ever written and 20 Gigabytes for every man, woman & child on the planet. That figure is expected to reach 988 billion gigabytes by 2010.

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UK research shows that ICT use is linked to higher productivity

Manufacturing companies in the UK achieve an extra 2.2 per cent in productivity for each additional 10 per cent of employees using computers. In newer firms, this extra productivity effect rises to 4.4 per cent. The effect associated with internet use is greater. Manufacturing companies in the UK achieve an extra 2.9 per cent in productivity for each additional 10 per cent of employees using the Internet. Again, for newer firms the effect is larger.

Source: Office of National Statistics, with London School of Economics and UK DTI
Problem what problem?

  - 18% of projects “failed”; (cancelled before completion)
  - 53% of projects “challenged” (operational, but over budget and/or over time with fewer features or functions than initially specified…

- Typical Standish figures:
  - Cost overruns on 43% of projects; and
  - Time overruns on 82% of projects.

- Oxford University/Computer Weekly 2003 study:
  - 10% of UK projects “failed”; and
  - 75% of UK projects “challenged”.

Source: www.standishgroup.com and Oxford University Computer Weekly study of IT project management, Chris Sauer and Christine Cuthbertson, Templeton College

Not just a historic problem…

![Graph showing project management statistics over time](image)

Source: Standish Group Chaos Chronicles 2007
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Results from our IoD survey...
Results drawn from detailed telephone interviews with a balanced sample of 500 IoD members

Sample by employee numbers (%)

- 1-25: 51%
- 26-50: 11%
- 51-100: 9%
- 101-200: 8%
- 201-500: 6%
- 501+: 15%

Distribution of sample by sector (%)

- Bus & Prof Serv: 39%
- Financial services: 15%
- Distribution & Hotels: 6%
- Govt, Educ, Health & Personal Servs: 17%
- Manufacturing: 10%
- Other, inc. Construction, Mining & Transport: 13%

Source: IoD Dell Report: Small & Medium Enterprises: successful growth through ICT investment Sept.06

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Growth ambitions of SMEs

Do you want to grow your business?
- 2004: 92%
- 2006: 87%
- 2007: 91%

For those who want to grow their business, is the use of ICT a key factor in helping your business grow?
- 2004: 84%
- 2006: 85%
- 2007: 82%

Percentage of SMEs as a whole who see ICT as a key factor
- 2004: 77%
- 2006: 74%
- 2007: 75%


Importance of ICT by organisation size

Investment in ICT is important to organisations of all sizes - only a very weak correlation with size

Source: IoD Business & Technology Report 2007 (to be published)
Key reasons for investing in new ICT

<table>
<thead>
<tr>
<th>Reason</th>
<th>2007</th>
<th>2006</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase productivity</td>
<td>35%</td>
<td>42%</td>
<td>64%</td>
</tr>
<tr>
<td>Increase sales</td>
<td>16%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Competitive pressure</td>
<td>8%</td>
<td>12%</td>
<td>3%</td>
</tr>
<tr>
<td>Save time</td>
<td>8%</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Reduce costs</td>
<td>5%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Reduce risk</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Combination of factors</td>
<td>15%</td>
<td>9%</td>
<td>1%</td>
</tr>
</tbody>
</table>

For Mediumsized organisations, there is little variation from the total figures in 2007. Productivity is cited by 38%, increased sales by 10%, competitive pressure by 8%, time saving by 4% and reducing costs by 7%.


Key tools for SMEs

For Medium sized companies the top four tools are unchanged, but business intelligence systems (4=) and collaboration tools (6th) are rated more highly than for smaller companies.

Source: IoD Business & Technology Report 2007 (to be published)
For medium sized companies the top four tools for saving cost are rather different: Integrated Communications (4.96), Business Intelligence Systems (4.93), Virtual Office (4.85) and Document Scanning & Management (4.69).

Source: IoD Business & Technology Report 2007 (to be published)

For medium sized companies the top four tools for improving efficiency are very similar: Virtual Office (5.15), Total Mobility (5.13), Integrated Communications (5.05) and Business Intelligence Systems (4.92).

Source: IoD Business & Technology Report 2007 (to be published)
Key technologies for future development

For medium sized companies the scores are typically higher but in almost the same order KMS (5.55), IA (5.28), Virtual Communities (4.91), Social Networking 4.85, Web 2.0 (4.72) and Grid Computing (3.82).

Source: IoD Business & Technology Report 2007 (to be published)

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SMEs grow steadily more worried across a range of ICT issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>2007 Result</th>
<th>2006 Result</th>
<th>2004 Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Security</td>
<td>78%</td>
<td>68%</td>
<td>64%</td>
</tr>
<tr>
<td>Business Continuity</td>
<td>74%</td>
<td>71%</td>
<td>54%</td>
</tr>
<tr>
<td>Spam</td>
<td>67%</td>
<td>57%</td>
<td>47%</td>
</tr>
<tr>
<td>Maintenance &amp; Support</td>
<td>57%</td>
<td>43%</td>
<td>41%</td>
</tr>
<tr>
<td>Mobility/Flexible Working</td>
<td>51%</td>
<td>30%</td>
<td>N/A</td>
</tr>
<tr>
<td>Data Storage</td>
<td>47%</td>
<td>48%</td>
<td>27%</td>
</tr>
<tr>
<td>Keeping up with Technology</td>
<td>46%</td>
<td>36%</td>
<td>21%</td>
</tr>
<tr>
<td>IT Training</td>
<td>38%</td>
<td>30%</td>
<td>13%</td>
</tr>
<tr>
<td>Setting up an online presence</td>
<td>37%</td>
<td>29%</td>
<td>12%</td>
</tr>
</tbody>
</table>


Business Continuity is still not receiving enough attention

- 28% of respondents admitted to having no ICT business continuity or disaster recovery plans in place. This was predominately amongst the smallest companies, 1-25 employees (43%), in the Midlands (34%) and in the ‘Distribution & Hotels’ sector (42%).

- Medium sized organisations fare better, only 7% admitted to having no ICT Business continuity or disaster recovery plan in place.

- Of those with Business Continuity plans in place, 90% (92% for medium sized organisations) felt that they were well positioned to survive a disaster (despite the lack of off-site backups by many…)

Source: IoD Dell Report: Small & Medium Enterprises: successful growth through ICT investment Sept 06
ICT Strategy must also encompass protecting the key assets…

- 92% of respondents agreed that they had business critical data stored in their ICT systems…

- For those with business critical data stored, 11% admitted to backing up less than once per week (if at all!). Focused in the smallest companies 1-25 employees (21%) and ‘Distribution and Hotels’ sector (29%).

- For all that back up at least once per week, 51% keep their backups on-site (18% off-site and 31% both off-site & on-site). Worst sector for keeping backups just on-site was ‘Government, Education, Health and Personal Services’ - 72%.

- Medium sized companies are better at backing up (96% back up at least once per week) but still woeful at failing to keep a backup offsite (46% back up on-site only).

Source: IoD Dell Report: Small & Medium Enterprises: successful growth through ICT investment Sept.06

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There is no such thing as an ICT project …

• The purpose of ICT is to enable and support efficient working practices
• Getting these business processes right takes time, consultation and experiment.
• Introducing new business processes takes time and money, and is often disruptive.

In the words of the CSSA/Intellect report “Getting IT right for Government” published in June 2000: “There is no such thing as an IT project in isolation from its business change programme…”

Leadership of ICT enabled business change must be at Board level

Who leads major business change?

- CEO/MD: 62%
- Another Exec Director: 13%
- Finance Director: 5%
- IT Head: 5%
- The Board: 4%
- Others: 4%
- Don't know: 1%

Sectors vary on the degree of Board-level leadership of major change

Leadership by CEO or other Executive Director

Manufacturing
Other, incl. Construction, Mining & Transport
Distribution, Hotels
Business & Prof. Services
Financial Services
Govt, Education, Health & Personal Srvcs.


What is the typical budget split between technology spend 'people' spend in major business change?

'People' spend includes: business process re-engineering, internal communications, training, changes to performance measurement, reward,…

There are significant regional differences in the ‘people’- ‘technology’ split...


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Summing up – fertile soil….

- ICT should be managed as a creator of differentiation and competitive advantage and not simply a cost centre.
- Money spent on new ICT in isolation from a well thought through and resourced business change plan is generally wasted.
- SMEs in general are embracing new technology and applications much more freely than of old.
- Systems previously the preserve of large business, such as Knowledge Management systems and Business Intelligence systems are very much on the SME agenda.
- The new opportunities in areas like virtual worlds and social networking are expected to be of interest.
- Don’t forget that e-business channels often support physical world channels.

And remember the law of unintended consequences….
Questions & Answers

Slides (in portable document format) available to download from:
www.profjimnorton.com/machud1.pdf