New technology deployment in SMEs: towards a process based approach

By

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Paper presented at the 16th International CIRCLE Conference - Digital Intelligence. April 25th and 26th, 2019, University of Gloucestershire, Francis Close Hall, Cheltenham, UK.
Typical SME IT/IS Strategy: TPG DisableAids 2010

Sybiz Vision Service Manager
- Service Management
- Parts / Deliveries

Legrand CRM

Sybiz Vision
- Stock
- Sales Orders
- Purchase
- Invoicing
- Ledgers

Integration
- Bespoke
- API Included

MS Office
- Excel
- Word

Bespoke API Included

Sage Payroll

Fleet

Document Management

Crystal Management Reporting
In 2015, IBM noted “cloud computing, mobility, social business, big data and analytics and IT security technologies are evolving very rapidly”, and that “as these technologies mature and converge, they are demanding a total re-examination of the underlying enterprise infrastructure”

To these six ‘new technologies’ we have added:
Internet of Things
Artificial Intelligence
3-D Printing

Research Questions:
To what extent are companies using these new technologies?
How can they best be incorporated into IT/IS strategy?
Pilot Study

Questionnaires were completed by three companies, asking how they used these technologies now, and how they might use them in the future (in a two year timeframe).

Respondents were also asked to identify their main business processes, to allow some analysis by process.

The three companies were significantly different in size and industry sector. (Aliases – DSG and QuoVad - are used for 2 of these companies)
IT/IS Strategy Formulation: How to assess New Technologies (after Earl)

**Top Down**
- Business Plans & Goals
  - Analytical: Deduction of IS/IT needs by methodology. Identification of CSFs

**Bottom up**
- Current Systems & IT Infrastructure
  - Evaluative: Surveys & audits of current investments in IT/IS to see if they can be improved.

**Inside Out**
- IT/IS Opportunities
  - Creative: Identify opportunities offered by new IT/IS capabilities

STRATEGIC PLAN OF INFORMATION TECHNOLOGY & BUSINESS SYSTEMS
DSG Top-Level Business Process Map

Staff: 146K   Turnover: 35b. euro   Industry sector: Global technology esp. automobile systems
DSG: New Technologies by Process Area (RAG analysis)

Staff: 146K  Turnover: 35b. euro  Industry sector: Global technology esp. automobile systems

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QUOVAD Top-Level Business Process Map

Staff: 150    Turnover: 40m euro    Industry sector: IT project management and consultancy
QuoVad: New Technologies by Process Area (RAG analysis)

Staff: 150  Turnover: 40m euro  Industry sector: IT project management and consultancy

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TPG - Top-Level Business Process Map
Staff: 50  Turnover: £4m.  Industry sector: Equipment for Elderly & Disabled
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TPG DisableAids: New Technologies by Process Area (RAG analysis)

Staff: 50  Turnover: £4m.  Industry sector: Equipment for Elderly & Disabled
Initial Findings: Suggested Guidelines for SMEs

• The technologies warranting a strategic top down assessment are: Cloud and Cyber Security technologies; and probably IoT (extension of network & internet strategies).

• For the other technologies, look at opportunities for tactical gain process by process. Start by looking at the company’s core process, followed by Sales, Marketing and Finance for deployment benefits.

• Do not just focus on the technology. Plan for changes in people skills and competencies, and associated process change.
New technologies deployment

Tactical/opportunistic/bottom-up
## Cyber Security: Establish the People, Process and Technology Dimensions (illustrative)

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<tr>
<th>People</th>
<th>Processes</th>
<th>Technology</th>
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<tr>
<td><strong>Applications security</strong></td>
<td>System access privilege for University systems such as SITS, Agresso, Moodle or even SharePoint</td>
<td>Documentation of the application and the policy for user guide, software procedures</td>
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<td><strong>Information security</strong></td>
<td>Ability to communicate effectively with non-technical staff to educate staff understand why they shouldn’t do certain things. When something goes wrong. Such as receiving phishing emails</td>
<td>Confidentiality, Integrity and availability</td>
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<td><strong>Disaster Recovery planning</strong></td>
<td>Management responsibility for applications, such as SITS, Agresso, Moodle, networking and data centers, information security and cyber treat such as phishing and spoofing emails, account breaches, Ransomware attacks,...</td>
<td>Prevention (defining the problems, make initial assessment, communicate the problem) , detection (develop the possible solution) , response ( recover the systems and report the recommendations)</td>
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<td><strong>Network security</strong></td>
<td>Admin right privilege and awareness of cyber threat (educate users about the threat), network administrator daily tasks</td>
<td>Password, VPN configuration, email server configuration</td>
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Gartner’s peak of inflated expectations for new IT/IS business technologies: QuoVad view

Technology Trigger | Peak of Inflated Expectations | Trough of Dissolution | Slope of Enlightenment | Plateau of Productivity

3-D Printing | Internet of Things | Artificial Intelligence | Cyber Security Technologies | Analytics | Cloud Computing | Social Media | Mobile Apps

Visibility

Source: Gartner, 2002
Gartner’s peak of inflated expectations for new IT/IS business technologies: DSG view

Source: Gartner, 2002
Gartner’s peak of inflated expectations for new IT/IS business technologies: TPG view

Visibility

Cyber Security Technologies

Artificial Intelligence

Internet of Things

Cloud Computing

Big Data

3-D Printing

Analytics

Social Media

Mobile Apps

Technology Trigger

Peak of Inflated Expectations

Trough of Dissolution

Slope of Enlightenment

Plateau of Productivity

Maturity

Original Source: Gartner, 2002
Law of Disruption (after Thomas Mucha)

“Social, political & economic systems change incrementally, but technology changes exponentially”

“Results in dramatic shifts in the possible application of technology in industry”
BUT: Non-Disruptive Creation

“Most companies remain stuck in the mind set that in order to create you must disrupt or destroy. The time has come to fully embrace the idea that you can create without destroying. Non-disruptive creation breaks the existing frame on innovation and growth and allows for a much broader view of how they are generated. It expands the conversation about where real opportunities reside”.

Technology Concepts

Cloud Computing: accessing your systems located externally via the internet.

Social Media: websites and applications that enable users to create and share content or to participate in social networking e.g. Facebook, Twitter

Mobile: using ‘apps’ running on i-pads or smart-phones

Internet of Things: the use of devices and monitors linked to the internet to record data, which can then be stored in your main business systems and data bases.

Analytics: using advanced business intelligence tools to analyse past, present or future situations and possibilities

Big Data the use of large amounts of data usually obtained from external sources to support company reporting and analysis

3-D Printing: using a form of printer to make a physical object from a three-dimensional digital model, typically by laying down many thin layers of a material in succession. A form of industrial production technology

Artificial Intelligence: the use computer systems to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, or decision-making

Cyber Security: the technologies for protecting computers, networks, programs and data from unauthorized access or attacks that are aimed for exploitation