

**University of Portsmouth**

**Award of PhD by Publication**

Candidate

**Martyn Roberts**

November 2016

**Strategic Information Systems:  
Their Contribution to Organisational Performance**



A thesis submitted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy by Publication of the University of Portsmouth

*Dedicated to my wife Christine and daughter Fern*

*My sincere thanks to Ashraf for his encouragement, enthusiasm and support*

## **Abstract**

The body of work presented here makes a substantial contribution to the body of knowledge on **Strategic Information Systems**. It is based on research that has been written-up in fourteen papers that have been presented at conferences and published in peer-reviewed journals over a 20 year period. The issues discussed in the submission are essentially business and organisational issues; they are not technical information systems (IS) development or implementation issues. The work explores the role of IS and their contribution to organisational performance: how organisations use IS and the interrelationship between business strategy and IS strategy. These are strategic rather than technical or operational issues. The work builds on, develops and adds detail/depth to earlier work on the area of strategic information systems that first originated in the late 1980s and early 1990s. In particular it examines three sub-areas within the domain of strategic information systems: the role of IS and organisational growth; issues concerning IS and eCommerce; and the strategic role of IS outsourcing in public sector local government.

The work is essentially of a practical and pragmatic nature. A number of different methodologies have been used to suit the particular research being undertaken: from in-depth case study analysis to questionnaire and interview methods.

As often found in social/management sciences, the data is not 100% conclusive in any one direction. For instance the papers on high-growth organisations were not conclusive that IS had been a major factor in the relevant organisations growth. However, the papers do prove that Information systems are a key factor in organisational performance: they can provide a way of assisting small, start-up organisations achieve growth; they can assist high-growth organisations of staying competitive and they can assist organisations in facilitating business change. It is not the information systems themselves that make a difference, but how the information systems are used. These are the strategic issues.

**Word Count** (excl Abstract & Refs): **10,600**

Table of Contents

Table 1 - List of Published Work ..... 5

List of Illustrations

Figure 1 – Company industrial sector classification of high-growth medium-sized ents ..... 14

Figure 2 – Approaches to the formulation of IS Strategy ..... 19

Figure 3 – Information Systems – Functions and Benefits ..... 20

1 The Journey ..... 6

2 Declaration ..... 8

3 Introduction ..... 9

    3.1 Strategic Information Systems – The Origins .....9

    3.2 Overview of this work .....10

4 Methodology ..... 11

    4.0 Methodological Approach – Research Philosophy ..... 11

    4.1 IS Strategy and Organisational Growth ..... 13

        4.1.1 IS Strategy and Small or Start-up Organisations ..... 13

        4.1.2 IS Strategy and High-growth Organisations ..... 13

    4.2 IS Strategy and eCommerce ..... 15

        4.2.1 IS Strategy and on-line Shopping ..... 15

        4.2.2 IS Strategy and on-line Purchase Delivery..... 15

    4.3 Strategic IS Outsourcing ..... 16

5 Discussion ..... 17

    5.1 IS Strategy and Organisational Growth ..... 17

        5.1.1 IS Strategy and Small or Start-up Organisations ..... 17

        5.1.2 IS Strategy and High-growth Organisations ..... 21

    5.2 IS Strategy and eCommerce ..... 25

        5.2.1 IS and on-line Shopping ..... 25

        5.2.2 IS and on-line Purchase Delivery ..... 25

    5.3 Strategic IS Outsourcing..... 29

        5.3.1 Motivations for IS Outsourcing in Public Sector..... 31

        5.3.2 Management of IS Outsourcing in Public Sector..... 32

6 Conclusion –

    6.1 The Nature and Significance of the work ..... 35

    6.2 Contribution to Knowledge .....37

7 Recent Developments in Strategic Information System ..... 38

8 Lessons Learned ..... 39

9 Future Development ..... 40

10 Contribution to Jointly Authored Publications ..... 41

References ..... 44

Appendices

    A - Complete set of publications

    B – Evidence of Impact & CV

**Table 1 – Listing of Publications on which the submission is based (most recent first)**

No	X ref CV	Year	Theme	Full publication
14	25	2012	Strategic IS Outsourcing	Cox, M., <b>Roberts, M.</b> , & Walton, J., (2012), IT Outsourcing in the Public Sector Local Government: Experiences of the management and selection of IT service providers, <i>Electronic Journal of IS Evaluation</i> , Vol15, No3,
13	24	2012		Cox, M., <b>Roberts, M.</b> , & Walton, J., (2012), Management of IT Outsourcing in Public Sector Local Government, ICIME conference, Ankara, Turkey, April 2012.
12	23	2011		Cox, M., <b>Roberts, M.</b> , & Walton, J., (2011), IT Outsourcing in the Public Sector: Experiences form Local Government, <i>Electronic Journal of IS Evaluation</i> , Vol 14, No 2,
11	22	2011		Cox, M., <b>Roberts, M.</b> , & Walton, J., (2011), Motivations for IT Outsourcing in Public sector Local Government, ICIME conference, Toronto, Canada, April 2011.
10	20	2008	IS Strategy & eCommerce	Xu, M., Ferrand, B., <b>Roberts, M.</b> , (2008), <i>The Last Mile of E-Commerce: Unattended Delivery From the Consumers' and eTailers' perspectives</i> , International Journal of Electronic Marketing and Retailing, Vol 2, No1, ISSN (Online): 1741-1033 - ISSN (Print): 1741-1025, Inderscience Publishers.
9	19	2006		Ferrand, B., Xu, M., & <b>Roberts, M.</b> , (2006, May), Unattended Delivery for On-Line Shopping: An Exploratory Study from the Consumers Perspective, IRMA International Conference, Washington DC, USA.
8	18	2004		Xu, M., & <b>Roberts, M.</b> , (2004), The Internet Shopping Model and Customer Perceptions: A study of UK Supermarkets. In M. Khosrow-Pour (ed.), <i>Chap IV, The Social and Cognitive Impacts of eCommerce on Modern Organisations (pp71-87)</i> . Hersey, USA: Idea Group Publishing,
7	16	2003		<b>Roberts, M.</b> , Xu, M., & Mettos, N., (2003), Internet Shopping: The Supermarket Model & Customer Perceptions, <i>Journal of Electronic Commerce in Organisations</i> , Vol 1 No 2.
6	15	2002	IS Strategy & Organisational Growth	<b>Roberts, M.</b> , Larsen, P., & Tonge, R., (2002), The influence of IS in High-Growth and Super-Growth Medium-sized Enterprises, 12th Annual BIT Conference, Manchester Metropolitan University Nov 6&7 2002, ISBN 0905304438.
5	13	2002		<b>Roberts, M.</b> , & Wood, M., (2002), The Strategic use of Computerised IS by a Micro Enterprise, <i>Logistics Information Management</i> , Vol. 15, No 2.
4	11	2001		Larsen, P., Tonge, R. & <b>Roberts, M.</b> , (2001), Exploring IS Planning in High-Growth Medium-Sized Enterprises", <i>Journal of General Management</i> , Vol. 26, No.3.
3	10	2000		<b>Roberts, M.</b> , Tonge, R., & Larsen, P., (2000, Nov), The Perceptions of Information Systems Managers to the Contribution of Information Systems to the Success of High-growth Medium-sized Enterprises, <i>BIT Conference, Manchester</i> .
2	9	2000		Tonge, R., Larsen, P. & <b>Roberts, M.</b> (2000), IS investment within high-growth medium sized enterprises, <i>Journal of Management Decision</i> , Vol. 38, No 7.
1	6	1997		<b>Roberts, M.</b> , & Wood, M. (1997), The Use of Computerised Information Systems to Gain Strategic Competitive Advantage: The Case of a Startup Manufacturing Company, <i>Logistics Information Management</i> , Vol 10, No 4.  <b>(Winner of MCB Literati Club - Award for Excellence. Award for outstanding paper published in 1997 volume of LIM).</b>

# **1 The Journey**

It's been my life - a journey of learning and discovery. From humble beginnings, it's been a privilege to be given the opportunity to pursue my interests.

25 years ago I joined Portsmouth Business School (PBS), part of [what was then] Portsmouth Polytechnic. I was recruited from industry, where I had been employed in the development of information systems (IS), to bring practical expertise to the delivery of IS modules on business programmes. At the time, the Institution was very much teaching orientated with no great tradition of research - no professors, little research leadership, limited research budget/funding and little incentive to engage in research. Out of approximately 50 staff, only a handful had PhDs. My role was essentially to teach the practical applications of IS. In the first few years my weekly timetable was close to 20hours, and after meetings, preparation, marking, tutoring etc, there was little time left over for research.

However, I felt there was an element in the delivery of IS programmes that was missing, particularly in a Business School context. More my accident, I had stumbled across work on how IS could influence business strategy and competitive advantage. I'd started to include some of this material in my own IS classes. Within a few years, with little formal research training or support, I embarked on my own journey of research; not because I had to or was told to, but because I wanted to.

I would be the first to admit that some of the early work (not included in this submission) was of low quality and received its fair share of critical review by peers. However, it proved valuable and I quickly learnt from the mistakes and the feedback that the work received. Within a few years I was being invited to present output at conferences and submit papers to journals for publication.

Over the next 25 years I:

- a) published regularly;
- b) became a member of conference committees and organised international conferences (UKAIS 2001);

- c) peer reviewed books and academic papers for conferences and journals;
- d) supervised PhD students and have been an internal examiner for a PhD student;
- e) supervised KTP associates working on IS Strategy projects.

In a nut-shell, I would like formal the formal recognition that a PhD provides for the work I have completed and the contribution I have made to the discipline of Information Systems Strategy.

## **2 Declaration**

My application for the award of PhD by Publication is an opportunity to gain formal recognition for the contribution to knowledge and scholarship in the field of strategic information systems that I have made over a sustained period of time. I believe my contribution is equivalent to (and possibly exceeds) that of a candidate following the more orthodox route.

The 14 papers that form the basis of this submission for have all be been published in academic journals, conference proceedings and/or books and have been subject to the double-blind peer review process. In the case of conference papers the candidate has attended the relevant conference and presented the work to an audience of national, and invariably international, scholars. The papers represent a collection of work spanning 25 years.

Whilst registered as a candidate for the award of PhD by Publication, I have not registered for any other research award. The research and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.



## **3 Introduction**

### **3.1 Strategic Information Systems – The origins**

Information Systems pervade virtually all aspects of business and all types of business; IS span organisation; they are the glue which hold organisations together. The idea/concept that information systems (IS) could be used strategically, first started to appear in the mid to late 1980s, with early contributions from authors such as Porter (1985), Rackoff (1985), Lederer (1988), Ward (1988), Wiseman (1988), Earl (1989), Silk (1991), Galliers (1991) and Robson (1994), Monteiro and Macdonald (1996). Until that time IS were viewed strictly as complex electronic machinery to assist in the efficient operational management of an organisation. They were frequently used to automate routine and repetitive processes (eg Payroll). The idea that IS could contribute to the competitive position of an organisation was unheard of, but observers started to notice that organisations such as American Airlines with their SABRE IS, Thompson Holidays with their TOPS IS and American Hospital Supplies order entry IS, were starting to achieve significant competitive positions in their industries as a direct result of the impact of their information systems.

At the time, the study of Information Systems was strictly in the realm of Computer Science, Engineering and even Mathematics departments within universities. Infact the discipline of Information Systems didn't really exist; it was very much *computer science* or *data processing*. The focus was very much on the study of how the machinery worked and how organisations could make efficient use of extremely expensive pieces of computer hardware (eg storage). The thought that the study of information systems was also a business issue was anathema to most universities; most business schools preferring to stick with the traditional disciplines of Finance, Marketing, Economics, Human Resource Management, etc.

## **3.2 Overview of this work**

The overall theme of this submission concerns *Strategic Information Systems*. The 14 papers in this submission focus on business, management and organisational issues; not technical issues. The papers explore issues around how information systems contribute to organisational performance; how IS contribute to organisational growth; how IS can be used in the modern .com (eCommerce) era; and the strategic issues in the different ways IS can be deployed/delivered by organisations (in-house or outsource). They explore issues concerning how small and growing organisations can use information systems. They explore issues on how organisations in both the public and private sector can use IS.

The papers develop ideas first presented in earlier work outlined in section 3.1 that has become enshrined in IS literature. They provide further depth and detail on the key role information systems play in organisations. They expand the body of knowledge on IS, so that it relates not just to organisations that are household names (eg American Airlines), but to ordinary organisations that do not have a high profile.

The papers attempt to demonstrate that ordinary organisations can use information systems strategically. The papers do not focus on technical issues such as the efficiency design of computer software code; they do not focus on the overall analysis and design of information systems; they do not focus on how organisations should implement IS. The papers examine how organisations are using IS as part of their business strategy; how organisations use IS to achieve specific goals (eg growth, internal efficiency, survival). They explore the interplay of business strategy and IS strategy. They explore the ways information systems can contribute to organisational performance. These are the strategic issues.

The papers demonstrate that it is not the information systems themselves, but the way organisations use IS that can make a significant difference to organisational performance.

## **4 Methodology**

### **4.0 Methodological Approach - Research Philosophy**

In terms of an overall philosophy, the research is probably closest to the *Interpretivist philosophy*. Hussey (1997) describes interpretivism as a “broad approach similar to phenomenology”. Phenomenology is concerned with how individuals make sense of the world around them. Interpretivists share the view that the subject matter of the social sciences – people and their institutions - is fundamentally different from the natural sciences (Bryman, 2007). Interpretivists are concerned with deriving, understanding and interpreting the subjective meaning of social interactions. Also, unlike the natural sciences, the social scientist [interpretivist] is not observing phenomena from outside the system, but is inextricably bound into the human and organisational situation that is being studied (Walliman, 2004).

The business and management world is complex and dynamic. This often makes it difficult to adopt a positivist approach that demands large data samples and the use of rigorous quantitative analysis methods that derives law-like generalisations (Saunders et al, 2000). With the Interpretivist approach, the focus is on trying to provide explanations for the reality that we observe and to set it in wider industry and social contexts. Interpretivists accept that the results of their research may not be generalisable to all situations, or that the results may only be valid for a short period of time (maybe just months). That does not make the research less valuable. It acknowledges that it reflects the society and world in which we live.

The research completed for this submission has also been predominantly of a pragmatic and practical nature. The intention in the research was always to explore issues that were of real-world importance and to provide insights and understanding on issues that are of benefit to organisations and industry generally. The research exploited opportunities that presented themselves at the time, often not as part of a well thought out and pre-conceived grand plan, with well-documented deliverables, a set timescale and proper financial

backing. But more as the result of circumstances that came together quickly and required swift action to exploit the opportunity before the window closed. In terms of research methods the research used a mixed approach of different research methods that were appropriate to the issues being explored and that would provide achievable results in the time frame permitted for the research to be completed. Often the objectives were modest, but they were based on what it was felt was achievable with limited resources, and a finite timescale.

The research used relatively small samples where the focus was to provide rich qualitative data. So for instance the research has used case studies, questionnaires and interviews that have produced qualitative data. The skill of the researcher is to interpret the results, identify patterns and provide possible explanations as to what might be happening.

The sections below detail the specific research methodology used in each of the three research topic areas.

## **4.1 IS Strategy and Organisational Growth**

### **4.1.1 IS Strategy and Small or Start-up Organisations**

The two papers here (Nos 1 & 5) are essentially **case studies** of two different organisations: one in the manufacturing sector and one in the service sector. They are the result of observing the organisations in action, gathering documentary evidence on the information systems in use and interviewing key players in the organisations to ascertain the policies and decision making processes. The intention was that from these cases, theory and good practice could be formulated which could be generalised to a wider audience. The research resulted in two journal articles.

### **4.1.2 IS Strategy and High-growth Organisations**

The four papers in this area (Nos 2, 3, 4 and 6) are the result of a **questionnaire survey** distributed to 284 organisations. The Hemmington Scott CD REFS database of companies listed on the UK Stock Exchange was used to identify high-growth medium sized enterprises based on criteria linked to levels of turnover and rates of growth.

In February 1999, questionnaires were mailed out to the IS managers of each of the 284 organisations. To improve response rates, respondents were given the option to complete the questionnaire anonymously. Repeat calls for the return of the questionnaires were made in in June and July 1999.

Of the 284 questionnaires originally mailed, 80 were returned representing a respectable response rate of approximately 30%. However, of these 80, approximately 20 of the responses indicated that the organisation had moved and had no useable data. This left useable batch of approximately 60 questionnaires. The responses covered most of the industrial sector classifications.

From the data we were able to carry out a substantial amount of analysis that resulted in two conference papers and two journal articles.

**Figure 1** – Company industrial sector classification of high-growth medium-sized enterprises  
Insert table

<b>Table 1</b>		
Company industrial sector classification of high-growth medium-sized enterprises		
	<b>Number of companies surveyed</b>	<b>Number of usable responses</b>
Breweries and restaurants	14	5
Building merchants	8	1
Chemicals	5	2
Construction	13	4
Distribution	13	3
Diversified Industries	3	0
Electronic equipment	11	2
Engineering	22	2
Extractive Industries	3	1
Food producers	2	0
Health care	6	1
Household goods, textiles	10	1
Leisure and hotels	13	4
Media	21	2
Oil exploration	6	2
Financial	9	1
Packaging and printing	13	1
Pharmaceuticals	3	1
Property	28	8
Retailers	21	4
Support services	46	8
Telecommunications	3	0
Transport	9	3
Water	2	0
Unknown	N/A	1
<b>Totals</b>	<b>284</b>	<b>57</b>

## **4.2 IS Strategy and eCommerce**

### **4.2.1 IS Strategy and on-line Shopping**

The first two papers, *Internet Shopping: The supermarket model and customer perceptions*, (No 7 in listing); and *The Internet Shopping Model and Customer perceptions* (No 8 in listing) use a mixture of case study and questionnaire methods. The paper examines the different pick-up models used by Sainsbury's & Tesco's. The two companies use different pick-up models, which distinguishes the two types of on-line grocery shopping. The paper uses data collected from the two companies' websites, company internal reports and consultants' reports.

The consumer's perception of traditional and online supermarket shopping is based on a questionnaire survey distributed to electronically to 210 contacts of the authors of the papers. 160 valid responses were received (76% response rate). The questionnaire was initially piloted on 10 persons to ensure clarity and reliability. The results of the pilot study were excluded from the analysis.

### **4.2.2 IS Strategy and on-line Purchase Delivery**

The second two papers, *Unattended Delivery for On-line Shopping: An exploratory study from the Consumers Perspectives* (No 9 in listing), and *The last mile of eCommerce: Unattended Delivery from the Consumers and eTailers' perspectives* (No 10 in listing) used a questionnaires to gauge the delivery processes offered by eTailers in the UK and the perceptions and attitudes towards unattended delivery. Although questionnaires have their limitations (Partington, 2002), they are good at gathering descriptive data and for explanatory research (Saunders *et al* 2000).

Questionnaires were distributed to 150 selected eConsumers via eMail with a follow up call to non-respondents after 5 days. A sample of 125 eConsumers was framed. Consideration was taken to achieve a balance of male/female participation and to gain a balance of age distribution between 15-59 years old. This was the typical UK eConsumer group as suggested by Consumer Knowledge (2004). The questionnaire were initially piloted on 10 consumers and appropriate changes made in the light of

feedback. The final response rate was 71%. Both quantitative and qualitative data was collected. The quantitative data was analysed statistically whilst the qualitative data was cited directly as evidence to reinforce the statistical results.

### **4.3 Strategic IS Outsourcing**

The research methodology for the papers in this section (Nos 11-14) took the form of a multiple case study. Creswell defines a case study as “a single bounded entity, studied in detail, with a variety of methods over an extended period” (Maylor and Blackmon, 2005). Marco-Simo (2007) has argued that we need more real cases before we can generalise the findings.

The case study methodology allows an in-depth examination to develop an enhanced understanding of the subject area and develops areas for further research (Flyvbjerg, 2004). Yin (1984) believes that a single case study is useful in areas that are under-researched and require exploration, whereas multiple case studies are used to test patterns and draw comparisons. The purpose of this research was to explore a complex issue in-depth and to identify some common trends, rather than to present a generalised industry view.

The cases studies themselves are based on four local government councils in the south of the UK. Semi-structured interviews were conducted at local councils. The interviews allowed the authors to explore the interviewees’ experience and attitude towards IS outsourcing.



## **5 Discussion**

### **5.1 IS Strategy & Organisational Growth**

The first set of papers that form part of this submission, published between 1997 and 2002, focused on IS Strategy & Organisational Growth and they can be further subdivided into two areas: IS strategy and small or start-up organisations, and the influence of information systems on high-growth organisations.



#### **5.1.1 IS Strategy and Small or Start-up Organisations**

Many of the early published papers on IS strategy tended to focus on large, well-known organisations (eg American Airlines, American Hospital Supplies; see Wiseman 1988). At the time of writing (late 90s), there was little written on small or start-up organisations and whether they could use IS strategically (after a comprehensive literature review at the time the only two that could be found were: Massey (1996) and Mutch (1993)).

Pragmatically, gaining access to large (maybe FTSE100 or even FTSE250) organisations, although these would have grabbed reader attention, would have

been difficult. For an early career researcher, a smaller organisation offered far greater accessibility, a far greater opportunity to explore ideas and develop skills, and although the output was modest both in terms of quantity and academic esteem/prestige, it offered a much greater chance of producing deliverable results.

The first paper (1997), (No 1 in Listing), *The use of Computerised Information Systems to Gain Strategic Competitive Advantage: The case of a start-up manufacturing company*, was based around an organisation in southern England where I had been fortunate enough to be given access. The company had made a decision very early in its life, to invest heavily in IS. However, more importantly, and what made this company interesting for an organisation with no planning department or middle layer of management, not only had it decided to invest in IS, but it had given explicit thought to the areas *where* it was going to invest (essentially to prioritise) and to how the IS investment was going to contribute to the overall business strategy:

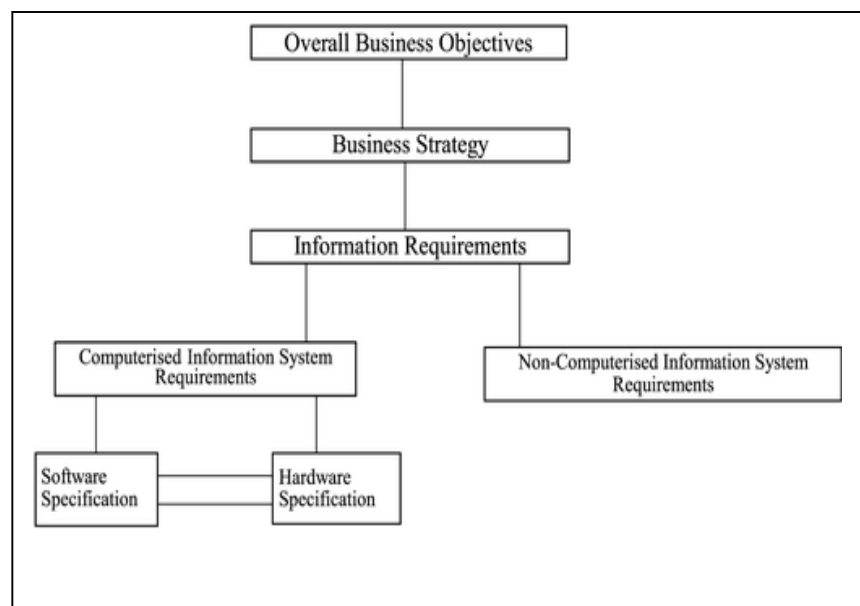
- 1) As a fledgling start-up organisation it knew that cash-flow was critical. It didn't have large financial reserves to survive for long if cash-flow dried up;
- 2) It knew also that quality was critical. It had to be able to manufacture the parts quickly, to the customer's delivery requirements and to the customer's quality tolerances;
- 3) And it knew that it had to go out into the market place and win orders competitively. They had to be able to tender quotes accurately and profitably. It was very easy to under quote, win the order, but ultimately lose money. Accurate information was essential.

So with these three business objectives in mind they set about defining their Information Systems. They were concerned with not only using IS for processing transactions (infact this was the least of their concerns), but with providing the organisation with information that would provide it with competitive advantage. They knew having timely and accurate information on key areas of the business, was

key to the organisation's survival and growth. Without formally acknowledging it, the organisation had developed its own IS strategy.

From the case I was able to develop a simple model that could be used by other small organisations. The case illustrated that even for a small, start-up organisation, information systems can offer competitive advantage if used strategically.

Figure 2 – Approaches to the Formulation of IS Strategy



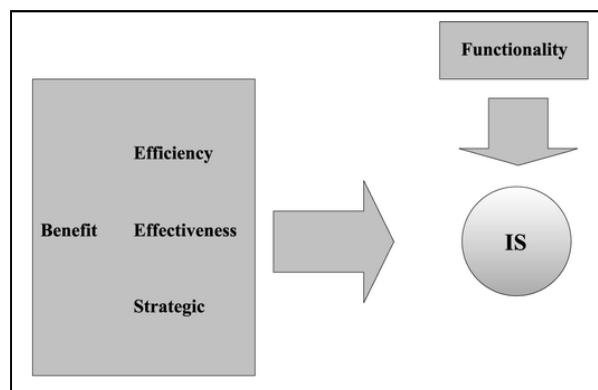
The significance of this paper was recognised with the receipt of a national award, The MCI Literati Club – Awards for Excellence Outstanding Paper 1997, that was presented at a formal academic awards evening in London (see Appendix C).

The second paper in this area (2002) (No 5 in Listing), *The Strategic Use of Computerised IS by a micro Enterprise* was written a few years later. Again it came about as a result of access that was gained to a small start-up organisation, Lanzarote First (LF), this time in the holiday and travel sector. The case presented the opportunity to test and to apply the model that had been developed in the previous case (*The use of Computerised Information Systems to Gain Strategic Competitive*

*Advantage: The case of a start-up manufacturing company*), to assist the organisation in its information systems planning. In many ways, although the two organisations were in different industry sectors, manufacturing and service, their issues were very similar: cash flow (survivability), quality – slightly more difficult to define for a service organisation, but essentially having the right properties available at the right time and of being of high quality, and thirdly being able to offer a competitive pricing strategy to win business (bookings). The paper built on some of the literature on small business (eg Storey, 1995; Dandridge, 1979). Although LF acquired off-the-shelf software, it was the process that they followed and way they used there is to link their business Objectives with their IS requirements that enabled them to gain a foothold in an established market and provide competitive advantage.

The paper went further than the first paper, by building on the work of Senn (1992) defining and differentiating **strategic** benefits from other benefits of IS: Efficiency and Effectiveness. It analysed the benefits and demonstrated that by following a framework and being innovative in the use of IS a micro-enterprise can use IS strategically. The IS do not have to be technologically sophisticated or cutting edge. By combining the many advantages of small business, such as their lack of institutional organisational boundaries and capacity to innovate, the impact of IS may even be greater for a micro enterprise than for a large enterprise.

Figure 3 – Information Systems – Functions and Benefits



### **5.1.2 IS Strategy and High-growth Organisations**

The following four papers (Nos 2, 3, 4 and 6 in listing) written between 2000 and 2002, were the result of a collaborative project undertaken with two colleagues in the Business School: Richard Tonge was a fellow academic working in the accounting and finance area; Povl Larsen, was a research fellow, exploring factors influencing organisational growth. By way of a chance meeting between the three of us, we started discussing the influence of IS on Organisational Growth. Richard and Povl had completed a small amount of work together already, mainly researching organisational financial policies and organisational growth (Larsen et al 1998; Tonge et al 1998). Organisational growth rates had long been the subject of academic study (Clifford and Cavanagh, 1985; 3i, 1993; Todd and Taylor, 1993, et al). We thought it would be useful to explore to what extent Information Systems had influence on organisational growth.

At the time of conducting the research, the generally accepted wisdom (cited by Strassman, 1997) was that there was more or less a direct relationship between spending on IS and organisational performance (the greater the spending, the greater the return!). As a result, business projects which have included an IS investment element, have traditionally been evaluated like other capital investment projects, where costs incurred are directly related to expected revenue streams (Ward & Griffiths 1996).

Attempts to measure the direct correlation between IS spending and any known measure of profitability had proven unsuccessful (Strassman, 1990; Landauer, 1993). Weill (1990) had studied the relationship between investment in IS and organisational performance in 68 medium-sized manufacturing organisations, and had found that where the organisations had identified growth or cost minimisation as critical to business success, the organisations was actually less likely to invest in strategic IS.

**Paper1 (No 2 in Listing)**

The results of our research were interesting. There was no set pattern or correlation that identified relatively high IS investment with high growth, or vice versa, supporting earlier research. However, respondents of the survey with investment in IS at the 2% level of turnover were supportive of this level; those spending more than 2% were dissatisfied, feeling that spending needed to be greater. This was probably a consequence of those being in a sector where IS was already perceived as critical for success.

When asked why the organisations invested in IS responses were “to facilitate change” and for “formal financial investment”. These were closely followed by reasons such as *ad-hoc, act of faith or gut feel*. In the past these organisations had tended to opt for medium risk and medium payoff IS investments. They expressed a desire to move to medium risk, high payoff investments.

**Paper2 (No 3 in listing)**

When analysing the perception of the IS managers in the organisations concerned, they perceived IS as having an important role to play in the contribution of success of their organisations. However, the data would suggest that IS are seen in a predominantly operational context rather than in a strategic context. IS are seen as a way of improving internal efficiency, management decision making and the control of the organisation, but not of providing broader strategic benefits. Perhaps surprisingly, despite the fact that all companies in the survey have achieved high growth, the majority did not see IS as being a way of achieving either short term or long term competitive advantage.

The interpretation of this was that in high growth organisations, IS are not seen as the organisational drivers that earlier studies suggest (Eg Benjamin, 1984). Perhaps IS are seen as enabling other forces such as improving customer services, internal communications and management decision making. Or that IS are seen as a way of staying competitive but not of providing competitive advantage. Perhaps for these organisations which are by definition growing rapidly, keeping on top of day-to-day

operations is of primary importance, and the need to use IS strategically is not required.

***Paper3 (No 4 in listing)***

The third paper of this series investigated the extent to which high-growth medium-sized enterprises engage in information systems planning (ISP) and how ISP links to the strategic planning framework and can, therefore be said to contribute to the success of High-growth Medium-sized enterprises.

Information systems planning gained considerable interest among researchers and practitioners because of the large investments that firms have made in IS and the increasingly strategic nature of the impact of IS on Organisational Performance (Premkumar, 1994).

The evidence from this research is that ISP is ingrained within the operation of High-growth Medium-sized enterprises. IS plans are predominantly for periods up to three years suggesting a medium term perspective is favoured. All the High-growth Medium-sized enterprises engaged in some sort of planning process but not necessarily annually. A slightly higher growth rate was observed for those High-growth Medium-sized enterprises. Which had a planning time horizon of three to five years and involved their finance, management information and production executives.

Generally, however, the use to which ISP systems and methodologies are put would appear to be limited. The situation is reflected in the lack of involvement of Chief Executives and Boards of Directors and the preponderance to adopt a mainly internal focus.

***Paper4 (No 6 in listing)***

The forth paper attempt to examine the influence of IS on High Growth companies by dividing the results of the survey into two distinct categories: High-Growth and

Super-Growth. High Growth companies are those that have compounded annual growth rates based on sales revenue of at least 15%; Super-Growth companies have compound annual growth rates of at least 40% over a three year period.

The conclusion was that SG organisations do not place quite the same emphasis on IS that HG do. IS are important for both organisations, but are relatively less important for SG. The impression is that HG organisations are looking to use IS to help identify needs and to use IS for cost reduction which in turn will improve performance. SG organisations have probably found a recipe for success and are intent on using IS for monitoring and control, to improve management decision making.

### **Conclusion**

The research project generated a large quantity of high quality data. It was subsequently possible to perform a comprehensive and rigorous analysis of the data from a number of different angles. The result of this analysis were four academic papers that were presented at a number of conferences and published in a number of academic journals. In consolidating the work of these four papers, the conclusion was that for high-growth medium-sized companies, information systems were not seen as the front-line drivers that might have been expected. IS were seen as important, but more as an enabling or facilitating technology. The organisations were focussed on using IS mainly for providing efficient internal operations rather than providing external competitive advantage. Perhaps the particular nature of these organisations (ie High-growth) suggested that they had already hit upon a formula for success without IS. For most IS was seen as a way of staying competitive but not of providing competitive advantage.



## **5.2 IS Strategy and eCommerce**

The second set of papers, written between 2003 and 2008, were written in response to the .com phenomenon. They explored a number of strategic Information Systems issues based around the use of the Internet. The papers were based on data sets collected by two students supervised by myself, Nektarios Mettos and Brett Ferrand, as part of their dissertations; a significant component of their degrees (20,000 words). From the dissertations, Dr Mark Xu, a fellow IS lecturer in the Business School, and myself extracted the key messages from the work and took the lead on writing a number of articles for conference, journal and book publication.



### **5.2.1 IS and on-line Shopping**

The first two papers (2003, No7 (journal) & No8 (book) in listing) examined how information systems and in particular the Internet, were affecting a) merchants'/retailers' (ie supermarkets) business models, and b) consumer shopping habits.

Some research had already been completed on the perceived benefits of the Internet to retailers (eg Spar and Bussang, 1996; Poon, 2000). These were completed

in the early days of on-line shopping. They confirmed that online shopping offered retailers the opportunity not only to gain new customers but to improve customer loyalty, analyse customer buying patterns and improve customer services. Our paper examined the two predominant distribution models (the In Store Pick up model and the Picking up centre model – see Figure 2). Our conclusion was that information systems can be used strategically to improve both models. However, the in-store pick-up model appears to be pursuing a strategy of maintaining customer retention and customer loyalty, since it targets customers in the existing market; whilst the pick-up centre model appears to be pursuing a strategy of market expansion, since it targets a group of new customers through minimising the disruption to stores.

The second part of the study, looked at consumer perceptions of the Internet. It found that although a significant number of people will stick to conventional supermarkets because of the social nature of shopping and the need to touch and feel products, there are greater numbers of consumers who see Internet shopping as beneficial, highlighting the convenience and time savings. The major concern is security, both in terms of access to financial sources and privacy of data. Consumers were wary of giving out their credit card details and expressed a lack of confidence in the supermarkets' ability to keep their personal details confidential (*subsequently proved accurate!* see Gibbs, 2014). Difficulty in judging quality and freshness of products and losing social contacts and experiences are also affecting factors preventing people from switching to Internet shopping.

The implications of this study is that supermarkets' eCommerce and information systems strategy needs to be reshaped in the light of better understanding of customers attitudes and perceptions in both traditional and Internet shopping. It was suggested that the current eCommerce strategy adopted by supermarkets could retain a small group of consumers who seek convenience and time savings from Internet shopping and home delivery. In order to gain more Internet shoppers, supermarkets should focus on increasing product variety and improving visualisations of multiple quality dimensions, and providing better offers through reducing price and removing delivery charges. There are a large number of potential

Internet shoppers who are price sensitive and their expectation is that Internet shopping should offer a better deal. In the long term, the success will depend on the development of advanced Internet security protocols (for example secured transaction and payment processing) and an improved IT infrastructure to ease the consumer experience.

### **5.2.2 IS and on-line Purchase Delivery**

The second two papers (Nos 9 (conference) & 10 (journal) in listing), were also written as a result of the .com phenomenon. They concern the issue of purchase/goods delivery resulting from on-line shopping. Waiting for items to be delivered and the failure of scheduled delivery can offset the time savings and convenience of benefits of on-line shopping.

Product delivery for on-line shopping is considered to be an important part of order fulfilment that is becoming more salient to consumers (Cooke, 2004). One of the notable benefits of on-line shopping is the convenience and time saving when compared to traditional shopping (Alreck and Settle, 2002; Roberts *et al* 2003). However, recent studies showed that the convenience and timesaving benefits have not always materialised (Morganosky and Cude, 2002; Annon, 2004).

The findings reveal that most UK consumers want a flexible delivery window prior to eShopping and want to track the delivery process with instant information available. Although most UK consumers prefer low (or even no) charges, paying extra for a better service is not seen as a financial burden. The preferred main delivery location is the consumer's home. Most consumers are against unattended safe boxes; instead they are in favour of using neighbouring houses or collection points such as petrol stations or corner shops. Most busy working families welcomed weekend delivery and out-of office hours delivery.

The implications of the study were as follows. Firstly, eTailers need to be aware that delivery is becoming a significant factor affecting eCommerce. The convenience and time saving benefits of on-line shopping can be offset by increased time in waiting

for delivery. Delivery problems could become a bottleneck for further adoption of eShopping. Secondly, an appropriate delivery models (or a mix of various delivery methods) needs to be developed to satisfy consumers' varying needs. Thirdly, factors that affect eTailers to choose delivery options need to be considered in conjunction with increasing consumer convenience.

Many of the recommendations of this study are now common place in delivery information systems. Most eTailers offer tracking information systems and the IS are often able to offer a range of delivery choices. eTailers realise that having a functional, reliable, easy-to-use IS is of strategic value to the business and consequently invest heavily in them.

## **5.3 Strategic IS Outsourcing**



The third set of papers included as part of this submission, published between 2011 and 2012, focused on Strategic Information Systems Outsourcing. Although IS outsourcing had been well covered in the professional and academic press (see Lacity & Hirshheim (1993); Quin & Hillmer (1995)), most of the literature is on large, well-known organisations predominantly in the private sector. The work here is an attempt, admittedly on a modest scale, to discover the implications of outsourcing for the public sector. Papers were delivered and published at peer-reviewed international conferences and in well-known academic journals.

The use of outsourcing, although not a new phenomenon, has increased in recent years as firms seek to lower costs and increase efficiency. Child (2005) describes outsourcing as the “contracting out of activities that need to be undertaken on a regular basis, which otherwise would be conducted within an organisation”. Kern & Willcocks (2000) define IT Outsourcing as “a decision taken by an organisation to contract out or sell the organisations IT assets to a third party supplier, who in exchange provides and manages assets and services for monetary return over an agreed time period”. Outsourcing has become a significant issues

in the restructuring of organisations and many commentators agree that it is currently one of the fastest-growing and most important activities in business (Burnes & Anastiadiades, 2003; Weinert & Meyer, 2005).

Outsourcing offers numerous advantages. The potential benefits include cost savings, efficiency gains, improved flexibility, access to world-class expertise and the ability to focus on core competencies. However, outsourcing also poses numerous risks that must be managed in order for it to be successful (Kremic, 2006).

Outsourcing is identified in two categories; outsourcing of core value-chain operations and outsourcing of support activities. The core value-chain operation is the outsourcing of supply chain activities such as distribution, whereas outsourcing of support activities includes HRM and facilities management (Child, 2005). Outsourcing initially involved the outsourcing of non-core activities to reduce costs and improve efficiency and had a relatively short-term focus. However, more recently outsourcing has been used more strategically as firms increasingly seek to become more efficient by focusing on areas where they can achieve competitive advantage (DiRomualdo & Gurbaxani, 1998). However, some theorists suggest that you should not outsource your core competency, whilst others argue that it can be difficult to define what is core and non-core. Alexander and Young (1996), cited by Que'lin and Duhamel (2003), distinguish between activities that "are critical to performance" but only support the core and those that actually provide competitive advantage.

This is a notable problem when outsourcing IT because, whilst some consider it a non-core activity, IT is becoming critical to service delivery. The fact that IT is complex and affects all activities within an organisation make it one of the most important activities outsourced (Weinert & Meyer, 2005). Lacity and Willcocks (1995) note that IT changes rapidly and switching costs to new technologies or suppliers can be high because IT demands high investment costs. They suggest this makes IT outsourcing unique compared to the outsourcing of other activities. This will have implications for how IT outsourcing is conducted and managed.

The public sector has followed the trend set by the private sector and IT outsourcing is now one of the most important outsourced activities that by “1996 had led to contracts worth £2 billion” (Lacity & Willcocks, 1997).

The four papers delivered at conferences and published in academic journals examine the issues of IS outsourcing in local government.

### **5.3.1 Motivations for IS Outsourcing in Public Sector**

The first two papers (2011) (No 11 (conference) & No 12 (Journal)) examine the motivations for IS outsourcing. The literature review suggested that private companies are focusing less on cost reductions when outsourcing (DiRomualdo & Gurbaxani, 1998) whereas with local government cost savings remain very important to councils due to budget constraints. However, whilst Child (2005) argues that outsourcing offers “significant, often immediate cost savings”, this was not the case at two of the three councils that outsourced. This is because, as Daly (2001) notes, councils are now focusing on achieving best value and recognise that improving the quality of the service has an impact on price. This research supports Daly (2001) and Vilovsky’s (2008) conclusion that those that focus primarily on cost savings are less successful than those who target more value adding activities. Although Hart et al (1997) argue that cost reductions often take priority because quality is difficult to specify within contracts, two of the three councils that outsourced achieved greater success by balancing cost savings with improving quality to achieve best value (Daly, 2001).

Indeed, whilst Lacity and Willcocks (1997) argue that outsourcing has often fallen short of expectations in the public sector, the three councils that outsourced all noted that outsourcing had improved quality and produced cost savings. This supports Frederick’s (1994) conclusion that CCT has been successful and has produced both cost savings and increased efficiency. However, whilst DiRomualdo and Gurbaxani (1998) argue that private sector organisations are focusing more on the strategic benefits of outsourcing, this research shows that improving quality and reducing costs are the most important reasons to outsource IT at local councils.

The councils, did however, outsource to gain access to external expertise because, as Vilvovsky (2008) observes, IT has become increasingly complicated and councils do not have all the necessary skills in-house. The providers, in contrast, specialise in IT and can call upon a larger pool of skilled workers. However, the councils retained small in-house IT teams with key skills to allow them to develop new ideas and support strategy to reduce their dependence on their provider. Furthermore, recruitment issues are no longer the most important issues at local councils. Although Vilvovsky (2008) argues that the public sector pays lower wages, this research shows that councils are beginning to recognise the importance of IT and are becoming more commercially orientated and therefore willing to offer higher wages to attract the best workers.

Finally, the research shows that significant time and effort needs to be taken to manage the service after outsourcing, and that outsourcing is seen very much as a way of making organizations responsive to business change.

### **5.3.2 Management of IS Outsourcing in Public Sector**

The second two papers (2012) (no 13 (conference) and no 14 (journal)) examine the key issue of *managing* the IS outsourcing contract and the relationship with the outsourcer. Issues such as: Loss of Control, Hidden Costs, Over-dependence on Outsourcer, Security, Staff Morale, Loss of Key Skills and Inflexibility are major concerns to local authorities.

The research shows that a thorough risk assessment must be taken before you enter into outsourcing agreements. The local councils adopt a very cautious approach to outsourcing based on risk minimisation. The research supports Barthelemy's (2003) conclusion that hidden costs are one of the greatest risks when outsourcing. Hidden costs occur in selection, managing the contract, and making changes to the contract, all of which can offset any cost savings during the agreement. Indeed, flexibility can only be gained through outsourcing at extra cost to the council or through the development of trust.



Lacity and Hirschheim (1993) argue that companies need to retain key skills to allow them to effectively evaluate opportunities or move the activity back in-house. The councils, as Barthelemy (2003) recommends, all retained an in-house IT team tasked with monitoring the contract, developing new ideas and focusing on strategy, which enables them to reduce the risk of over-dependence and loss of control. However, these risks were considered less important than the other risks because councils must not become over-dependent and must fully commit to outsourcing for it to be successful. Similarly, whilst Barthelemy (2003) argues that you should not overlook personnel issues, councils do not consider staff morale to be an important risk when outsourcing.

The research shows that there are benefits to the structured selection process that local councils are required to follow. This allows for a more thorough understanding of the outsourcing requirements and results in more informed decisions. Thus, as Maughan (2003) argues, this allows for a “more carefully planned and managed process” and can make the public sector better at managing the outsourcing contract. However, the tender process is also time-consuming and very expensive for councils and providers. Thus, as Burnes & Anastasiadis (2003) comment, the private sector can conduct the process cheaper by approaching the best companies directly.

Barthelemy (2003) argues that selection should not be based solely on cost but also on skill, expertise, flexibility, commitment and trust. The research shows that where the primary focus of selection was price, the results were not achieved. Indeed, as Hart (2008) notes, hidden costs are more likely to occur where councils focus too much on price during selection. However, despite this, contracts are awarded to those who make the lowest bid, as long as they meet the minimum specifications (Burnes & Anastasiadis, 2003). A report from Council B, for instance, noted that the most “economically advantageous” bid should be chosen. Despite this, the councils all reported to focus on best value and noted the importance of both price and capability. The use of references also allows councils to reduce the risks by selecting only those who have had successful agreements in the public sector. This can reduce

the number of companies considered for a contract thus inhibiting the councils' ability to achieve best value but allows the council to be certain of the provider's capability. However, the need for best value and cost efficiency could result in a short-term focus and therefore, as Lin et al (2007) note, this could put councils at a disadvantage to the private sector who do not have to opt for lowest cost and can therefore focus more on long-term goals.

Data from a recent interview with a local government IT manager indicates that IT outsourcing is still being looked at as a way of managing IS, but despite recent political pressure to cut costs in local government generally, IT managers are still very much aware of the dangers of outsourcing and that outsourcing is not always the panacea it is held out to be.

## **6 Conclusion**

### **6.1 - The Nature and Significance of the work**

The 14 papers presented in this submission have made what I believe to be a significant contribution to knowledge. They are not technical IT papers that focus on the development or use of existing or new computer technology. They are not highly theoretical papers. They are papers based on data collected from real organisations and are intended to highlight, analyse and provide insights on issues of real concern to organisations.

They are papers that add to the body of knowledge on how IS impact on organisations, how IS interact with organisational strategy, and how organisations can use IS effectively. They are papers that explore the interplay between organisational strategy and IS strategy. This is what has come to be termed Strategic Information Systems.

The 14 papers have been well received at conferences and they have been accepted for publication in journals after a double-blind peer review process. They have won awards and are frequently cited by others in other publications.

The first set of papers focused on IS strategy and organisational growth and are further subdivided into two sets looking at firstly IS Strategy and small/start-up organisations, and secondly IS and High-growth organisations. The papers on small/start-up organisations (one in the service sector and one in manufacturing) are based on case studies of two organisations that used IS strategically as part of their growth and survival strategies. They provide insights into how even small organisations, which traditionally may not have thought strategically and used IS strategically, are able to use IS as a competitive weapon.

The second sub-set looking at IS and organisational growth were the result of a questionnaire survey distributed to approximately 300 companies that had been identified as high-growth. The results were somewhat surprising in that IS was seen more as an enabling or facilitating technology. The organisations were focussed on using IS mainly for providing efficient internal operations rather than providing external competitive

advantage. Perhaps the particular nature of these organisations (ie High-growth) suggested that they had already hit upon a formula for success without IS. For most, IS was seen as a way of staying competitive but not of providing competitive advantage.

The second set of papers were written between 2003 and 2008, at the time of the .com phenomenon. They explore issues based around IS Strategy and on-line shopping. The papers were based on information gathered from organisations' (Sainsbury's and Tesco's) web sites and on a questionnaire distributed to 150 active on-line shopping users. The papers confirmed suspicions that although internet shopping was seen as beneficial, highlighting savings in time and convenience, there were major concerns over the security of data (both financial and non-financial) and over the delivery of goods. The papers concluded highlighting the need for organisations to improve the on-line shopping experience, develop advanced internet security protocols and an improved IT infrastructure and offer greater flexibility and channels over the delivery of goods. Many of the recommendations in the papers have since become established practice.

The third set of papers, published between 2011 and 2012 focussed on Strategic IS Outsourcing. Traditionally organisations have owned and operated their own information systems. However in recent years there has been a trend for organisations to employ the services of an external organisation to operate the IS on their behalf, an activity normally referred to as outsourcing. Much of the literature on IS outsourcing is based on large well-known organisations based in the private sector. The papers that were published here were based around IS outsourcing with organisations in the public sector.

The papers concluded that reducing costs and improving quality are key issues in IS outsourcing in the public sector along with gaining access to IT expertise. Outsourcing was seen very much as a way of making organisations responsive to business change. However, the local government organisations were concerned with hidden costs; costs that might not be immediately transparent in an outsourcing agreement and that might negatively impact on the contract.

## **6.2 - Contribution to Knowledge**

In summary, this thesis has examined a number of aspects of Strategic Information Systems, looking specifically at how IS contribute to organisational performance. The thesis has built on and developed some of the early work in the discipline (see Intro, P9):

- a) It has extended the early work into areas that had previously received little coverage such as IS strategy and small and/or start-up organisations;
- b) it has explored issues where IS were perceived of being little importance (eg IS and high-growth organisations);
- c) it has provided greater depth on issues that had been under researched (eg IS Outsourcing);
- d) it has influenced organisational thinking on IS strategy issues and provided recommendations that have now been widely adopted by many organisations in the industry (eg the use of drop boxes by supermarkets in the early noughties (yrs 2000+)).

The work has developed new theoretical constructs and models (see P17 & P18). The work has made a significant contribution to the literature in the discipline and is frequently read and cited by others (see Appendix B).

As often found in social science, the data is not 100% clear in any one direction. For instance the papers on high-growth organisations were not conclusive that IS had been a major factor in the relevant organisations growth. However, the papers do prove that IS are a key factor in organisational performance: They can provide a way of assisting small, start-up organisations achieve growth; they can assist high-growth organisations of staying competitive; and they can assist organisations in facilitating business change. It is not the information systems themselves that make a difference, but how the information systems are used.

## 7 Recent Developments in Strategic Information Systems

In recent years there have been significant developments in the technology aspects of IT. For instance, developments in *cloud computing*; developments in *mobile computing* (the label *mCommerce* has displaced *eCommerce*); social media developments that organisations have embraced (Facebook, Twitter, LinkedIn); the ability of organisations to analyse large volumes of data (Business Analytics; Big Data). These developments are sometimes termed the digital transformation.

Recent work by authors such as:

Bharadwaj, et al, (2013); Karimi et al (2015); Fitzgerald et al (2013); Westerman et al, (2014), have focussed on the digital transformation and its impact on organisations;

Lee (2013) and Twentyman (2014), have looked at the impact of social media and how it can be integrated into business strategy;

Breuer et al (2013); Fernandez (2012); Neill (2013) have examined Big Data and Business Analytics issues.

However, many fundamental issues have remained the same. For instance how to integrate an information systems strategy within an overall corporate strategy; how to use IS to innovate; how to measure and evaluate the contribution of IS to organisations; how to manage IT assets effectively; how to determine the role of the CIO?

In 2003, Nicholas Carr wrote an influential article “IT doesn’t matter” published in Harvard Business Review (Carr, 2003). Carr argued that over time, investment in IT, although still important, will cease to deliver a competitive edge to an organisation. As IT becomes commoditised, the ability of one organisation to differentiate itself from another through the use of IT diminishes. Carr has a point, but like many, I would disagree and would maintain the theme of this thesis that it is **how organisations use the technology** that really makes the difference.

## **8 Lessons Learned**

### **1 – Never work alone.**

In the early days I tried to do far too much on my own - I had little alternative. I would advise anyone setting out on a piece of research to involve at least one other person. Work with other researchers, both experienced and inexperienced, but motivated. This gives the stimulation to set and hit deadlines, to determine structures and overall research frameworks and a means to receive critical feedback on the work.

### **2 – Don't be too ambitious**

You're not going to discover gravity or split the atom. Try to think of something that is achievable with modest resources and a realistic time frame. Again in some of my research I've published work that could easily be broken down to a number of sub themes.

### **3 – Set a deadline**

There are lots of places to publish output. Examine target journals and conferences. Look at the conference dates and the dates for submission. Set target that are realistic.

### **4 – Don't be afraid of critical feedback.**

Academics can be ruthless. However, when making comments on research they are trying to give honest, constructive feedback. Some of the comments on my early work were critical and quite sole destroying considering the time I'd invested in writing the work. Consider the comments, think about what the reviewer is trying to say and reconsider your position.

### **5 – Persevere**

If an article is rejected by a conference or journal then don't give up (as I did on one or two early attempts at publications). There are lots of journals and conferences and it may be that you've not found quite the right audience for you work. Take on board the comments and resubmit to another outlet. You may be surprised!

## **9 Future Development**

Information Systems continue to evolve and develop. The technologies that are available today (eg Cloud Computing, Software as Service, ERP Systems, high-speed broadband fibre optic networks, etc) had not been developed when I entered HE 25 years ago. Software is ever more sophisticated and user friendly, and hardware (processors, storage, printers, etc) offer ever greater speed and capacity.

However, this thesis was never about the technology itself. It is about how organisations and businesses **use** the technology. It is about which direction organisations go with IS. It is about whether IS can contribute to an organisation's competitive advantage. It is about how organisations develop a coherent plan for IS and whether they are able to integrate their IS strategy with their business strategy. These are the strategic issues.

These issues are still as relevant today as they were 25 years ago. So in many ways it would be very easy to replicate this study in the context of the latest technology: to what extent can small or start-up organisations use Cloud computing as part of their IS Strategy; can a small organisation implement an ERP system; to what extent can IS contribute to growth in these days of Globalisation?

Future studies could easily pick on new industries that to some extent didn't exist 25 years ago - eg the whole growth in media sector. eCommerce was very much an issue of the noughties, but eTailers are still struggling with issues such as delivery.

And organisations are still looking for the practical output from research. The ability of research to give pointers to best practice and to feed into management and organisational literature.



# **10 Contribution to Jointly Authored Publications**

## **Introduction**

All the publications included in this submission have been jointly authored.

In some of the papers the candidate is the first (lead) author, and in others second or third author. However, although the position of the candidate's name in the sequence of authors varies with each different publication, in all cases the candidate has made a significant contribution to the overall research effort. All the publications are based on research that was very much a team effort, where the candidate took an active part in all aspects of the research process including the research design, the literature review, the data collection & analysis, and preparation of the research output, be it a conference presentation or written journal article.

More specifically:

### **IS Strategy & Organisational Growth**

These early set of papers were written in collaboration with a number of academic colleagues.

The two papers (Nos 1 & 5) with *Wood, M (Mike)* – were written early in my academic career and although I did the bulk of the data collection and analysis, I relied on Mike, a much more experienced academic/researcher, for advice and guidance, and for providing the finesse on the papers.

The four papers (Nos 2, 3, 4 & 6) with *Tonge, R (Richard) and Larsen, P (Povl)* – were the result of a collaborative research project between the three of us. Povl was a research fellow in the Business School at the time, looking generally at the phenomenon of high-growth organisations. Richard was a colleague in my department with a financial background, researching business issues with a financial

element. It was the result of a chance meeting of the three of us where we started to think about the extent to which information systems had influenced organisational growth rates. Together the three of us designed the research based around my knowledge of IS strategy; Povl, as the research fellow, had the time to distribute the questionnaires (pre Internet), make second and third calls to unresponsive recipients and gather together the responses. We were able to collect a significant amount of data and from the data that was collected we were able to identify four different angles that we could write about. We all agreed to take the lead on at least one paper, although, as the instigator of the project, I managed to complete two. At that early stage in my career I was more interested in networking and meeting other researchers in the area, so the two papers where I took the lead were submitted to IS conferences. Povl and Richard were more interested in higher value journal output so took the lead on the papers that were submitted to journals. Although one of the three of us took the lead on each paper, all three of us contributed fairly equally to each paper. So as a rough example of the contributions, it was more the case of 40/30/30 rather than say 70/20/10. The project was very fruitful in terms of output and it was both a valuable and enjoyable learning experience collaborating on a project with other experienced and motivated colleagues.

### **IS Strategy and eCommerce**

These set of papers (Nos 7-10) were written at the time of the .com boom. I was fortunate to supervise two excellent Master's degree dissertations that explored issues around the growth of eCommerce. The two students (Mettos and Ferrand) conducted the primary research as part of the dissertation and which they completed to a high standard. As supervisor, I advised the students on the design of the research including the structure and content of the questionnaires. The students gathered the data. From the dissertations (approx. 20,000 words each) my colleague, Dr Mark Xu, and I wrote the various articles ready for presentation and publication.

### **Strategic IS Outsourcing**

The most recent set of papers (Nos 11-14) were again written as a result of my supervision of a Master's degree student, Michael Cox, who completed an excellent dissertation (awarded a Distinction). As his supervisor, I provided the guidance on the nature and structure of the research and oversaw the data collection, although the student went out and actually gathered the data. The study collected such a large amount of valuable and original data that I felt it was worth disseminating to a wider audience. So from the dissertation (approx. 20,000 words), I was able to identify a number of specific themes and to take the lead on writing the conference/journal publications. My colleague, John Walton, provided additional comment and feedback on the articles.

### **Conclusion**

The papers are as a result of active collaboration with colleagues and students over a number of years. From a research novice, I have sought advice and guidance where necessary, developed my research skills, to the point where I have been able to provide high-quality research guidance to others as evidenced by the production of excellent masters dissertations on which it has been able to produce quality publications.

## References

- Alreck, P.L. and Settle, R.B., (2002), the hurried consumer: time saving perceptions of Internet and Catalogue Shopping, *The Journal of Database Marketing*, Vol 10, No 1.
- Annon (2004), What people want from home shopping, *eLogistics Magazine*, June/July.
- Barthelemy, J., (2003), The seven deadly sins of outsourcing, *Academy of Management Executive*, Vol 17 No 2.
- Benjamin, R.I., Rockart, J.F., Scott-Morton, M.S. and Wyman, J., (1984), Information Technology: A Strategic Opportunity, *Sloan Management Review*, Spring.
- Bharadwaj, A., El Sawy, O.A., Pavlou, P. and Venkatraman, N. (2013), Digital Business Strategy: towards a next generation of insights, *MIS Quarterly*, 37(2).
- Breuer, P, Forina, F., and Moulton, J, (2013), Beyond the hype: Capturing Value from Big Data and Advanced Analytics, McKinsey.
- Bryman, A. and Bell, E., (2007), *Business Research Methods*, 2<sup>nd</sup> ed, Oxford.
- Burnes, B., & Anastasiadis, A., (2003), Outsourcing: a public sector comparison, *Supply Chain Management: An International Journal*, Vol 8, No 4.
- Carr, N., (2003), IT Doesn't Matter, *Harvard Business Review*, May.
- Child, J., (2005), *Organisations: Contemporary Principles and Practice*, Oxford: Blackwell.
- Clifford, D.K. and Cavanagh, R.E., (1985), *The Winning Performance – How America's High-growth Midsized companies succeed*, Sedgewick and Jackson, London.
- Consumer Knowledge, (2004), *Buying On-line: a report by the general consumer council for Northern Ireland*.
- Cooke, J., (2004), Shippers are paying more for last mile deliveries, *Logistics Management*, Vol 43, No 40.
- Daly, G., (2001), *Outsourcing in Government – pathways to value*. [www.accenture.com](http://www.accenture.com).
- Dandridge, T.C., (1979), Children are not little grown-ups: Small Business needs its own Organisational Theory, *Journal of Small Business Management*, Vol 17 No 2.
- DiRomualdo, A. and Gurbaxani, V., (1998), Strategic Intent, for IT Outsourcing, *Sloan Management Review*, Vol 39, No4.
- Earl, M. J., (1989), *Management Strategies for IT*, Prentice Hall.
- Fernandez, J., (2012), Big Companies, Big Data, *Research-Live .com*

- Fitzgerald, M., Kruschwitz, N., Bonnet, D. & Welch, M. (2013), Embracing Digital Technology: A new strategic imperative, Sloan Management Review.
- Frederick, D., (1994), *Why Compulsory Competitive tendering for local government services is not as good as privatisation*. Economic Notes No 52, Libertarian Alliance, London.
- Flyvbjerg, B., (2004), Five misunderstandings about case study research In C. Seale, G. Gobo, J. Gubrium & D. Silverman (eds) ,*Qualitative research Practice* London, SAGE.
- Galliers, R.D., (1991), Strategic Information Systems Planning- Myths, Realities and Guidelines for Successful Implementation, *European Journal of Information Systems*, Vol 1 No 1.
- Gibbs, S., (2014, Feb 14<sup>th</sup>), Thousands of Tesco.com customer accounts suspended after hacker attack, *The Guardian*.
- Hart, M., (2008), Is short-termism holding back public sector outsourcing? Retrieved August 19, 2009, from the Silicon website: <http://www.silicon.com/public/sector/0,3800010403,39273472,00.htm>
- Hart, O., Shleifer, A., Vishny, R.W., (1997), The proper scope of Government: Theory and an application to prisons, *The Quarterly journal of Economics*, Vol 112(4).
- Hussey, J. and Hussey, R., (1997), *Business Research – A practical guide to UG and PG students*, MacMillan.
- Karami, J, Walter, Z. (2015), The role of dynamic capabilities in responding to digital disruption,: a factor-based study of the newspaper industry, *Journal of Management Information Systems*, Vol 32(1).
- Kern, T., and Willcocks, L., (2000), Exploring IT outsourcing relationships: theory and practice, *Journal of Strategic Information Systems*, Vol 9.
- Kremic, T., (2006), Outsourcing Decision Support: a survey of benefits, risks and decision factors. *Supply Chain Management: An International Journal*, Vol 11, No 6.
- Lacity, M.C., and Hirschheim, R., (1993), *Information Systems Outsourcing: Myths, Metaphors and Realities*, Chichester: Wiley.
- Lacity, M.C., and Willcocks, L.P., (1995), Interpreting information Technology Sourcing Decisions from a Transaction Cost Perspective: Findings and Critique, *Accounting, Management and IT*, Vol 5 (3/4).
- Lacity, M.C, and Willcocks, L.P., (1997), Information Systems Sourcing: Examining the privatisation option in USA public administration, *Information Systems Journal*, Vol 7.
- Landauer, T., (1993), *The Trouble with Computers*, MIT Press.
- Larsen, P., Tonge, R., and Ito, M., (1998), The Strategic Planning Process in Growing Companies, *Journal of General Management*, Vol 24, No1.
- Lee, D. (2013), *How Twitter Changed the World, Hashtag by Hashtag*, bbc.com

- Lederer, A.L. and Sethi, V., (1988), the Implementation of Strategic Information Systems Planning Methodologies, *MIS Quarterly*, Sept.
- Lin, C., Pervan, G., & McDermid, D., (2007), Issues and recommendations in evaluating and managing the benefits of Public sector IS/IT outsourcing, *Information Technology and People*, Vol 20, No 2.
- Marco-Simo, J.M., Macau-Nadal, R., and Pastor-Collado, J.A., (2007), *Information Systems Outsourcing in Public Administration: An Emerging research topic*. Paper presented at the European and Mediterranean Conference on IS.
- Massey, T.K., (1986), Computers in Small Business: A case of under-utilisation, *American Journal of Small Business*, Vol 10, No 3.
- Maughan, A., (2003), *Stop laughing and start learning from public sector outsourcing*. Retrieved April 8, 2009, from the Silicon website: <http://comment.silicon.com/0,39024711,10003991,00.htm>.
- Maylor, H., and Blackmon, K., (2005), *Researching Business and Management*. Basingstoke: Palgrave.
- Monteiro, L. and Macdonald, S., (1996), From Efficiency to Flexibility: the Strategic Use of Information in the Airline Industry, *Journal of Strategic Information Systems*, Vol 5 No 3.
- Morganosky, M.A. and Cude, B.F., (2002), Consumer demand for on-line food retailing: is it really a supply side issue? *International Journal of retail distribution Management*, Vol 30 No 10.
- Mutch, A., (1993), Successful use of Information Technology in a Small Tourism Enterprise: the Case of Country Holidays, *Journal of Strategic Information Systems*, Vol 2, No 3.
- Neill, J., (2013), Big Data Demands Big Contexts, HBR.
- Partington, D., (2002), Qualitative and quantitative issues in research design, *Essential skills for Management research*, London: SAGE.
- Poon, S., (2000), Business Environment and Internet Commerce Benefit – a small Business Perspective, *European Journal of Information systems*, Vol 9, No 2.
- Porter, M.E. and Miller, V.E., (1985), How information gives you competitive advantage, *Harvard Business Review*, Vol 63, No 4.
- Premkumar, G., and King, W.R., (1994), Organisational Characteristics and Information Systems Planning: An Empirical study, *Information Systems Research*, Vol 5, No 2.
- Que'Lin, B., and Duhamel, F. (2003), Bringing together Strategic Outsourcing and Corporate Strategy: Outsourcing Motives and Risks, *European Management Journal*, Vol 21, No5.
- Quinn, J.B. and Hillmer, F.G., (1995), *Strategic Outsourcing*, The McKinsey Quarterly.
- Rackoff, N., Wiseman, C., and Ullrich, W., (1985), Information Systems for Competitive Advantage, *MIS Quarterly*, Vol 9, No 4. Dec.

- Roberts, M., Xu, M., and Mettos, N., (2003), Internet Shopping: the supermarket model and customer perceptions, *Journal of Electronic Commerce*, in *Organisations*, Vol 1 No 2.
- Robson, W., (1994), *Strategic Management and IS*, Pitman.
- Saunders, M., Lewis, P., and Thornhill, A., (2000), *Research Methods for Business Studies*, Pitman.
- Senn, J.A., (1992), The myths of strategic systems: what defines true competitive advantage, *Information Systems Management*, Vol 9, No 3.
- Silk, D.J., (1991), *Planning IT: Creating an Information Management Strategy*, Butterworth-Heinemann.
- Spar, D., and Bussang, J.J., (1996), The Net Rules, *Harvard Business Review*, May-June.
- Storey, D.J., (1995), *Understanding the Small Business Sector*, Routledge.
- Strassman, P.A., (1990), *The Business Value of Computers*, The Information Economics Press.
- Strassman, P.A., (1997), Will Big Spending on Computers guarantee profitability?, *Datamation*, Feb.
- 3i, (1993), *Super-leagues Companies – The best of an over-looked sector*.
- Todd, A. and Taylor, B., (1993), The Baby Sharks: Strategies: Strategies of Britain's Super Growth Companies, *Long Range Planning*, Vol 26, No 2.
- Tonge, R., Larsen, P., and Ito, M., (1998), Strategic Leadership in Super-Growth Companies – a re-appraisal, *Long Range Planning*, Vol 31, No 6.
- Twentyman, J., (2014), Escaping the silos: How to Manage Social Media Across the Whole Business, *The Guardian*.
- Vilvovsky, S., (2008), Differences between public and private IT outsourcing: common themes in literature. Proceedings of the 2008 international conference on Digital government research. Montreal, Canada.
- Walliman, N. (2004), *Your Research Project*, Sage.
- Ward, J.M., (1988), Information Planning for Strategic Advantage, *Journal of Information Technology*, Sept.
- Ward, J., and Griffiths, P., (1996), *Strategic Planning for Information Systems*, (2<sup>nd</sup> ed), Wiley.
- Weill, P., (1990), Strategic investment in IT: an Empirical study, *Information Age*, Vol 12 No 3.
- Weinert, S., and Meyer, K., (2005), The evolution of IT outsourcing: From origins to current and future trends. Unpublished paper, University of Wuppertal, Germany.
- Westerman, G., Bonnet, D. and McAfee, A. (2014), *Leading Digital: Turning Technology into Business Transformation*, Harvard Business Review Press.

## Strategic Information Systems: their contribution to organisational performance

Wiseman, C., and Macmillan I., (1984), Creating Competitive Weapons from Information Systems, *Journal of Business Strategy*, Vol 5, No 2.

Wiseman, C., (1988), *Strategic Information Systems*, Irwin.

Yin, R.K., (1984), *Case Study Research: Design and Methods*, California: SAGE