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A “Do-It-Yourself” (DIY) IS Strategic Planning Methodology for SMEs

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Abstract

Modern businesses face increased levels of competitive pressure, a turbulent business environment, and there is ongoing debate as to whether IT can continue to create competitive advantage in the modern era. The study described in this paper is work-in-progress towards a PhD. The primary aim of the research is to examine the relationship between Information Systems Strategic Planning (ISSP) and Enterprise Architectural Practice (EAP), in New Zealand (NZ) enterprises, from both theoretical and empirical points of view, and, if there is significant overlap, explore the feasibility of combining the two activities into a single, coherent process. These issues had not previously been investigated, and the outcomes are believed to be new knowledge. This paper describes the latest research phase: combining ISSP and EAP methods to create a DIY IS strategic planning methodology for small or medium enterprises (SMEs). As SMEs constitute an important sector of most modern economies, this is a potentially significant outcome for small business management and IS practice.

Keywords

Information systems, information systems strategy, information systems strategic planning, small-medium enterprises, SME

INTRODUCTION

Modern businesses face increased levels of competitive pressure, and the following factors will influence the nature and duration of current and future strategic planning: shorter planning and implementation cycles; frequent and rapid environmental changes, possibly with discontinuities; and organization units that extend beyond a single company, such as supply chains or virtual organizations (Wagner 2004).

In addition, the IT sector is going through a period of rapid change, and the rate of change is expected to at least maintain, if not accelerate. Many commentators regard rate of change as a key issue in the sector (e.g. CCTA 1999 11). Changes include rapid emergence of new technologies and superseding of old ones, and deregulation. These pressures have resulted in a need for new approaches to planning and managing IT services.

Within the corporate world and, to a certain extent, government organisations, *IS strategic planning* (ISSP) became pre-eminent, during the 1980s and 1990s. In the latter half of the 1990s, the concept of *enterprise architectural practice* (EAP) became prominent in the US Department of Defense; a trend which has flowed on to government and the commercial sectors. Some distinct similarities between ISSP and EAP are apparent. A preliminary study compared the two approaches and concludes they can be viewed as complementary, rather than mutually exclusive, and there could well be significant benefits in combining elements of both, to produce a new paradigm in IT planning and management (Wilton 2001). The study described in this paper demonstrates that many large organisations are conducting both ISSP and EAP, usually expending significant resources, and most are unaware of the links between the two activities.

This study has been under way since 2004, with progress reported by Wilton (2005, 2007, 2008). The primary aim is to examine the relationship between ISSP and EAP, from both theoretical and empirical points of view, and, if there is significant overlap, explore the feasibility of combining the two activities into a single, coherent process. This paper describes the latest phase of the study: an attempt to combine ISSP and EAP methods to create a DIY methodology for SMEs. Such a methodology could assist in remedying the well-known low incidence of IS strategic planning in SMEs, which was reaffirmed in an early phase of the study.

What constitutes an “SME” is usually determined by the number of staff, and the categorisation of enterprises as *small*, *medium* and *large* varies according to the overall size of the nation, or region (e.g. European Union). Sometimes the term *micro* is used, to denote enterprises with fewer staff than *small*. Regardless of absolute size, SMEs tend to have certain common characteristics: a small, lean, management team (often a single owner/manager); an inherent flexibility (due to the small size); and a tendency to be driven by (rather than shape) their business environments. “Strategy” tends to have a short-term focus for SMEs, and, although IS are still important for achieving business objectives, IS strategy is often neglected, or accorded the same short-term focus as business strategy (Levy and Powell 2005). As SMEs constitute a large proportion of businesses in most nations, an improvement in the incidence and quality of IS strategic planning could well have a significant

impact at a national economic level. This paper will describe the design and evaluation of a DIY IS strategic planning methodology for SMEs.

THEORETICAL UNDERPINNINGS

IS strategy is closely related to business strategy: as stated by Chan and Huff (1992 197) “... business strategy is a discipline especially relevant to strategic IS researchers”. Business strategy can be described as follows: “... the pattern of decisions in a company that determines and reveals its objectives, purposes, or goals, produces the principal policies and plans for achieving those goals” (Andrews 1998 47). The literature review completed as part of the study traces the evolution of business strategy research and practice since its emergence following World War 2, and notes that there have been distinct emphases during various phases of its evolution.

ISSP has followed a similar phased evolution; however, commencing of the order of 20 years later than business strategic planning, due to the relatively recent phenomenon of IT being utilised for business purposes. EAP, being an even more recent discipline than ISSP (in widespread use for of the order of only a decade or less), has not been subjected to such extensive research as ISSP, nor have distinct evolutionary trends emerged.

ISSP

In discussing IT strategic planning, it is important to distinguish between *strategic information systems planning* (SISP) and strategic planning for *all* information systems (ISSP), terms often used interchangeably in the literature. The latter term, referring to the strategic planning of an enterprise’s entire IT resources, is the term used in this paper. This is consistent with the terminology used by Fitzgerald (1993) and Cerpa and Verner (1998).

The Central Computer and Telecommunications Agency (CCTA²⁴) of the UK Treasury denotes the following concerns of ISSP: (CCTA 1988): understanding the aims and objectives of the business, establishing the information requirements of the business, outlining the systems to provide the information, and determining the role of technology in supporting the information systems, agreeing policies and plans to develop and implement the information systems, determining the role and use of resources to achieve the information systems required, and managing, reviewing and evolving the strategy.

There are numerous techniques, or *methods* that have been used for ISSP, including Critical Success Factors (CSF) (Rockart 1979), Business Systems Planning (BSP) (Wiseman 1988), Porter’s Competitive Forces Model (Porter 1980), Porter’s Value Chain (Porter 1985), and Scenarios (Schwartz 1991). Methods can be grouped together to constitute a *methodology*. Methodologies used for ISSP include those of the CCTA (1988, 1999) and Boar (2001).

Many IT vendors and consultancy organizations use proprietary methods and/or methodologies, some of which are adaptations of open source approaches. Examples are Arthur Andersen’s *Method/1* and Coopers and Lybrand’s *Summit* (Lederer and Sethi 1988, Min et al. 1999). It is also well known that organizations often develop their own in-house methodologies, often based on open or proprietary methods or approaches (Earl 1993, Lederer and Sethi 1988).

One open source methodology that has been successfully used for IT strategic planning in the government sectors of Australia, UK and NZ is that of the UK government CCTA (1988, 1999). The basic mechanism is a sequence of actions, grouped into the common-sense phases of:

- Where are we now?
- Where do we want to be?
- How do we get there?

The steps include a detailed inventory and cost model of existing systems, a study of business goals and objectives, and a scan of the environment in which the business will operate. Senior management define a vision of where they envisage the organisation will be at the end of the time “window²⁵” of the study, both from a business and IT perspective. Options for the provision of systems and services are defined, which are evaluated by a high level steering committee, who decide on the (or a small number of) option(s) to be costed and

²⁴ The CCTA is responsible for formulating IT policy, procedures and methodologies for all UK government departments. More recently known as the UK Office of Government Commerce (OGC).

²⁵ Due to the volatility of both the business and IT environments, a window of 3-5 years is fairly typical in a commercial organisation

developed in detail into a strategic plan. The options could include outsourcing, or other innovative approaches to service provision.

In summary, the main strength of the CCTA (or similar) strategic planning methodology is that it gives a methodical, business-driven approach to selecting, funding, operating and managing IT systems. The production of a comprehensive, top-down IT strategic plan represents a low risk approach to any organisation’s requirement to manage its IT infrastructure. The existence of a comprehensive strategic plan will allow the organisation to make informed “what if” decisions, such as evaluating the benefits of outsourcing all or part of its IT infrastructure.

EAP

Many approaches to ISSP include *IS/IT architecture* as a deliverable of the process (e.g. O'Brien 2004, CCTA 1999). However, the scope of “architecture” envisaged in EAP is somewhat more significant – it actually subsumes many of the steps inherent in ISSP.

EAP first became prominent in US government circles. Frameworks include those developed by the US Department of the Treasury (2000) and US Department of Defense (DoD) (1997, 2003). The US Army has developed an extension of the DoD framework, that is described in a separate document (U.S. Army 1998). Non-government approaches to EAP also exist; e.g. those developed by Zachman (1987), and The Open Group (2003).

The underlying purpose of EAP is as follows:

“Architectures are developed to portray the evolution of an IT environment over various points in time, beginning with the baseline, or current situation. ... The architecture envisioned to meet all operational and business requirements is the objective architecture. Migration documents show the progression of architectures from baseline to objective ...” (U.S. DoD 1997 1-2)

A complementary view of the purpose of EAP is as follows:

“Enterprise architecture is a far-reaching concept that comprises the vision, principles and standards that govern the acquisition and deployment of technology. As such, it provides the foundation for detailed data, application and network architectures. An enterprise IT architecture is a key component of a mature IS organisation that enables alignment of business goals, consistent processes and best practice in software reuse.” (Cecere 1998)

The US DoD framework describes the process of defining an EA in terms of the deliverables; that is, the various elements of the operational, systems and technical architectures. It does not describe in any detail the underlying rationale, processes or analysis that should be undertaken to produce the various deliverables:

“The situation is further complicated because the framework does not provide a process for generating the products. Thus, an organization developing an architecture that is compliant with the C4ISR Framework could be faced with an unbounded amount of effort.” (Barbacci and Wood 1999)

The opening paragraph of the C4ISR AF (U.S. DoD 1997 1-1) states that: “the application of the Framework will enable architectures to contribute most effectively to building ... cost effective ... systems”. However, there is no elaboration of this statement into the development of a business case, or costed options, as is integral to CCTA. There is also no indication in C4ISR AF of any specific time window on which the objective architecture should be based. With rapid advances in technology, it may not be possible to specify a firm objective architecture more than 3-5 years ahead.

Theoretical Comparison of ISSP and EAP

A theoretical comparison of ISSP and EAP has been conducted, and the results reported by Wilton (2001, 2005, 2007). The high-level intent of the two approaches is very nearly identical, and the general scope and factors considered during the respective processes are very similar. However, the major difference is that ISSP tends to be process-oriented, with relatively little specification of the deliverables, whereas EAP is rather the opposite. US DoD EA practice (as espoused in U.S. DoD 1997, U.S. DoD 2003) does not attempt to define any business processes or models which could be used to derive cost-effective objective architectures. The use of ISSP methods, which include financial aspects, could remedy this shortfall.

The similarities between ISSP and EAP are reinforced by Beveridge and Perks (2003 12-13) who state:

“In many ways there is synergy between the Enterprise IT architecture and the concepts that embodies ... ISSP. Both provide a medium- to long-term vision and framework within which the IT environment is implemented, including people, structure and technologies. Both the ISSP and enterprise architecture

provide guidelines for systems to be implemented, technologies to be considered, and information to be gained.”

STUDY METHODOLOGY AND SUMMARY OF INITIAL RESULTS

IS is normally regarded as an applied discipline, and a relatively new one, and IS research methods have tended to be adopted from the longer-established disciplines that IS intersects with. Thus, a considerable number of methods and techniques are regarded as valid and appropriate for IS research (Galliers 1994). Mingers (2001) advocates that: “... different research methods (especially from different paradigms) focus on different aspects of reality and therefore a richer understanding of a research topic will be gained by combining several methods together in a single piece of research or research program.”

In the study described in this paper, the following research methodology was adopted: literature reviews of candidate methods, methodologies and approaches including (but not limited to) ISSP and EAP, an exploratory survey of existing ISSP and EAP, to identify usage, success rates, “best-of-breed” methods and tools, case studies of ISSP and EA in selected organisations (to provide in-depth information on ISSP and EAP, and to explore the feasibility and desirability of an improved methodology that combines both approaches) and development of an improved methodology for planning and ongoing management of IT resources in an enterprise. An adapted version of the design science research method was used for this task, which was limited to SMEs only.

This approach meets all four of the criteria defined by Gallivan (1997), and hence the study methodology can appropriately be termed *mixed method*. The following is a brief summary of the key findings of the study.

The Relationship between ISSP and EAP

The survey phase of the study gathered empirical data relating to the relationship between ISSP and EAP. One of the key indicators of the relationship was a hypothesis which examined the overlap of topics between IS strategic plans and enterprise architectures produced by enterprises. This hypothesis was demonstrated to be correct (within the limitations of the survey), indicating a significant degree of overlap.

Another indicator of the relationship between ISSP and EA was a comparison of the ranked lists of objectives for both activities. The primary objective (*align IT with business needs*) was identical for both activities, but there was some variation in subordinate objectives (in particular, *establish technology path and policies* is ranked 2nd in EA, but 4th in ISSP). Apart from this variation, the lists were identical.

In the case study phase, the relationship between ISSP and EAP was explored in greater depth by questions relating to whether organizations saw any overlap, and the potential for combining these activities. In large organizations, which had an ISSP and/or EA (or one under development) the respondents acknowledged the overlap and the potential for combining the two activities. In fact, one organization has already moved towards combination.

The significant overlap between the objectives and contents of ISSP and EAP suggests that there may be confusion about the role and scope of both activities, and this could lead to a risk of duplication of time and resources. One solution would be to combine them into a (conceptually) single activity. This would not preclude a phased approach where different deliverables are produced in separate activities over time.

The empirical data supports the theoretical prediction that there are distinct similarities in the objectives and scope of both approaches (ISSP and EA) and there could well be significant benefits in combining elements of both, to produce a new paradigm in IT planning and management (Wilton 2001). This issue was explored further during subsequent phases of the study.

The Low Incidence of ISSP and/or EA in SMEs

The survey indicated that a very low proportion of NZ SMEs (of the order of 20%) have an ISSP and none have an EA. The fact that around 97% of NZ enterprises are SMEs (N.Z. Ministry of Economic Development 2003, N.Z. Ministry of Economic Development 2005) makes this potentially significant, from an economic perspective. While many SMEs’ IT requirements may be relatively modest or simple, it is likely that a significant number of organisations are not able to utilise the full benefits, nor potential competitive advantage, that modern IT can offer. This may be having a significant detrimental effect on the national economy, but that was outside the scope of this study to determine.

Neither the survey nor the case studies, by themselves, provided explicit, in-depth reasons why the incidence of ISSP and EA is so low in NZ organisations. However, combining the findings from the survey and case studies suggest that the reasons can be categorised as per Table 1.

| Reason for low incidence of ISSP and/or EA in SMEs: | Indicators: |
|--|---|
| Lack of awareness (of the need, or desirability) | Survey: “Didn’t think we needed one” - rated #1 |
| Lack of business motivation | Survey: “Low benefit/cost ratio” and “Insufficient management commitment.” - rated # 2 and #3 Case Study: “...making the business grow is not conducive to leading it. Growth means taking on more staff with all the attendant management problems” |

Table 17 Reasons for low incidence of ISSP and/or EAP in SMEs

According to Levy et al (1999 64): “...few SMEs plan their IS ... the limited planning that is undertaken tends to focus on operational systems to improve efficiency and effectiveness, and there is little concern with competitiveness.” The empirical findings of this study support this contention, in the NZ SME context.

One approach that could alleviate the situation would be the development of a simple, short-duration IS strategic planning methodology that the owners or staff of SMEs can conduct themselves (termed ‘DIY’). This was explored during the final phase of the study and is summarised in the next section.

A DIY IS STRATEGIC PLANNING METHODOLOGY FOR SMES

In the case study phase, the feasibility and essential characteristics, of an improved methodology, combining ISSP and EAP techniques, were determined. For large enterprises, the feasibility was agreed by all respondents, and the essential characteristics were defined. Possible approaches to development of an improved methodology for large enterprises were discussed but time limitations meant this was outside the scope of this study, and will be undertaken as *future research*. The feasibility of a simplified (DIY) methodology for SMEs was also agreed, and the design and evaluation of such is described below.

Methodology Design

One of the issues addressed in the case study phase was whether SMEs saw any benefits in the development of an ISSP methodology that an owner or manager, without a high level of IT knowledge, could carry out by themselves. It was concluded that this idea has merit. The question also sought the required characteristics of such an approach, a consolidated list of which is as follows: be proven to work in practice; able to be performed by a person (or a small number of people) with limited or no IT knowledge; able to be performed quickly (e.g. over a weekend); and include the ability to plan the application of resources in an effective, but efficient, manner.

Another significant finding from the survey and case studies phases was that the choice of ISSP method or EA framework, by enterprises, tends to be based on a *satisficing*, rather than an *optimal* approach (Simon 1977). This is primarily because there is such a large number available (particularly in the case of ISSP). It was concluded that it is not practicable to consider the whole domain of ISSP methods and methodologies and EA frameworks to determine “best of breed” candidates for a DIY methodology. A satisficing approach is more appropriate.

A fairly obvious research method that could be utilised in this phase of the study is *Design Science* (Hevner et al. 2004, Vaishnavi and Kuechler 2004). This involves the systematic design and evaluation of an IT *artefact* using an iterative process. According to Hevner et al (2004 77): “IT artefacts are broadly defined as *constructs* (vocabulary and symbols), *models* (abstractions and representations), *methods* (algorithms and practices) and *instantiations* (implemented and prototype systems).” In this study, the DIY methodology would come under the *methods* category.

However, it was considered that to embark on a full design science approach, with potentially numerous iterations, was outside the scope of a single PhD study, bearing in mind the work that had already been undertaken. A decision was made to produce an initial design for the DIY methodology only, and subject it to some preliminary evaluation, by means of interviews with potential stakeholders (SME owners) and subject matter “experts” (researchers and consultants who work with SMEs). The full development/evaluation cycle will be undertaken as future research. The overall design process adopted was an abbreviated version of that advocated by Vaishnavi and Kuechler (2004) and can be represented by Figure 1 below.

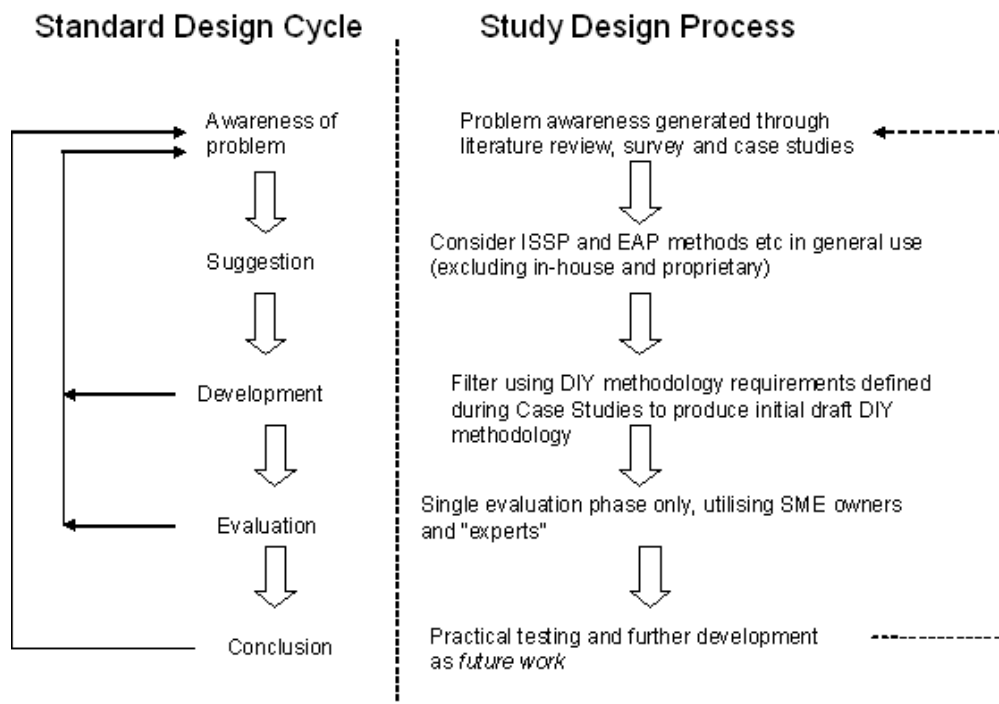


Figure 28 Schematic of Design Cycle (from Vaishnavi and Kuechler 2004)

A brief explanation of the steps in the process is as follows. *Problem awareness* is a standard phase of most problem-solving methods or algorithms; e.g. Simon’s (1977) decision-making model defines this as the “intelligence” phase. It consists of gathering information relevant to the problem under consideration. *Suggestion* involves defining a possible solution to the problem, from the knowledge base or theoretical domain relevant to the problem. *Development* involves the construction of practical artefact that implements the solution. *Evaluation* is the testing of the artefact in the real world to determine its efficacy. After evaluation, the results are fed back and a cyclical process ensues. *Conclusion* is the state reached, normally after several iterations of the cycle, when the artefact is considered to possess sufficient utility to solve the original problem.

Problem awareness related to the DIY methodology was well generated by the literature review, survey and case study phases of the study. The design technique adopted was to review “candidate” ISSP methods, methodologies and EA frameworks which had been identified in the literature review and from the data gathered during the survey and case studies. The requirements for a DIY methodology generated during the case study phase (e.g. the need for brevity, and usability by persons with limited or no IT expertise) were used as a filter in the selection of appropriate techniques. Proprietary techniques were discounted, due to potential intellectual property issues in using them, as were in-house techniques developed by specific organisations, due to the lack of comprehensive knowledge about the circumstances and efficacy of their use.

An initial design was completed, based on the CCTA (1999) three-phase approach (*where are we now? where do we want to be? and how do we get there?*). The methodology description, with supporting rationale, consists of only five pages; however, space limitations prevent its inclusion in this paper. It is available on request from the author.

Evaluation

According to Hevner et al (2004 83): “The utility, quality, and efficacy of a design artefact must be rigorously demonstrated via well executed evaluation methods. Evaluation is a crucial component of the research process.” The evaluation of any IT system or artefact (in this case, a methodology) is essentially a product quality issue. As there is little or no guidance in the literature relating to the assessment of the quality of an IT methodology, it was decided to base evaluation of the DIY methodology on a framework for assessing software quality, which is well known and extensively documented.

Quality is defined as: “... the totality of features and characteristics of a product or service which bear upon its ability to satisfy a given need” (ISO 8402 1994). Obviously, quality applies to the finished *product*, which is the end result of a particular development process, but also applies to the *process* by which the product was developed (CCTA 1990 22).

In the case of the DIY methodology, the main focus is on product quality, as process quality has been largely de-emphasised by the adoption of a satisficing approach. That is, we are not seeking an optimal solution; rather, one that is “good enough”. Therefore, the quality of the process used to develop the methodology is not of crucial importance. (However, it is probably worth re-emphasising that the development process used in this study is based on the well-known design science method.)

Several models have been developed for the specification and measurement of software product quality. These are well summarised by Ortega et al (2003) and include (in chronological order): McCall (McCall et al. 1977), Boehm (Boehm et al. 1978), FURPS²⁶ (Grady and Caswell 1987), ISO 9126 (1991) and Dromey (1996). Ortega et al (2003) provide a brief review of these models and describe the development and testing of a consolidated model that encapsulates the key attributes of each. The key characteristics of the Ortega et al (2003) consolidated model were adapted for use in evaluating the DIY methodology as summarised in Table 2.

| Quality Characteristic | Sub-characteristics (a selection only - included for descriptive purposes) | Relationship to DIY Methodology under evaluation |
|------------------------------|--|--|
| Functionality | Suitability, accuracy, interoperability, security, correctness | Corresponds with the required characteristics: Be proven to work in practice. Includes the ability to plan the application of resources in an effective, but efficient, manner. |
| Reliability | Maturity, recoverability | Not considered relevant, in terms of the normal metrics used for software reliability, such as programming errors per thousand lines of code, mean time between failures etc |
| Usability | Understandability, learnability, operability | Corresponds with the required characteristic: Able to be performed by a person (or a small number of people) with limited or no IT knowledge. |
| Efficiency | Time behaviour, resource behaviour | Corresponds with the required characteristic: Able to be performed quickly (e.g. over a weekend). |
| Maintainability | Analyzability, stability, software maturity attributes | Not considered relevant in this scenario |
| Portability | Adaptability | Can be used by, or adapted to, any SME – this could only be measured over a period of time, involving use in multiple organisations, and is outside the scope of this preliminary evaluation. To be undertaken as <i>future research</i> . |
| Audit and quality management | Auditability | The written IT strategic plan, and supporting documentation, provide an “audit trail” of how the plan was derived; allowing the plan to be adjusted, if changing circumstances so dictate. |

Table 18 Quality attributes framework, adapted for evaluation of DIY methodology (from Ortega et al. 2003)

It was decided to use interviews to undertake a preliminary evaluation of the DIY methodology, as it was considered that more useful feedback would be gained from this method. A semi-structured questionnaire was designed that included questions addressing the relevant quality characteristics listed in Table 2 above. A sample of likely stakeholders was selected, from the following categories: SME owners (preferably those who had participated in the case studies, so that they could provide feedback on whether the methodology met the expectations expressed in the initial interview), consultants involved with business and IT strategic planning in SMEs, and researchers involved with IT usage in SMEs. The first category of stakeholder is a prospective user of the methodology; the latter two categories involve potential subject matter experts, who should be able to analyse the methodology from the viewpoint of their experience and knowledge.

Five interviews were conducted: two with SME owners, two with SME researchers and one with an SME business consultant. All respondents strongly supported the concept of a DIY methodology, and all were largely supportive of the draft methodology itself. One respondent (the SME consultant) expressed a strong desire to start using the methodology with SME clients as soon as possible.

²⁶ An acronym for functionality, usability, reliability, performance and supportability

One reservation that all respondents shared was that the methodology may be too difficult for many SME owners/ managers to work through by themselves, and some sort of assistance may be required. After discussion, it was agreed that running the process in a workshop setting, with a knowledgeable facilitator, should meet this need. (The facilitator would need to be impartial; i.e. not representing any IT vendor or other party with vested interests.) Participants could still work on an IT strategy for their own enterprise, with assistance and advice from the facilitator, so in that sense it is still a “DIY” process (albeit assisted). A set of templates, or worked examples, may also be beneficial. Further development and evaluation of the methodology will be progressed as *future research*.

SUMMARY AND CONCLUSIONS

The concept of a DIY IT strategic planning methodology for SMEs originally arose from the survey phase of this study. There is a very low incidence of IT strategic plans (less than 20%) and zero incidence of enterprise architectures within NZ SMEs. In view of the fact that over 97% of NZ enterprises are small or medium, there is a concern that SMEs may not realising the potential business benefits that IT offers, in the same way that large enterprises seem to be. This was explored further in the case studies phase: all respondents agreed with the concept of a DIY methodology, and a set of required characteristics was defined.

In this latest phase of the study, a DIY methodology was developed, using a *satisficing* approach, and a preliminary evaluation was conducted, using a framework adapted from the software product quality domain. A sample of two SME owners, two researchers and a consultant were asked to evaluate the draft methodology, from a theoretical viewpoint (i.e. without actually using it). The results of the evaluation were very positive: all agreed with the concept, and all were generally satisfied with the draft methodology itself. One common reservation was whether most SME owners or managers would be capable of working through the process on their own, and it was agreed that a workshop approach, with a suitably qualified (impartial) facilitator, may overcome this potential problem. A set of templates, or worked examples, may also be of assistance in this regard.

The SME consultant expressed a strong desire to use the methodology as-is, with SME clients, and this may prove a satisfactory medium for further evaluating and improving the methodology. This will be progressed as *future research*. As far as the author is aware, a DIY IS strategic planning methodology for SMEs had not previously been attempted, and the outcomes potentially represent a potential improvement in IS practice related to SMEs. Any increase in the incidence of IS strategic planning in SMEs is considered to be a significant outcome, as SMEs play an important role in most national economies.

REFERENCES

- Andrews, K. R. (1998), "The Concept of Corporate Strategy" in Mintzberg, H. and Quinn, J. B. (eds.) *Readings in the Strategy Process*, Upper Saddle River, New Jersey.
- Barbacci, M. and Wood, W. (1999). *Architecture Tradeoff Analyses of C4ISR Products*, http://www.sei.cmu.edu/publications/documents/99_reports/99tr014/99tr014chap02.html, Accessed 25 April 2001.
- Boar, B. (2001). *The Art of Strategic Planning for Information Technology*, John Wiley and Sons, New York, NY.
- Boehm, B. W., Brown, J. R., Kaspar, H., Lipow, M., McCleod, G. J. and Merritt, M. J. (1978). *Characteristics of Software Quality*, North-Holland, Amsterdam.
- CCTA (1988). *Guidelines for Directing Information Systems Strategy*, HM Treasury, London.
- CCTA (1990), "Systems Engineering" in Guide B8 (ed). *The Information Systems Guides*, London.
- CCTA (1999). *IS Strategy: process and products*, Format Publishing Limited, Norwich.
- Cecere, M. (1998). *Architecting Architecture*, <http://www.cio.com>, Accessed 1 April 2001.
- Cerpa, N. and Verner, J. M. (1998). Case study: The effect of IS maturity on information systems planning, *Information & Management*, 34, 199-208.
- Chan, Y. E. and Huff, S. L. (1992). Strategy: an information systems research perspective, *Journal of Strategic Information Systems*, 1, 191-204.
- Dromey, G. (1996). Cornering the chimera, *IEEE Software*, January, 33-43.
- Earl, M. J. (1993). Experiences in Strategic Information System Planning, *MIS Quarterly*, 17, 1-24.
- Fitzgerald, E. P. (1993). Success measures for information systems strategic planning, *Journal of Strategic Information Systems*, 2, 335-350.

- Galliers, R. D. (Ed.) (1994). *Information System Research: Issues, Methods and Practical Guidelines*, Alfred Waller, Henley-on-Thames.
- Gallivan, M. J. (1997), "Value in Triangulation: a Comparison of Two Approaches for Combining Qualitative and Quantitative Methods" in Lee, A. S., Liebenau, J. and DeGross, J. I. (eds.) *Information Systems and Qualitative Research*, London.
- Grady, R. and Caswell, D. (1987). *Software Metrics: Establishing a Company-Wide Program*, Prentice-Hall, Englewood Cliffs, NJ.
- Hevner, A. R., March, S. T., Park, J. and Ram, S. (2004). Design Science in Information Systems Research, *MIS Quarterly*, 28, 75-105.
- ISO 8402 (1994). *Quality Management and Quality Assurance - Vocabulary*, ISO/IEC, Geneva.
- ISO 9126 (1991). *Information Technology - Software Product Evaluation: Quality Characteristics and Guidelines for Their Use*, ISO/IEC, Geneva.
- Lederer, A. L. and Sethi, V. (1988). The Implementation of Information Systems Planning Methodologies, *MIS Quarterly*, September 1988, 445-461.
- Levy, M. and Powell, P. (2005). *Strategies for Growth in SMEs: The Role of Information and Information Systems*, Elsevier Butterworth-Heinemann, Burlington, MA.
- Levy, M., Powell, P. and Galliers, R. (1999). Assessing information systems strategy development frameworks in SMEs, *Information & Management*, 36, 247-261.
- McCall, J. A., Richards, P. K. and Walters, G. F. (1977). *Factors in Software Quality*, National Technical Information Service, Springfield, VA.
- Min, S. K., Suh, E. H. and Kim, S. Y. (1999). An integrated approach toward strategic information systems planning, *Journal of Strategic Information Systems*, 8 (1999), 373-394.
- Mingers, J. (2001). Combining IS Research Methods: Towards a Pluralist Methodology, *Information Systems Research*, 12, 240-259.
- N.Z. Ministry of Economic Development (2003). *SMEs in New Zealand: Structure and Dynamics*, http://www.med.govt.nz/irdev/ind_dev/smes/2003/smes-2003.pdf, Accessed 25 February 2005.
- N.Z. Ministry of Economic Development (2005). *SMEs in New Zealand: Structure and Dynamics - 2005*, http://www.med.govt.nz/templates/MultipageDocumentPage_2817.aspx, Accessed 17 May 2006.
- O'Brien, J. A. (2004). *Management Information Systems: Managing Information Technology in the Business Enterprise*, McGraw-Hill, New York, NY.
- Ortega, M., Perez, M. and Rojas, T. (2003). Construction of a systemic quality model for evaluating a software product, *Software Quality Journal*, 11, 219-242.
- Perks, C. and Beveridge, T. (2003). *Guide to Enterprise IT Architecture*, Springer-Verlag, New York.
- Porter, M. E. (1980). *Competitive Strategy: Techniques for Analysing Industries and Competitors*, Free Press, New York.
- Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*, Collier Macmillan, New York, N.Y.
- Rockart, J. (1979). Chief Executives Define their own Data Needs, *Harvard Business Review*, 79.
- Schwartz, P. (1991). *The Art of the Long View: Paths for Strategic Insight for Yourself and Your Company*, Currency/Doubleday, New York.
- Simon, H. A. (1977). *The New Science of Management Decision*, Prentice Hall, Englewood Cliffs, New Jersey.
- The Open Group (2003). *TOGAF as an Enterprise Architecture Framework*, <http://www.opengroup.org/architecture/togaf8-doc/arch/>, Accessed 8 July 2004.
- U.S. Army (1998). *Army Enterprise Architecture Guidance Document*, <http://www.army.mil>, Accessed 1 March 2001.
- U.S. Department of the Treasury (2000). *Treasury Enterprise Architecture Framework Version 1*, <http://www.software.org/pub/architecture/teaf.asp>, Accessed 8 July 2004.
- U.S. DoD (1997). *Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Architecture Framework Version 2*, http://www.c3i.osd.mil/org/cio/i3/AWG_Digital_Library/index.htm, Accessed 30 Jan 2001.
- U.S. DoD (2003). *DoD Architectural Framework Version 1.0*, http://www.teao.saic.com/jfcom/ier/documents/DOD_architecture_framework_volume1.doc, Accessed 17th June 2004.

- Vaishnavi, V. and Kuechler, B. (2004). *Design Research in Information Systems*, <http://www.isworld.org/Researchdesign/drisISworld.htm>, Accessed 19th August 2008.
- Wagner, C. (2004). Enterprise strategy management systems: current and next generation, *Journal of Strategic Information Systems*, 13, 105-128.
- Wilton, D. (2001). The Relationship Between IT Strategic Planning and Enterprise Architectural Practice, *Journal of Battlefield Technology*, 1, 18-22.
- Wilton, D. (2005). *The (Enduring) Role of IS Strategy in Value Creation*, 16th Australasian Conference in Information Systems, Sydney.
- Wilton, D. (2007). *The Relationship between IS Strategic Planning and Enterprise Architectural Practice: a Study in NZ Enterprises*, Information Resources Management Association (IRMA), Vancouver.
- Wilton, D. (2008). *The Relationship Between IS Strategic Planning and Enterprise Architectural Practice: Case Studies in New Zealand Enterprises*, 12th Pacific-Asia Conference on IS, Suzhou, China.
- Wiseman, C. (1988). *Strategic Information Systems*, Irwin, Homewood, Illinois.
- Zachman, J. A. (1987). A Framework for Information Systems Architecture, *IBM Systems Journal*, 26, 454-470.

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