A Strategic Outlook for Managing Information and Communication Technology: An Overview

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Abstract. Increasing investment of capital on Information and Communication Technology (ICT) within corporations has created expectations of optimized return from deployed ICT solutions. That is to say, organizations not only maximize the benefits of adopting ICTs but also avoid the many potential drawbacks and risks of rapid technological change. This paper is concerned with the value of strategic management of ICT solutions – with a focus on maximizing ICT benefits. It is based on a review of previous studies, technologists' and strategists' views and consideration of a number of cases studies within the Canterbury region of New Zealand. The review of case studies confirm that organizations do not vigorously follow strategic planning process. This could be due to perceived complexity and cost of strategic planning for SMEs.

Keywords:strategic management, strategic planning, information and communication technology

1. Introduction

For the last decade, access to information and communication technologies (ICTs) has increasingly played an essential role in both economic and social development. Portfolios of ICT solutions have been introduced to organizations which have contributed towards a significant transformation of corporate business processes and management of business operations worldwide. The competitive imperative of the private sector has driven businesses into the adoption of digital solutions with increasing pace. Many organizations worldwidehave adopted and consider ICTs as being essential for setting up competitive businesses, managing global corporations, adding business value and providing valued products and/or services to their potential markets [15].

Within the last decade, investment on ICTs has become the largest component of capital expenditure (within most organizations). In the United States alone, the capital expenditure on ICT equipment and infrastructure in 2005 estimated to have reached $1.8 trillion ([13] and [14]). The percentage of ICT capital expenditure expanded from 19% (of the total business investments) in 1980 to 35% in 2003 (source: US Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts).

As capital investment on ICT within corporations continues to grow, there is an expectation that ICT managers and strategists optimize the investment on technology. They must not only maximize the benefits that are offered (through the application of ICTs and other technology solutions) but must also avoid the many pitfalls and risks (economical, social and cultural) that are associated with rapid technological change.

The essence planning for ICTs is seen as providing an opportunity to maximize return on ICT investment. Within the past few years, numerous academics, theoreticians and strategists have developed and proposed frameworks and models to guide the process of organizational strategic planning for technology. However, it is unclear whether organizations actually consider formal processes and/or frameworks when they plan for the use of ICTs.

In this paper, it is intended that firstly an understanding of the strategic role/value of ICT solutions and current trends concerning the process of developing ICT plans within organizations is developed. Secondly, the effectiveness (e.g. optimizing investment on ICTs) of strategic planning for ICTs is addressed. Finally, a discussion of reality of planning practices versus proposed models and frameworks is addressed.

2. An Overview of Planning for ICT Solutions: A Strategic Approach

As discussed earlier, increased investment in ICTs has resulted in challenges faced by ICT directors and strategists - as they are required to not only justify investments on ICTs but also maximize the benefits that are offered through the application of technology. The success in maximizing return on ICT investment is often achieved through strategic management of ICT solutions and preparing strategic ICT plans.

Successful corporations depend on strategic ICT plans that map their key performance areas to organization's broad business objectives. In general, if an organization aligns the use of technology with enhancing and fine tuning operational functions, then managing ICT strategically implies that the ICT strategic plan complements and strengthens strategic operational plans (SANGONet, 2001). Within most organizations, these two plans represent the overall corporate strategic plan.

Managing IT strategically implies (e.g. [2], [3], [4], [6], [7] and [21])an integrated and holistic approach to managing work. In this paper, we view the key objective of ICT strategic planning as being "to ensure that organization's need for information determines its framework for the management of ICTs" ([16] and [21]).

Most academics, theoreticians and strategists suggest that strategic planning process for ICT can involve three phases – namely, strategic analysis, choice of strategies and strategy implementation (e.g. [3], [5], [8], [9], [17] and [18]). They suggest that the outcome of this three-cycle process should preferably be a hierarchy that specifies mission, goals, strategies, policies, decisions followed by an operational and/or action plan. This hierarchy itself is often referred to as a framework/model for strategic planning.

Regardless of the approach that is undertaken to develop an ICT strategy plan, different organizational culture (e.g. cost advantage, innovation, differentiation and growth) and forces that drive business strategies (e.g. centrally planned, monopoly, leading edge and ICT as a limited resource) may influence the ICT planning process ([7], [8], [9] and [10]).

There are various models/frameworks for developing ICT plans – examples include:

- Models that focus on intention/effect of planning – such as Business Impacting and Business Aligning.
- Models that concentrate on the planning process – such as Top-down, Bottom-up and Eclectic.Other approaches to planning can include:
- Project-oriented planning – reactive in nature, often does not ensure that the ICT plan meshes well with the overall business plan
- Needs-based ICT planning – often fails to give consideration to the total information requirements of the organization across operating units
- Planning for ICT in parallel with the business plan (similar but not quite the same as business aligning)

3. Phases of ICT Strategic Planning

A strategic foundation for introducing ICT solutions should be concerned with the overall direction of technology to support business within the organization. A review of some of the most widely used frameworks for strategy development ([1], [6], [9], [11], [19]and [20]) suggests that it (the process) should consist of at least three specific components or phases: Strategic Analysis, Strategic Choice and Strategy Implementation.
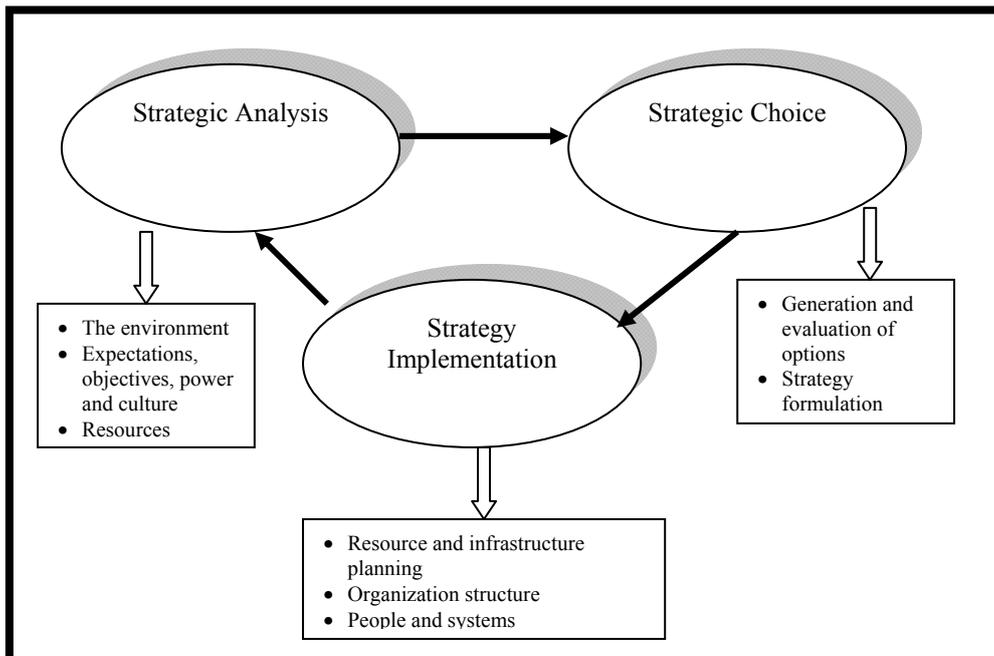
Figure 1. The Cycle of Strategy Development and Implementation for e-Learning and Knowledge Management

The total strategic process for ICTs is anything but linear. Integrating all the components of the strategic process is cyclic – often circling back to itself. The key elements of this cycle (as outlined in Figure 1) are:

- Strategic Analysis for the portfolio of ICT Solutions – involves establishing an understanding of the current situation, including: aspects of the environment; current technology infrastructure; available resources; business expectations; broad business objectives; and power bases.
- Strategic Choice for the Portfolio of ICT Solutions – involves the formulation of the strategy itself through understanding various options, evaluating options and making a decision on a suitable strategy.
- The Implementation of Solution(s) – involves tactical issues such as resource assessment and planning, identifying human resources and systems, contents and determining organizational structure.

The first two stages of the strategy cycle outlined in Figure 1 should ideally result in the formulation of a strategy plan. The strategy plan can often be formulated as a hierarchy that clearly outlines the various stages (components) of the strategy process for technology based management learning.

– Figure 2.

4. What Happens in Reality?

In general, there are limited studies in the field of strategic management for ICTs – comparing reality versus proposed practices. This paper looks at a number of New Zealand cases to make a preliminary assessment of trends, practices and attitudes towards longer term planning for ICTs.

The majority of New Zealand companies can be categorized as either small or medium size enterprises (SMEs). These organizations rely heavily on the use of ICT solutions to compete and survive within the completive global business environment. However, a small number of case studies considered within the Canterbury region suggest that these organizations do not deploy ICT solutions based on instinct or guidance of technical experts – who may or may not have a clear view of business.

It has to be noted that the comments in this section are based on a review of small planning cases within the Canterbury region. That is to say, these comments cannot be generalized to be taken as indicative of what actually happens in all organizations within the region.

Almost in all cases reviewed, organizations considered ICT strategy planning a time consuming a costly exercise that may not deliver on what has been promised. They considered internationally recognized frameworks for strategic management of ICT solutions as being suitable for larger organizations.
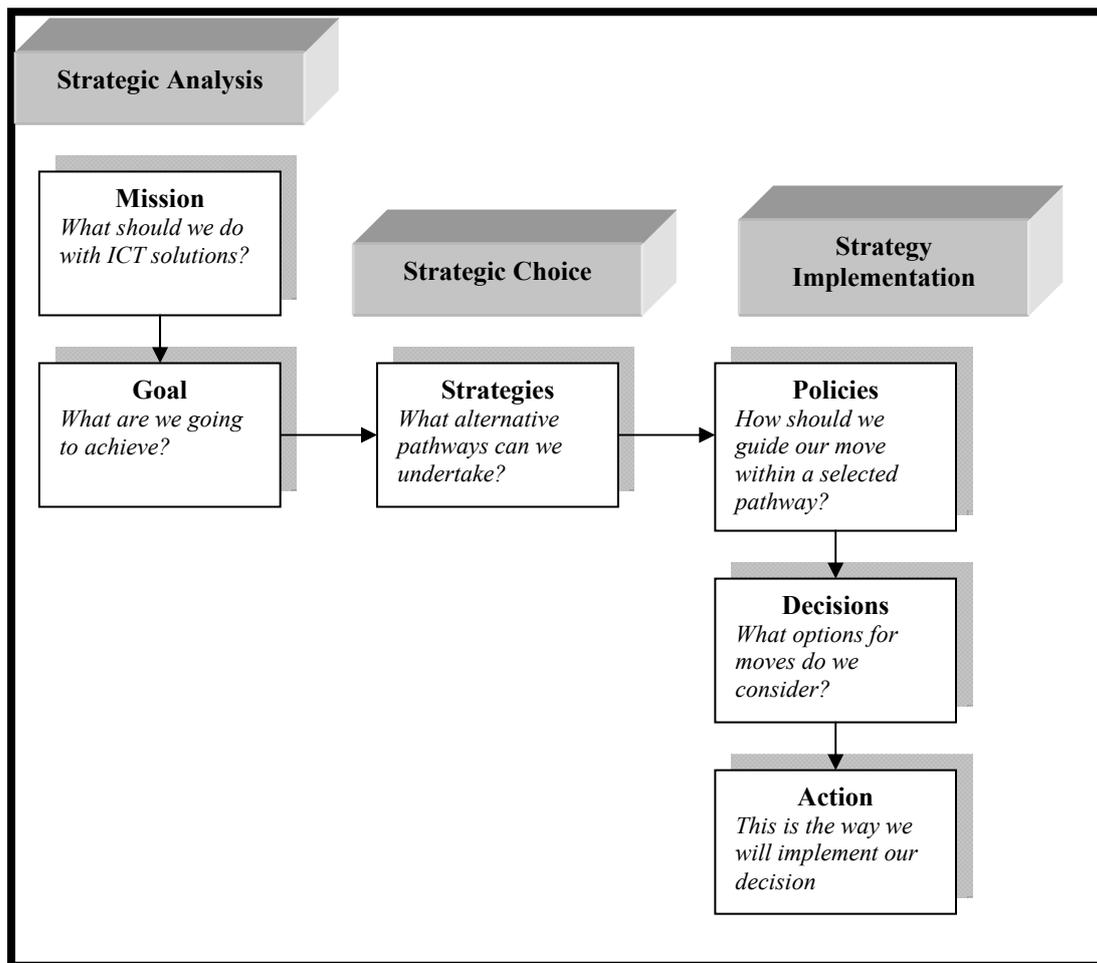
Figure 2. The Hierarchy of Strategy Development for ICT Solutions

Even though some organizations employ vigorous project planning approach to delivery of ICT solutions, the focus is on operational level. A formal governance process based on organizational values are rarely put in place to guide the selection of portfolio of ICT solutions.

Despite lack of strategically driven ICT governance, in some cases the deployment of ICT solutions appeared to be successful. This raises issues so as to whether or not application of formal frameworks can be of value to all organizations across the board regardless of location, culture, industry and management experience.

5. Conclusions

Overall, most technology strategists believe that a strategic approach to planning and the management of ICT solutions are essential – in order to maximize benefits of large investments on ICTs. There have been various debates resulting in introduction of frameworks and generic ICT strategiesfro driving the selection of portfolio of ICT solutions.

The process of ICT strategic planning examined within a small number of cases (six cases) appeared to be somewhat different from theory - as discussed by numerous theoreticians and ICT strategists' worldwide and summarized in sections 2 and 3 above.This is partially because New Zealand companies are mostly SMEs (smaller organizations compared with companies in Europe and/or North America) that are concerned with allocating resources to strategic ICT planning.

6. References

[1] Asgarkhani, M., (2002a) "Strategic Management of Information systems and Technology in an e-World", Proceedings of the 21st IT Conference - Sri Lanka, pp103-110.

[2] Asgarkhani, M. 2003a, 'Strategic Framework for Electronic Government', Proceedings of the 22nd National IT

Conference, Sri Lanka, pp57-65.

[3]   Asgarkhani, M. 2003b, 'Strategic Management of Information systems and Technology in an e-World', Proceedings of the 21st IT Conference, Sri Lanka, pp103-111.

[4]   Asgarkhani, M. 2003c, 'Electronic Service Delivery in Local Governments – A Strategic Tool for Service Quality Improvement in the Information Age', Proceedings of the International Symposium on Service Charters and Customer Satisfaction in Public Services, City University of Hong Kong (Proceedings on CD).

[5]   Asgarkhani, M. 2005, 'Digital Government and its Effectiveness in Public Management reform: A Local Government Perspective', Journal of Public management review, 7 (3), pp 465-488.

[6]   Asgarkhani, M. (2007), Electronic Management of Information and Services in Public Sector, Proceedings of the International Conference on Business and Information, [online] http://ibacnet.org/bai2007/proceedings/Pages/AA.htm

[7]   Asgarkhani, M. (2008), Public Sector Reform through E-Adminiatration: An Overview, Proceedings of the International Conference on e-Technology and e-Administration, [online] http://www.e-case.org/tentative-program.htm

[8]   Benson, R.J., Bugnitz, T.L. and Walton,W.B. 2004, From Business Strategy to IT Action, Wiley Publishers.

[9]   Boar, B. 2001, The Art of Strategic Planning for Information Technology,2ndEdition, John Wiley & Sons, Inc.

[10] Benson, S. and Standing C. 2002, Information Systems: A Business Approach, John Wiley and Sons Australia Ltd.

[11] Heath, J. (2003) "Creating Your e-Learning Strategy", [online] http://www.pinneast.com/WP_creatingelearning.pdf

[12] McKeown, P. 2003, Information technology and Networked Economy, 2nd Edition, Thomson Course Technology.

[13] Lauden, K.C. and Lauden, J.P. 2006, Management Information Systems, 9th Edition, Person Prentice Hall.

[14] Lauden, K.C. and Lauden, J.P. 2005, 'Essentials of Management Information Systems', 6th Edition, Person Prentice Hall.

[15] Kodama, M. 2002, 'Strategic Partnership with Innovative Customers: A Japanese Case Study', Journal of Information Systems Management, Spring 2002, pp31-52.

[16] Levy, M., Powel, P. and Yetton, P. 2001, SMEs: Aligning IS and the Strategic Context, Journal of Information Technology, Vol16, No.3, pp133-144.

[17] Newman, S. and Zawacki,R. 2002, 'Facilitating Transformation in IT: Lessons Learned along the Journey',Journal of Information Systems Management, Spring 2002, pp12-18.

[18] Parkinson, M.J.A.and Baker,N.J. 2005, 'IT and Enterprise Governance', Journal of Information Systems Control, 3, pp17-21.

[19] Robson, W. (1997), Strategic Management & Information Systems – 2nd Edition, Prentice Hall

[20] Rossett, A. (2002) The ASTD e-Learning Handbook: Best Practices, Strategies, and Case Studies for an Emerging Field, McGraw-Hill

[21] SANGONet, 2001. Using ICTs Strategically, [online] http://www.sn.apc.org/corporate/strategic/strategic.shtml#using