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Information Systems Strategy: Principles and Practice

Michael Boahene
Holism Information Systems Management
Melbourne, Australia
michael.boahene@holism.com.au

George Ditsa
Department of Information Systems, University of Wollongong
Wollongong, NSW 2522, Australia
george_ditsa@uow.edu.au

ABSTRACT

Business-IT Strategy alignment has been a very important issue over the past decade. This paper takes a look at Business-IT strategy alignment and provides a reflective cognitive guidance on this subject in terms of both principles and practice. Conceptual insights have been provided for both the formulation and implementation of IS strategies that are aligned to business strategy. The paper proposes an Alignment Model, as a strategic framework, that could help facilitate the processes of investigation and debate about the desirability and durability of alternative interventions in the formulation and implementation of IS strategy.

INTRODUCTION

According to a longitudinal Australian business survey conducted by the University of Western Sydney (Connors, 2002), Strategic IT Plan Development and Alignment of IS with Organisational Objectives consistently occupied the top three positions of IT issues considered important by senior managers over the last decade. Except in 1992 when Strategic IT Plan Development ranked sixth. A similar study by Niederman et al. (1991) in the USA a decade ago also ranked both of these issues in the top ten.

The behaviour of organisations is dynamic and while business strategies do change, the consistently high ranking of these issues may suggest that such strategic alignment activities are not yet yielding outcomes that inspire confidence in their durability. Chan et al. (1997) have found that the companies that appear to perform best are those in which there is alignment between realised business strategies and realised IS strategy. By their very nature however, such research are always retrospective. So what insights regarding alignment are required as a 'base of knowledge' to ensure the realisation of optimal business performance?

Tan and Gallupe (2002) have noted a relatively small but growing body of cognitive research in the IS field. However, as they pointed out, it is primarily in the areas of development, implementation and use of IT. They further noted that a review of extant business-IT Alignment research published in IS journals between 1980-2000 reveals no published conceptual or empirical (content and process level) works taken from a cognitive perspective. This paper therefore, aims to provide reflective cognitive guidance on the subject matter in terms of both its principles and practice. The concepts provide insights for both the formulation and implementation of 'IT strategies' that are aligned to business strategy.

We begin by establishing a broadly based but simple definition of an Information System (IS). We then review opposing philosophical strands of management theory and their influence on conventional IS strategy. We conclude with a proposed alignment model, we hope can help research and practice. We will argue that it is IS direction rather than IT strategy that requires focus.

INFORMATION SYSTEMS

Conceptually, IS have existed for as long as humans have had a need to collaborate (at work or leisure), and share experiences with each other. For example, Checkland and Howell (1998) provide a detailed account of the strategy formulation, implementation and operation of an IS that was used to support the defence of Britain during the 2nd World War. They describe the complex interactions between radar observation posts, sight and sound observation posts, operations researchers, plotters, planners, commanders and fighter pilots among others, in transforming data into information, to support the purposeful activities of intercepting enemy bombers during the battle of Britain. Although it could now be recognised as an IS, it was not known as such at the time. The IS operated effectively however, without the use of computers - because they had not yet been invented.

No less an IS is the interactions between a few workers, for example, in a restaurant as they set about to provide a meal service to customers.

An Information System therefore, is nothing more than *whatever it takes* to *organise* interactions and *manage* the *generation and communication of data* between *people and (sometimes) machines*, engaged in *purposeful activities*.

The significance of this definition in the formulation and implementation of an IS strategy lies in the key phrases in italics in the definition.

Whatever it takes

Refers to the tangible and intangible resources used to achieve particular ends in a purposeful activity.

Organise and Manage

Refers to the organisation and management of the interactions between people towards achieving particular ends.

Generation and Communication of Data

This refers to the generation and communication of data, hopefully relevant, between parties within the targeted environment. It is important to note that humans generate information while the devices capture, store, manipulate and provide access to data.

People and Machines

People and machines are stakeholders who are directly affected by the IS or exert an influence over its 'shape'.

Purposeful Activities

Purposeful activities are intentional actions taken by people within a target environment, of number of which may be grouped into a Human Activity System (HAS) (Checkland, 1998).

From the above definition, we contend that an IS is an integral part of the social fabric of an organisational setting, serving as the conduit for social interaction. IS inevitably draws its influences from the same sources as the HASs it serves. Its active role is to support the organisation and management of complexity within a target environment. The effectiveness of an IS therefore depends on the extent to which the influences that shape it are relevant to the interactions within the target environment.

BUSINESS-IT STRATEGY ALIGNMENT ISSUES

Many factors have been cited as being influential in ensuring business-IT strategy alignment (Earl, 1993, Broadbent & Weill, 1993, Luftman, et al., 1999, Reich & Benbasat, 2000). However, there are also a number of fundamental but unchallenged assumptions that more profoundly limit the current state of practice of IS strategy formulation and its role in business-IT strategy alignment. The more prominent include assumptions about:

- The nature of business strategy formulation
- IT/IS Strategy specialisation
- Causal links between technology and improvement

The Nature of Business Strategy Formulation

Contemporary IS strategy formulation takes the existence of a well-formed business strategy as a prerequisite. This expectation persists because traditional Business Management theory treats a target environment as if it were a natural 'world' subscribing to the deterministic or probabilistic laws of the natural sciences. This view is underpinned by the scientific outlook, and captured through rational-analytical thinking – a belief in cause and effect. Business strategies are thought to start with an envisioned state, the focus then, is how to alter one or more elements within the environment to control others and steer outcomes to that envisioned state. Thus, conventional strategic planning claims to provide the path to an envisioned state sometime into the future, usually five to ten years.

There is a well-established literature of business strategy derived from this traditional view (see Cavaleri & Krzystof, 1993). The literature abounds with models explaining the essence of particular strategies. These models often neatly delineate alternative approaches giving the impression of deliberate control over the choice of one strategy over the other.

However, the environment in which organisations operate is dynamic, and so is the formulation of business strategy. As Flood (1999) points out, the great extent and dynamic nature of the interrelationships and spontaneous self-organisation means that it is only possible to get to grips with some things, and only those that are local to us in space and time. Business strategies often evolve as a result of these dynamic forces perceived to be exerting, or anticipated to exert pressure, on the target environment. The issue for IS strategy then is how to remain relevant through this changing space and time.

Since an IS is an integral part of the social fabric of HAS for which business strategies evolve, IS strategy has a role to play in increasing the clarity of business strategy in so far as information is considered a useful resource. Thus, in practice, there is no particular order of precedence. Business strategy informs IS strategy, which in turn informs business strategy.

IT/IS Strategy Specialisation

Upon these deterministic business strategy models, McFarlan et al. (1982) developed an influential strategic grid with four quadrants: Support, Factory, Turnaround and Strategic. Each quadrant distinguishes between the characteristics of an IS strategy that is purported to best serve organisations whose business strategy fits a particular quadrant.

Atkins (1994) also uses a number of business strategy models derived from Ansoff (1965) and Chan and Huff (1992) to interpret the results of a survey conducted in the UK in the early 1990s. The research investigated the nature of business strategies that firms pursue and considered how firms that pursue different business strategies differ in the IT/IS strategies adopted. Atkins categorises business strategies pursued by firms into four - Defender, Prospector, Follower and Reactor - presuming there is a particular distinct IS strategy (approach) available to be pursued for each of these different categories. But, there are no separate approaches available for formulating IS strategy to be used in particular circumstances for any distinct business strategy pursued, only our ability to understand the dynamic whole.

The determinants of realised business-IT strategy alignment depend on the extent to which social rules are relevant to the intentions of an intervention and appropriate information resources can be organised and managed within the HAS (Stacey, 1996).

Causal Links between Technology and Improvement

The role of IT has been widely accepted as the driving force behind the changing organisation of work. Indeed, many authors, when arguing for a deterministic model of social and cultural change, explicitly draw an analogy between IT and the causal nature of previous technological innovations (Winter & Taylor 1996). IT is usually credited with increasing efficiency, effectiveness and quality while providing faster time to market, lower overhead costs, increased customisation and therefore improved competitiveness. For instance Henderson and Venkatraman, (1992) describe the systemic competencies of IT strategy as those distinctive attributes that contribute positively to the creation of new business strategies or better support existing business strategies.

However, empirical evidence of these benefits has, at best, been inconsistent and often non-existent. For instance, a recent McKinsey Global Institute report found that despite a threefold increase in IT expenditure over the past decade, the Retail Banking industry in the United States has found that it does not necessarily boost productivity nor does it help boost customer satisfaction.

In an organisational environment, IS development is driven by the urge to intervene in a problem situation and bring about change. Interventions in the environment are social in the sense that the intentions are aimed at bringing about change in a target environment that is characterised by interactions between groups of people with differing and changeable interests, rather than a homogenous group or set of objects with deterministic behaviour.

Separating IS from IT, we assert that there is no strategic advantage to be gained from the 'systemic competencies' of IT but rather in the systemic competencies of IS which lie in the recognition of its social orientation, since the technology can be purchased by whoever can afford it. However, traditional 'IT/IS strategies' continue to be developed with such emphasis on technology, ignoring, for the large part, the influence of the nature of social interaction on interventions.

We now interpret the influence of the description of an IS and the arguments above on the contemporary view of business-IT strategy alignment.

TOWARD IS DIRECTION

What is clear, with respect to IS, is that the intentions for investing in a particular intervention take on a 'management of social change', rather than 'control of a natural or engineered object' focus. As a result of dynamic forces continually exerting pressure on the organisation, business strategies such as offering new products, competing in new markets are pursued. This brings into focus potential information elements and information availability possibilities not previously considered, while making others currently in focus, redundant.

Irrespective of the business strategy pursued, IS strategy is responsible for ensuring the orderly provision of relevant information resources that support HASs within a target environment. As such, its essence is to provide direction about:

- What information resource and functional capabilities are necessary within a context, and
- How the information resource becomes available to serve Human Activity System(s).

The challenge for practitioners then, is to seek, develop and utilise ideas that enhance our ability to cope with the variety of demands for information resources and respond with insightful interventions in a timely manner.

These ideas will focus on:

- Scope – ie. What constitutes a target environment and what is worthy of investigating within it.
- Process – ie. How emerging problems, issues and dilemmas should be investigated and desirable interventions recommended.

What is needed then is to formulate the ideas into concepts to facilitate understanding of particular demands and promote debate about the desirability of alternative interventions. This ideal requires a reference point where 'Process' can be applied to 'Scope', with respect to

the particular demands that arise out of certain intentions, aspirations and expectations in business direction, whether long term, short term or immediate. That reference point is represented here as the Alignment model.

ALIGNMENT MODEL

The Alignment Model recognises the common source from which both IS and business strategy, originate and evolve – target environment - unlike the current orthodoxy (Henderson and Venkatraman, 1992) that assumes a separation between the motivations behind business strategy and IS strategy. The idea of an Alignment Model has universal relevance to business-IS strategy alignment, however each instance may be unique depending on the organisational context, and therefore not universally applicable.

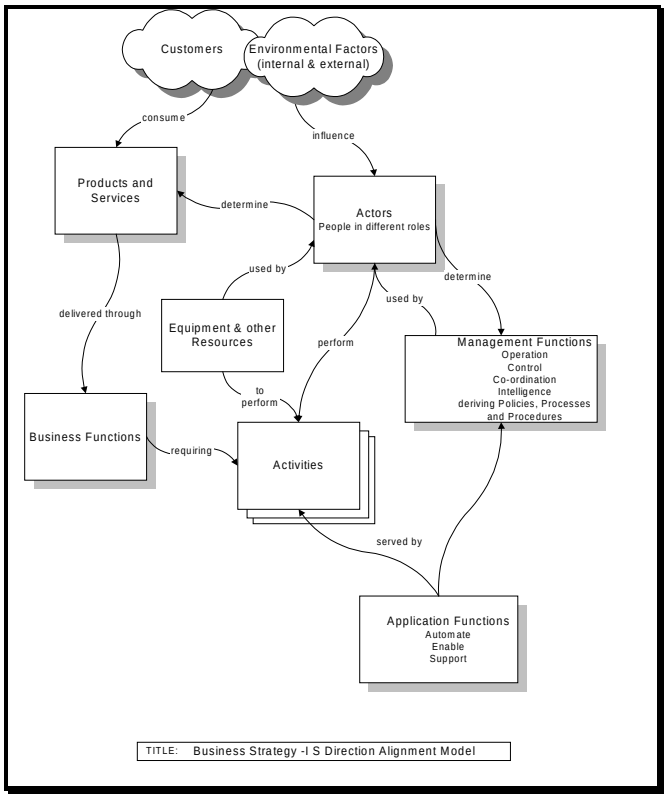
It is important to recognise that every social environment that may be conceptualised and an IS introduced to serve as a conduit for social interaction, will be characterised by elements, forces and factors that interact in a variety of ways. For example, the scope of one organisation may be conceptualised as producing *products* and/or providing *services* to *customers*, through a series of *activities* linked together by communicative resources. The *activities* are undertaken by *actors* and *equipment*, governed by particular *management functions (social rules)* as depicted in the diagram below.

The interaction of the elements, factors and forces in the environment can be conceived of, or observed, producing potential information that may be used to make choices and guide action; the purpose of IS.

The Alignment Model enables practitioners to describe the:

- Elements deemed significant in the environment (eg. Products, Services, People, Management functions etc),
- Interactions between them, and
- Internal and external influences on both the elements and the interactions between them

For instance, Management Functions may be described as the means by which activities are undertaken with respect to particular intentions and aspirations. In this context, they refer to the social rules or guiding principles governing how activities are undertaken. The social rules may be written or unwritten, deliberate or subconscious.



Business decisions that affect any of the key elements would have the potential to result in the demand for new information generation or access within the target environment.

In the following sections, we discuss how our proposed Alignment Model, as a strategic framework, helps facilitate the identification of problem and scope, choice of preferred processes of investigation and debate about the desirability of alternative interventions in the formulation and implementation of IS strategy.

As an emergent process, the essence of IS direction is 'Strategic Decisions', 'Approach' and 'Planning'.

Strategic Decisions

There are many strategic decisions to be made, throughout the entire transformation process of introducing ISs into a target environment. The choices we make are strategic, not so much because of time, cost or difficulty of implementation, but in the sense that their impact and ripple effects may be felt for a long time because they are difficult to reverse.

The Alignment Model is particularly useful for quickly drawing attention to potential elements, the need for inquiry into possible interactions between the elements and their likely impact on business strategy.

On the question of scope for instance, in the Retail Banking example, if the interactions between elements within the target environment were expanded beyond the essential interaction between consumer and technology (eg. ATM), to include staff on all occasions instead of by exception, how different the issue of productivity and customer satisfaction would have panned out.

Approach

The approach chosen for IS strategy formulation and implementation, depends on our view of the 'world', in particular, our knowledge concerning the epistemological and ontological view of a target environment. Our fundamental beliefs about the 'world' leads us to make certain assumptions and prefer particular instruments of investigation. Thus we become aware of particular dynamics, which affect the decisions we make. With respect to fundamental assumptions about ISs we assert that:

- The target environment would likely be social, with multiple interacting Human Activity Systems, as such, ontologically the environment will be characterised by variety while epistemologically, it will be characterised by subjectivity
- An alternative IS would already exist in the target environment
- Interventions can only provide change at a particular stage in the 'journey' of organisational existence rather than an end solution

When we set out to intervene in problem situations, the urge is fuelled by aspirations and intentions, and sustained by expectations. These give rise to needs, which stem from our interest in managing complexity in a dynamic environment. Considering that business strategy is usually 'emergent' rather than 'given', the 'fuel' for making strategic decisions would have to be teased out of this emergent process. With respect to 'instruments of investigation', the essence of any approach that is likely to be useful in supporting the Alignment model would focus on 'finding out' and facilitating social change.

Planning

IS Planning is concerned with both the order in which interventions are introduced into a target environment and the administration of their implementation. Strategic considerations for IS Planning may include ranking and priority of interventions, timeframe for implementing the interventions, and resource availability and capability to implement the interventions.

As already pointed out however, an IS of sorts is likely to already exist in the target environment, therefore the change process will re-

semble the reconstruction of an established road, rather than a pioneering approach where the road is virgin. Planning must therefore be iterative, and the decisions focus on dynamics that are local in space and time.

CONCLUSION

This paper has discussed the very important subject of business-IT strategy alignment by arguing for an extension of focus beyond technology to include social change. Social change is an ongoing affair in organisational settings, therefore it is further argued that what is needed is an IS direction that provides the ability to make insightful strategic choices as needs arise. The paper proposed an Alignment Model, as a strategic framework, that could help the making of strategic decisions about problem and scope, and the processes of investigation. The model can also facilitate debate about the desirability of alternative interventions in the formulation and implementation of IS strategy, thereby aligning it with whatever business strategy that is pursued.

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