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What are we Aligning? Implications of a Dynamic Approach to Alignment

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Abstract

Of the hundreds of papers written on alignment, many build on a framework established fifteen years ago, which characterises alignment as a dynamic process operating between four domains. Since then, the organisational and technological landscape has been radically transformed. This paper reviews key concepts in the alignment literature and comments on their development over time, and their ability to reflect current organisational contexts, including blurring of boundaries, and rapid and unpredictable change. It finds that there have been several new developments regarding "how" alignment occurs. However, almost all these developments are grounded in the original four domain model of "what" is being aligned. This paper suggests that some models of alignment could be strengthened by considering alternatives to this four domain model. Drawing on other work on the dynamics of human-technological interaction, some ideas are given as to how this task might be approached.

Keywords

Alignment, Strategy, Dynamics of Alignment

INTRODUCTION

It is now fifteen years since one of the most cited alignment papers was published (Henderson and Venkatraman 1993, 1999), and one of the most extensive empirical investigations on alignment was conducted (Broadbent and Weill 1993). Since then, hundreds of alignment papers have been published, many of them reviewed in a recent annotated bibliography (Chan and Reich 2007). Significant work is still being done in this area – see for example (Luftman 2000; Peppard and Breu 2003; Benbya and McKelvey 2006; Weiss, Thorogood et al. 2006). Practitioners have consistently emphasised the importance of alignment – see for example (Broadbent and Weill 1993; Sabherwal and Chan 2001; Luftman 2005; Luftman 2006)

Over those fifteen years the technological and organisational landscape has been transformed, with three major implications for the conceptualisation of alignment. Firstly, there has been significant blurring of the boundaries between the IS function and the business function. The CIO role has changed from one of functional head, to strategic partner, aligning IT with business, to business visionary (Ross and Feeny 1999; Broadbent and Kitzis 2005) Business roles have also changed: IS competencies are now "distributed throughout the organisation and not solely resident in the IS function". (Peppard, Lambert et al. 2000) Secondly, the development of very large Commercial Off the Shelf packages, particularly enterprise systems, means that the consequences of technology led change can be unpredictable, and are harder to control (Quattrone and Hopper 2001; Dechow and Mouritsen 2005). Thirdly, more and more organisations are operating in conditions of very rapid change, or hypercompetition (D'Aveni 1994), so that their strategy now has to be conceptualised as working on the edge of chaos (Brown and Eisenhardt 1997; Brown and Eisenhardt 1998; Eisenhardt and Brown 1998; Eisenhardt and Martin 2000); a challenge to the model of balancing deliberate and emergent strategy (Mintzberg 1978; Mintzberg 1987), and perhaps a call to re-examine alternative models of strategy (Chaffee 1985).

This paper starts by presenting a review of key alignment papers over the past fifteen years, to see how they answer the following questions:-

- *Why is alignment important?*

- *What needs to be aligned*?

- *How is such alignment achieved*?

The answers to these questions are discussed in terms of how they address recent changes to the technological and organisational landscape:-

- The blurring of boundaries between the IS and business function

- Unpredictability regarding the consequences of technology led change

- Strategising in situations of very rapid change.

Regarding *why* alignment is important: it is found that one of the key reasons for continued interest in alignment is practitioner interest in the subject. Regarding *what* is to be aligned: almost all the alignment literature uses concepts which originated in Henderson and Venkatraman's model of multidirectional alignment between the four domains of business strategy, IT strategy, organisational infrastructure and processes, and IT infrastructure and processes (Henderson and Venkatraman 1993, 1999). Regarding *how* alignment is achieved: there have been several, separate developments. These include emphasising the way in which informal organisational structures affect alignment, (Chan 2002), indicating how organisations can improve and assess their alignment maturity (Luftman 2000), and enabling us to understand the need for alignment in specific organisations, based on their business type (Sabherwal and Chan 2001) or their use of technology (Weiss, Thorogood et al. 2006). There have also been models specifically focussing on the dynamics of alignment. Sabherwal and Hirschheim use a four domain model of alignment, plotted at different times, to show how those domains change through periods of evolution and revolution, or "punctuated equilibrium" (Sabherwal, Hirschheim et al. 2001). This dynamic approach has been taken further by recent work which sees the IS and business domains as in constant flux and interaction with each other and the environment, as modelled by a co-evolutionary approach (Peppard and Breu 2003; Benbya and McKelvey 2006).

When these models are viewed in the context of change to the technological and organisational landscape, the reason for the emphasis on understanding *how* alignment occurs becomes clear. A dynamic understanding is critical if we are to reflect current organisational and technological reality. However, very little alignment literature questions *what* is being aligned, and it is less clear that the four domain alignment model continues to reflect this reality.

This paper's contribution is to question the continued use of the four domain model to describe what is being aligned. Specifically:-

> *If alignment is conceptualised as a dynamic process, in the context of blurred boundaries between IS and the business, and unpredictable and rapid change, what are we aligning?*

Having discussed approaches to this question in the alignment literature, it then discusses two papers with alternative approaches. One was written in direct response to the development of the alignment research stream, and calls for an alternative, actor network based approach to understanding interactions between people and technology (Ciborra 1997). The other suggests using a situated change perspective (Orlikowski 1996). Both take issue with deterministic approaches, and are designed to help us understand agency, and emergent change.

These two papers are used to provide pointers to a new approach to the question "what are we aligning" that better serves dynamic environments.

A SUMMARY OF ALIGNMENT MODELS

Given the extensiveness of the literature a selection of models has been chosen. They have been selected either because they have been widely cited, or because they provide a particular perspective on alignment. Table 1 summarises the papers discussed below, and the approaches they have taken to why alignment is important, what needs to be aligned, and how such alignment is achieved.

Table 1. Alignment models

Author(s)	Focus of model	Why	What	How
(Henderson and Venkatraman 1993, 1999)	A framework for IT's future potential	Strategic potential of IS	• Business strategy • IT strategy • Organisational infrastructure and processes • IT infrastructure and processes	Dominant alignment perspective defines driver, roles, and performance criteria
(Broadbent and Weill 1993)	Alignment in the banking industry	IS executives say it matters	• Firm-wide strategy formation processes • Organisational structure and accountabilities • Information systems responsibilities and policies • Technology strategy	Four quadrants should be addressed in order
(Chan, Huff et al. 1997)	IS strategic alignment: focus on IS strategy as well as business strategy	Strategic potential of IS	• Business strategic orientation • IS strategic orientation	Not concerned with process: calculates alignment rating.
(Luftman 2000)	Alignment maturity of organisations	IS executives say it matters	• Business strategy • IT strategy • Organisational infrastructure and processes • IT infrastructure and processes	Improve alignment by improving enablers and removing inhibitors
(Sabherwal and Chan 2001)	An alignment contingency model, based on business type	IS executives say it matters	• Business strategic orientation • IS strategic orientation	Not concerned with process: calculates correlations
(Sabherwal, Hirschheim et al. 2001)	Dynamics of alignment (punctuated equilibrium)	Empirical evidence	• Business strategy • IS strategy • Business structure • IS structure	Evolutionary and revolutionary change affect alignment differently
(Chan 2002)	Informal organisational structure	IS executives say it matters	• Business strategy • IS strategy • Business structure • IS structure	"mesh things from the start", "intertwine technology & business processes"
(Peppard and Breu 2003)	Coevolution and alignment	Empirical evidence	• IS strategy • Business strategy	Coevolution
(Benbya and McKelvey 2006)	Coevolution, complexity and alignment	IS executives say it matters. Empirical evidence	• IS strategy • Business strategy • IS structure • Business structure • IS infrastructure • Individual need	Coevolution
(Weiss, Thorogood et al. 2006)	An alignment contingency model, based on use of technology	IS executives say it matters	• Internal IT and business integration • External IT and business integration	Project planning view

Why is alignment important?

Overwhelmingly, papers published throughout the last fifteen years point to the consistent evidence that IS managers rate alignment as one of their key concerns (Broadbent and Weill 1993; Luftman 2000; Sabherwal and Chan 2001; Chan 2002; Benbya and McKelvey 2006; Weiss, Thorogood et al. 2006). In addition, earlier papers say that alignment is important in ensuring the realisation of strategic potential from IT (Henderson and Venkatraman 1993, 1999; Chan, Huff et al. 1997). Later papers point to empirical evidence that alignment can improve organisational performance (Sabherwal, Hirschheim et al. 2001; Peppard and Breu 2003; Benbya and McKelvey 2006).

What needs to be aligned?

Every paper reviewed defined the "what" of alignment in terms of a four domain model similar to, or derived from, Henderson and Venkatraman (Henderson and Venkatraman 1993, 1999). Henderson and Venkatraman's four domain model, and its components, are as follows:-

- **Business strategy**: business scope, distinctive competencies, and business governance

- **IT strategy**: technology scope, systemic competencies and IT governance

- **Organisational and infrastructural processes**: administrative structure, processes and skills

- **Information technology infrastructure and processes**: architecture, processes and skills.

An empirical study in the banking industry developed a similar four domain model in parallel. As the authors themselves say, their study was consistent with Henderson and Venkatraman. (Broadbent and Weill 1993). Subsequent studies have developed our understanding of the four domains. By placing a greater emphasis on IS strategy, the concept of strategic alignment between IS strategy and the business has been defined and discussed. (Chan, Huff et al. 1997; Sabherwal and Chan 2001). (Luftman 2000) uses domains which are almost identical to Henderson and Venkatraman's in developing an alignment maturity model. Sabherwal and Hirschheim use a four domain model and define taxonomies for each domain: a business strategy can be defined as prospector, defender or analyser; information systems strategy can be low cost, differentiation, growth, innovation and/or alliance; business structure can be organic, semi-structured, mechanistic, centralised, hybrid or decentralised; IS structure can be centralised, shared, or decentralised (Sabherwal, Hirschheim et al. 2001). Chan discusses strategic alignment between IS and business strategy, and structural alignment between IS and business structures, emphasising the need to understand informal business structures (Chan 2002). Peppard and Breu investigate the coevolution of IS and business strategy (Peppard and Breu 2003). Benbya and McKelvey use similar domains, but add the domain of the individual (Benbya and McKelvey 2006). Weiss, Thorogood et al look at the integration of IS and the business with external organisations (Weiss, Thorogood et al. 2006).

How is such alignment achieved?

There has been far less consensus regarding how alignment is to be achieved. Henderson and Venkatraman defined alignment as a series of multidirectional processes, where the direction was dependent on a dominant alignment perspective, which affected the driver, roles and performance criteria for alignment.   This is summarised in Table 2 below

Table 2. Henderson and Venkatraman's processes of alignment

Alignment perspective	Alignment direction	Driver	Roles	Performance criteria
Strategic execution	Business strategy → Org infrastructure → IS infrastructure	Business strategy	Top management: strategy formulator IS management: strategy implementer	Cost/service centre
Technology transformation	Business strategy → IT strategy → IS infrastructure	Business strategy	Top management: technology visionary IS management: technology architect	Technology leadership
Competitive potential	IT strategy → business strategy → Org infrastructure	IT strategy	Top management: business visionary IS management: catalyst	Business leadership
Service level	IT strategy → IS infrastructure → org infrastructure	IT strategy	Top management: prioritiser IS management: executive leadership	Customer satisfaction

Broadbent and Weill, by contrast, state that opportunities for alignment are maximised if their four quadrants are addressed in order: "commencing with firm-wide strategy formation processes through organisational structure and accountabilities, to information systems responsibilities and policies, and then to technology strategy" (Broadbent and Weill 1993).

Luftman, drawing on his earlier work on enablers and inhibitors of alignment (Luftman, Papp et al. 1999) discusses in some detail the way in which an organisation's alignment maturity is dependent on six different criteria: communications, competency/value measurement, governance, partnership, scope and architecture, and skills. These could be seen as the processes by which alignment can be improved. They are summarised in Table 3 below (Luftman 2000):-

Table 3. Luftman's Alignment Maturity Criteria

Communications	Competency/ Value measurements	Governance	Partnership	Scope and Architecture	Skills
Understanding of business by IT Understanding of IT by business Inter/Intra organisational learning Protocol rigidity Knowledge sharing Liaison(s) effectiveness	IT metrics Business metrics Balanced metrics SLAs Benchmarking Formal Assessments/ Reviews Continuous improvement	Business strategic planning IT strategic planning Reporting/ Organisational structure Budgetary control IT investment management Steering Committee(s) prioritisation process	Business perception of IT value Role of IT in Strategic Business Planning Shared Goals, Risks, Rewards/ Penalties IT program management Relationship/ Trust style Business Sponsor/ Champion	Traditional, Enabler/Driver, External Standards Articulation Architectural integration Architectural transparency Flexibility Managing Emerging Technology	Innovation, Entrepreneurship Locus of Power Management style Change Readiness Career crossover Education, cross training Social, political, trusting Environment

Sabherwal, Hirschheim et al discuss what happens when circumstances lead to changes in the nature of several of the four alignment domains. For example an organisation might be a prospector (business strategy), continuously seeking new opportunities and might have a well aligned IS strategy of differentiation, growth, alliance and innovation. If external circumstances change, resulting in the business becoming a defender, offering niche products at low cost, then it will be poorly aligned unless the IS strategy changes to one of low cost. Similarly, the other dimensions of business and IS structure will need to change appropriately. Sabherwal and Hirschheim suggest that if three or more domains have to change, then this represents revolutionary change. During those periods, some redesign will be required to ensure realignment, but there may be reluctance to undertake this, due to cultural or structural inertia. Therefore some combination of five triggers is required, namely environment shifts, sustained low performance, influential outsiders, new leadership, and/or perception transformation (Sabherwal, Hirschheim et al. 2001).

Chan highlights the challenges of informal alignment of organisational and IS structures: "the alignment responsibility appears increasingly complex and elusive as our understanding of alignment matures" (Chan 2002) and says that while formal structures are becoming less important in "boundaryless organisations", there are a series of informal conditions that need to be studied, viewing alignment as "not a state, but a journey – one that is not always predictable, rational, or tightly planned" p 98. She then names preconditions of alignment. Many of these echo Luftman's alignment maturity criteria. To obtain IS strategic alignment, an organisation requires good communication and understanding between business and IS executives; linked business and IS missions, priorities, strategies, planning processes and plans; line executive commitment to IS issues and initiatives. To obtain IS structural alignment, an organisation requires IS skills for line personnel, and business skills for IS personnel, formal reporting relationships and committees, informal networks and relationships, appropriate career paths, and incentives and rewards for performance measurement.

Peppard and Breu and Benbya and McKelvey both take a coevolutionary approach to alignment. Peppard and Breu, while still using the key alignment domains of business and IS strategy in their model, stress that their approach has the potential to "go beyond" the "mechanistic processes of structural … and strategic alignment". They propose a series of coevolutionary organisation – environment relationships: multi-level effects, multidirectional causalities, nonlinearity, positive feedback, path and historic dependencies and smooth versus rugged landscapes, and then name some of the factors that affect an organisation's ability to coevolve successfully with its environment: its fitness function, absorptive capacity, and value creation mode (Peppard and Breu 2003). Benbya and McKelvey suggest that there are five principles of efficacious adaptation that apply to alignment, namely fostering coevolution; applying tension when and where needed; improving requisite complexity; taking advantage of modular design; and speeding up the rate of change. Other approaches to alignment consider flexible infrastructures as a way to ensure "continuous and dynamic synchronisation of the capabilities inherent in information infrastructure and the demands of strategy" (Prahalad and Krishnan 2002) p24.

In summary, then, the primary reason why alignment is considered to be important is that practitioners continually rate it as a high priority. Regarding the notion of what is to be aligned: the definition of alignment domains has remained relatively stable over the last fifteen years. By contrast, the work on alignment processes has shown a much less linear development. Henderson and Venkatraman's deterministic model of processes has been followed by descriptive approaches of ways in which alignment can be improved (Luftman 2000; Chan 2002). Recent literature has looked at the dynamics of alignment in the context of the broader environment, using concepts from biology such as the punctuated equilibrium model (Sabherwal, Hirschheim et al. 2001) and coevolution (Peppard and Breu 2003; Benbya and McKelvey 2006).

ALIGNMENT AND ORGANISATIONAL AND TECHNOLOGICAL TRENDS

This section discusses how alignment models address three organisational and technological trends, namely the blurring of boundaries between IS and the business function, unpredictability regarding the consequences of technology led change, and strategising in situations of very rapid change.

Blurring of boundaries between IS and the business function

The classic, four domain IS model of alignment does not address the blurring of boundaries between functions very well. While some of the work on alignment processes looks at ways of improving alignment, (Luftman 2000; Chan 2002) they still depend on an organisational view which may not always be beneficial. If an enterprise system implementation is project managed by an external vendor, for example, with project sponsors managers and analysts from the business areas, how do we map the IS and business functions? The punctuated equilibrium model does not engage with this problem at all (Sabherwal, Hirschheim et al. 2001). Coevolutionary theory may have the potential to do so, but as yet is still using the "classic" domains in its analysis (Peppard and Breu 2003; Benbya and McKelvey 2006).

Unpredictability regarding the consequences of technology led change

The classic Henderson and Venkatraman model is highly deterministic, and does not engage with unpredictability of technology led change. (Henderson and Venkatraman 1993, 1999) Many of the factors in the alignment maturity model are also deterministic – for example the governance factors. Others, such as communication, could be important in understanding how unpredictable change might be handled by an organisation.(Luftman 2000)   An understanding of informal factors can also help understand how an organisation engages with the process of alignment in such a situation (Chan 2002). The punctuated equilibrium model allows for several types of change to be examined (Sabherwal, Hirschheim et al. 2001), and coevolutionary theory is specifically focussed on interactions in rapidly changing environments (Peppard and Breu 2003; Benbya and McKelvey 2006).

Strategising in situations of very rapid change

Perhaps the most problematic concept as far as alignment models is concerned, is that of strategy. Well before Henderson and Venkatraman built their model, the issue of strategy as a balance of the deliberate and emergent had been debated – see for example (Mintzberg 1978; Chaffee 1985; Mintzberg 1987). The idea of a discrete business strategy driving an IS strategy, or vice versa, was always problematic, and seen as too deterministic by many authors (Ciborra 1997; Chan 2002). Neither the maturity model nor punctuated equilibrium model can address this problem. However, the coevolutionary approach has the potential to do so, depending on the way that it defines and develops the concepts of IS and business strategy. (Peppard 2005; Benbya and McKelvey 2006)

In summary, then, the development of different views of the alignment process from a maturity, informal, punctuated equilibrium, or coevolutionary point of view, can help us understand situations where there is a blurring of boundaries between IS and the business, unpredictability regarding the consequences of technology led change, and the emergent nature of strategy. However, it could be argued that the current four domain model that is at the core of these processes should be re-examined. To give some pointers as to how this might occur, the next section discusses two alternative approaches to alignment in investigating the interaction between people and technology.

ALTERNATIVES TO THE ALIGNMENT APPROACH

Two papers are considered in this section, namely Ciborra's paper questioning alignment (Ciborra 1997), and Orlikoswski's paper on situated change (Orlikowski 1996). They represent models of how people and technology interact, and are discussed in terms of the light they can throw on what it is we are aligning, if neither strategy nor structure are fully appropriate. Both these papers have been put forward as alternative approaches to some of those discussed above. They are quoted directly by (Benbya and McKelvey 2006), and another of Ciborra's works is quoted by (Peppard and Breu 2003).

Ciborra directly criticizes alignment research programmes: "Alignment, as a conceptual bridge, urges us to reflect on the true nature of its shores: management strategy and technology… [these shores are] shifting and torn by small and big earthquakes". More scathingly, he talks of "de-worlded concepts" and suggests that there is something inherently damaging in alignment models "Once they leave the MBA or executive education classes, managers who have been exposed to such illusionary models… are left alone and disarmed in front of the intricacies of real processes and behaviours" (Ciborra 1997) p 69. Yet managers themselves stress the importance of alignment. Perhaps this is in part because since Ciborra wrote this work alignment models have been developed in ways that practitioners find helpful. Perhaps, also, it is because, far from becoming disarmed by such models, practitioners combine them with other ways of thinking, with an emphasis on what is useful: "practitioners are used to thinking in fashions that research perhaps yet considers avant-garde" (Dechow and Mouritsen 2005)

Orlikowski describes a situated change perspective. This perspective is developed to help us understand emergent change – something that Orlikowski claims is not possible using the perspectives of planned change, technological imperative, or punctuated equilibrium. A full description and discussion of these works is outside the scope of this paper. However, Table 4 summarises how they could be used to provide alternative answers to the questions what needs to be aligned, and how such alignment is achieved.

Table 4. Alternative approaches

Author(s)	Approach to classic alignment models	What	How
(Ciborra 1997)	Alignment as classically defined does not reflect practice Does not help managers. Takes a "commando" view Describes a conceptual bridge between shifting shores "De worlded" concepts	• Alignment between human and non-human actants "anything endowed with a program of action"	• Care • Hospitality • Cultivation
(Orlikowski 1996)	Questions the beliefs that organisational change must be planned, that technology is the primary cause of technology based organisational transformation, and that radical changes always occur rapidly and discontinuously.	• Specialists • Managers • Technical staff • Implementation team Enact • Support work • Norms • Hierarchy • Management work • Evaluation	• Deliberate change • Emergent change • Unanticipated outcomes • Technological features appropriated in practice

Regarding *how* alignment should be achieved: the concepts in these papers could add to those already in the literature. For example, Ciborra speaks of care: "a great amount of care taking performed by the various actors involved in the design, implementation and use of IT applications". P 73. This is a concept that could help us understand how, for example, organisations with greater alignment maturity behave differently from those with

less maturity. It could also add to our understanding of informal alignment. A similar argument applies to the concept of "hospitality" (or the "acceptance and hosting" of technologies) and "cultivation" (as a way of relating strategy to technology. Orlikowski's notions of deliberate and emergent change, unanticipated outcomes, and the way in which technological features are appropriated in practice, could similarly take their place in supplementing some of the key alignment models discussed above.

However, both Ciborra and Orlikowski approach *what* is to be achieved is very differently from the alignment literature. Both of them identify agency. For Ciborra, this includes both human and technological agency, whereas Orlikowski talks only of human agents. Both authors, however, suggest that the specific actors involved in a technological implementation should be identified, in order to understand how changes to the organisation emerge over time.

To proceed to talk about information systems alignment, then, would mean identifying key actors involved in the major strategic information systems based activities within the organisation. This would imply that someone who could present as part of the "business" for one key systems activity, might be characterised as part of "information systems" for another. For example, a supply chain manager might well see activities around enterprise and supply chain systems in "information systems" terms, while seeing a move to more web based customer interaction purely in terms of the "business". Similarly, different actors will have different roles in effecting deliberate and emergent change.

In other words, the alignment of an organisation's information systems to its needs should be characterised by identifying the specific groups of people and the specific technologies, involved in any organisational change. By taking this approach, some of the alignment processes identified in maturity models, punctuated equilibrium models, and coevolutionary models could still be used, and may provide a more appropriate representation of current organisations.

CONCLUSION

Alignment is still important to practitioners, so there is still an incentive to ensure that models of alignment are relevant and useful. There are several lines of thought, currently on representing how alignment occurs. These include models of informal alignment, of alignment maturity and contingency, of alignment in situations of punctuated equilibrium and of alignment as a process of coevolution in an ever changing environment. These different models all have the potential to keep the concept of alignment relevant in a situation where business boundaries are blurring, there is unpredictability regarding the consequences of technology led change, and strategising in situations of very rapid change relies on emergent as well as deliberate strategies.

However, none of these models have questioned the four domain model of alignment between IS and business strategies, and IS and organisational infrastructure and processes. Exploring alternative approaches might lead to a better understanding of alignment.

A first step in this approach might be to go back to specifics. One approach that could be taken would be to identify the specific actors that affect, and are affected by, technological and organisational change. Another approach might be to re-examine and model the environment in which information systems are used, again, at a reasonably high level of detail. By mapping the results of these inquiries back to the four domain model, some gaps might be identified. Filling these gaps would enable a more detailed, current model of alignment to be used as a tool by IS strategic managers.

REFERENCES

Benbya, H. and B. McKelvey (2006). "Using coevolutionary and complexity theories to improve IS alignment: a multi-level approach." Journal of Information Technology 21: 284-298.

Broadbent, M. and E. Kitzis (2005). The New CIO leader: Setting the Agenda and delivering the results, Harvard Business School Press.

Broadbent, M. and P. Weill (1993). "Improving business and information strategy alignment: Learning from the banking industry." IBM systems journal 32(1): 162-179.

Brown, S. L. and K. M. Eisenhardt (1997). "The Art of Continuous Change: Linking Complexity Theory and Time-paced Evolution in Relentlessly Shifting Organizations." Adminstrative Science Quarterly 42: 1-34.

Brown, S. L. and K. M. Eisenhardt (1998). Competing on the Edge: Strategy as Structured Chaos. Boston, Massachusetts, Harvard Business School Press.

Chaffee, E. E. (1985). "Three Models of Strategy." Academy of Management Review 10(1): 89-98.

Chan, Y. E. (2002). "Why haven't we mastered alignment? The importance of the informal organization structure." MIS Quarterly Executive 1(2): 97-112.

Chan, Y. E., S. L. Huff, et al. (1997). "Business Strategic Orientation, Information Systems Strategic Orientation, and Strategic Alignment." Information Systems Research 8(2): 125-150.

Chan, Y. E. and B. H. Reich (2007). "IT alignment: an annotated bibliography." Journal of Information Technology 22(4): 316-396.

Ciborra, C. (1997). "De Profundis? Deconstructing the concept of strategic alignment." Scandinavian Journal of Information Systems 9(1): 67-82.

D'Aveni, R. A. (1994). Hypercompetition: Managing the Dynamics of Strategic Maneuvering, Simon and Schuster.

Dechow, N. and J. Mouritsen (2005). "Enterprise Resource Planning Systems, Management Control and the quest for integration." Accounting, Organisations and Society 30: 691-733.

Eisenhardt, K. M. and S. L. Brown (1998). "Time Pacing: Competing in Markets that won't stand still." Harvard Business Review: 59-69.

Eisenhardt, K. M. and J. A. Martin (2000). "Dynamic capabilities: What are they?" Strategic Management Journal 2000(21): 1105-1121.

Henderson, J. and N. Venkatraman (1993, 1999). "Strategic alignment: Leveraging information technology for transforming organisations." IBM systems journal 32 (1993); 38 (1999)(1 (1993); 2&3 (1999)).

Luftman, J. (2000). "Assessing Business-IT Alignment Maturity." Communications of the Association for Information Systems 4.

Luftman, J. (2005). "Key issues for IT executives 2004." MIS Quarterly Executive 4(2): 269-285.

Luftman, J. (2006). "Key issues for IT executives 2005." MIS Quarterly Executive 5(2): 27-45.

Luftman, J., R. Papp, et al. (1999). "Enablers and Inhibitors of Business-IT alignment." Communications of the Association for Information Systems 11(1).

Mintzberg, H. (1978). "Patterns in Strategy Formation." Management Science 24(9): 934-948.

Mintzberg, H. (1987). "Crafting Strategy." Harvard Business Review: 66-75.

Orlikowski, W. J. (1996). "Improvising Organizational Transformation Over Time: A Situated Change Perspective." Information Systems Research 7(1): 63-92.

Peppard, J. (2005). Developing Relevant Research: Reconsidering the Conceptualisation of the IS organisation.

Peppard, J. and K. Breu (2003). Beyond Alignment: A coevolutionary view of the information systems strategy process. Twenty-fourth International Conference on Information Systems.

Peppard, J., R. Lambert, et al. (2000). ""Whose Job Is It Anyway? Organizational Information Competencies for Value Creation"." Information Systems Journal 10(4): 291 - 323.

Prahalad, C. K. and M. S. Krishnan (2002). "The Dynamic Synchronization of Strategy and Information Technology " MIT Sloan Management Review: 24-33.

Quattrone, P. and T. Hopper (2001). "What does organizational change mean? Speculations on a taken for granted category." Management Accounting Research 12: 403-435.

Ross, J. W. and D. F. Feeny (1999). The Evolving Role of the CIO, Centre for Information Systems Research, Sloan School of Management.

Sabherwal, R. and Y. E. Chan (2001). "Alignment between Business and IS Strategies: A Study of Prospectors, Analyzers, and Defenders." Information Systems Research 12(1): 11 - 33.

Sabherwal, R., R. Hirschheim, et al. (2001). "The Dynamics of Alignment: Insights from a Punctuated Equilibrium Model." Organization Science 12(2): 179-197.

Weiss, J. W., A. Thorogood, et al. (2006). "Three IT-business alignment profiles: technical resource, business enabler, and strategic weapon." Communications of the Association for Information Systems 18: 676-691.

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