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e-Volutionary Strategies for e-Business

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ABSTRACT

This paper reviews the relevance of strategic approaches in an e-business world and proposes a co-evolutionary approach to strategic development, management and change. This implies an approach to a strategy which will include an evaluation of the stage of evolution of the e-market and the organisational dependency on e-knowledge. A framework encompassing these elements is advanced for future strategic analysis and a model of staged growth proposed.

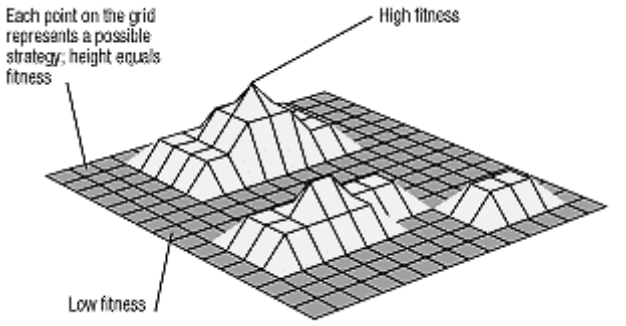
INTRODUCTION

The Co-evolutionary Approach to Strategy

There are many existing models of strategy - designed strategy, emergent strategy, strategy as revolution, and yet few examples of organisations applying these well defined models to secure competitive advantage in the current environment of constant change. Are such strategic models redundant? Beinhocker (1999a) suggests that what is needed is a model of a world where innovation, change and uncertainty are the natural state of things. Strategy is full of contradictions and dilemmas as evidenced by the Red Queen effect (Kauffman, 1995). The Red Queen in Through the Looking Glass remarks "It takes all the running you can do to keep in the same place". In a system of co-evolution, when the predator learns to run faster, the prey starts to climb trees and then the predator develops alternative means of transport and so on. Long term sustainable advantage isn't possible without continual adaptation. A study of the performance of more than 400 organisations over thirty years reveals that companies find it difficult to maintain higher performance levels than their competitors for more than about five years at a time (Beinhocker, 1999b).

Advantage tends to be competed away quite quickly and increasingly so in this new global market. In a system of co-evolution, adaptation can be seen as the attempt to optimise systems riddled with conflicting constraints. Strategy is all about adaptation - reconciling opposing issues in tension or dilemmas or polarities. Strategy answers two basic questions: "Where do you want to go?" and "How do you want to get there?". Traditional approaches focus on the first question and only later, if at all, is the second question addressed (Eisenhardt et al, 1997). Even combined, these approaches are incomplete since they overemphasise executives' abilities to forecast and predict in a highly competitive, high-velocity market and underemphasise the challenge of actually creating effective strategies. Traditional strategy focuses on a single line of attack - appropriate for short term niche domination but insufficient in the longer term. Given uncertain environments, strategies must also be robust and allow for the organisation to pursue a package of potentially conflicting strategies at the same time. A robust package of strategies can be likened to a portfolio of real options and as with financial options, the greater the uncertainty, the greater their value (Jarvenpaa and Tiller, 2000). The value of an option represents the potential benefit a firm may reap in the future beyond a value that can be estimated using the current organisational capabilities and knowledge in the market. Hence a strategy is a path of related options and there is no such thing as a well thought-through overall strategy. Companies need to cultivate evolving populations of strategies. Kauffman (1995) refers to this evolutionary process as the development of fitness landscapes where the corporations will search for the high points on these fitness landscapes which can assume various forms - Figure 1.

Figure 1. Fitness Landscapes



This process of evolutionary search is continuous but should also employ parallelism with multiple landscapes and strategic teams employing different techniques to explore the terrain. Such strategies force people to deal with ambiguity and accelerate constructive conflict (Eisenhardt et al, 2000; Beinhocker, 1999a, 1999b) and this requires the development of a new mindset that will encompass the following:

- Investing in diversity
- Valuing strategies as if they were options
- Categorising the mix of strategies
- Stress-testing strategies
- Bringing the market inside
- Using venture capital performance metrics

Successful adaptation also implies co-evolution between the organisation and the strategy model. Not only must strategy models be adapted to fit the unique characteristics of an organisation but also organisations need to evolve to benefit from the lessons incorporated into the strategic model and so both the organisation and model continually change. This perpetual co-evolutionary process takes place within an ecosystem of evolving markets.

E-MARKETS ECOSYSTEMS

Driven by such phenomena as the World Wide Web, mass customisation, compressed product life cycles, new distribution channels and new forms of integrated organisations, the most fundamental elements of doing business are changing and a totally new business environment is emerging. This environment is characterised by rapid exchange of information within a virtual network of customers and suppliers working together to create value-added processes (Wigand and Benjamin, 1995; Burn and Barnett, 2000). Described here as the e-market, it brings with it new forms of IT-enabled intermediation, virtual supply chains,

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increasing knowledge intensity and information based business architecture strategies. Core business processes may need to be rethought and redesigned, new organisational forms and inter-organisational forms may need to be developed and where the emphasis will be on collaboration rather than competition within the e-market.

Moore (1997) suggests that businesses are not just members of certain industries but parts of an ecology that incorporates different industries. The driving force is not pure competition but co-evolution. The term coevolution originated in biology. It refers to successive changes among two or more ecologically interdependent but unique species such that their evolutionary trajectories become intertwined over time. As these species adapt to their environment, they also adapt to one another. The result is an ecosystem of partially interdependent species that adapt together. This interdependence is often symbiotic (each species helps the other), but it can also be commensalist (one species uses the other). Competitive interdependence can emerge as well: one species may drive out the other, or both species may evolve into distinct, noncompetitive niches. Interdependence can change, too, such as when external factors like the climate or geology shift.

The e-market ecosystem is seen as "an economic community supported by a foundation of interacting organisations and individuals - -Over time they coevolve their capabilities and roles, and tend to align themselves with the direction set by one or more central companies" (p. 26). The ecosystems evolve through four distinct stages and at each of these stages the ecosystem faces different leadership, cooperative and competitive challenges. This ecosystem can be viewed as the all-embracing e-market culture within which the e-business maintains equilibrium.

Table 1. e-Market Ecosystem*. (after Moore, 1997)*

EcoSystem Stage	Leadership Challenges	Cooperative Challenges	Competitive Challenges
Birth	Maximise customer delivered value	Find and Create new value in an efficient way	Protect your ideas
Expansion	Attract Critical Mass of Buyers	Work with Suppliers and Partners	Ensure market standard approach
Authority	Lead co-evolution	Provide compelling vision for the future	Maintain strong bargaining power
Renewal or Death	Innovate or Perish	Work with Innovators	Develop and Maintain High Barriers

This view is supported by Eisenhardt and Galunic (2000) who point out that the new roles of collaboration in e-business are actually counterintuitive and that collaboration does not naturally lead to synergy. Where synergies are achieved the managers have mastered the corporate strategic process of coevolving. These managers routinely change the web of collaborative links - everything from information exchanges to shared assets to multibusiness strategies -among businesses. The result is a shifting web of relationships that exploits fresh opportunities for synergies and drops deteriorating ones.

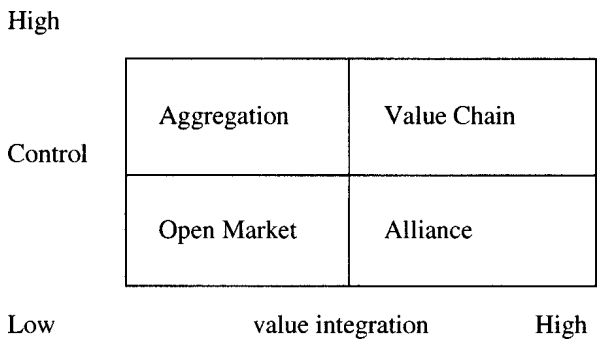
Table 2. Traditional Collaboration Versus Coevolution (after Eisenhardt and Galunic, 2000)

	Traditional Collaboration	Coevolution
Form of collaboration	Frozen links among static businesses	Shifting webs among evolving businesses
Objectives	Efficiency and economies of scale	Growth, agility, and economies of scope
Internal dynamics	Collaborate	Collaborate and compete
Focus	Content of collaboration	Content and number of collaborative links
Corporate role	Drive Collaboration	Set Collaborative Content
Business role	Execute collaboration	Drive/execute collaboration
Incentive	Varied	Self-interest, based on individual business unit performance
Business metrics	Performance against budget, preceding year, or sister-business performance	Performance against competitors in growth, share and profits

Models of e-Markets

This ecosystems approach can be applied to different market models such as the four models of market environments identified by Ticoll et al (1998) in their examination of e-business communities. They suggest that such markets differentiate along two primary dimensions: economic control and value integration (figure 2).

Figure 2. Four Models of e-Market



The open market model is basically a business to consumer model without any single player in overall control although different players and market alliances can drive events at different times. The aggregation model normally has one business in control positioning itself between suppliers and producers. Value chains have a similarly hierarchical model but maximise value integration through operational effectiveness and alliances retain that high value integration but rely on shared visions, standards and business practices to provide a full solution environment without any single company exercising overall control. Jansen et al (1999) suggest that another classification can relate the control variable to the emphasis on efficiency or flexibility and innovation and that this will imply a stable or dynamic market. In many virtual market environments this can be seen as a staged growth evolution of e-business maturity. Each of these stages of maturity demands different approaches to strategy and different approaches to process management.

Strategies for e-Markets

Berryman et al (1998) suggest there are three types of marketplace: those controlled by sellers, those controlled by buyers, and those controlled by neutral third parties. Marketplaces controlled by sellers are usually set up by a single vendor seeking many buyers. Its aim is to create or retain value and market power in any transaction. Buyer-controlled marketplaces are set up by or for one or more buyers with the aim of shifting power and value in

the marketplace to the buyer's side. Many involve an intermediary, but some particularly strong buyers have developed marketplaces for themselves.

Figure 3. Strategies for e-Markets

Seller Controlled	Information-only vendor web Vendor web sites with on-line ordering	Cisco Systems
Buyer controlled	Web site procurement planning Purchasing agents Purchasing aggregators	Japan Airlines Freemarkets Online TPN Register
Neutral	Industry/product specific search engines Information marts Business malls Auction spaces	FastParts

Companies wanting to evaluate which model suits them best should answer the following four questions to help them determine an appropriate strategy.

- Are there transaction savings or benefits to be realised?
  - Cost reduction through greater process efficiency
  - Improved reach
  - Reduction in prices to buyers
- Is an electronic market for our product developing quickly?
  - Do we have transaction inefficiencies?
  - How sophisticated is the buyer?
  - Is the product e-friendly?
- Would a neutral intermediary be beneficial?
  - Advantage of scale in transaction processing
  - Value of the information acquired during buying and selling
  - Anonymity.
- Do we have substantial market share or buying power?

For buyers, the strategic imperative is clear. They have little to lose and much to gain. and should therefore organize a buyer-controlled marketplace as quickly as possible. The dynamics of electronic marketplaces also create clear opportunities for third-party intermediaries, which can create value by virtue of their neutrality. Sellers are the most vulnerable participants, because they will increasingly have to compete with other vendors in a transparent environment. The dynamics and rapid growth of electronic marketplaces are forcing businesses to choose their strategies now. Electronic business-to-business commerce is not simply a question of automating existing channels and processes. It is a whole new way of doing business. Central to this is the development of a knowledge based culture in the organisation.

KNOWLEDGE BASED CULTURES

In the e-Business of today knowledge is the most strategically important resource and learning the most strategically important capability (Zack, 1999; MacLeod, 1999; Hansen et al, 1999). However, initiatives being undertaken to develop and exploit organisational knowledge are of little value if they are not explicitly linked to the overall business strategy. In turn, the strategic process must reflect the continual learning capabilities of the organisation. The solution is to develop a perpetual strategy process which will

embed knowledge and competitive intelligence into a continual monitoring of the external and internal environment and induce continual re-engineering of the organisation in line with shifting demands (Tyson, 1998). Such a strategy should be resource-based emphasising distinctive, firm-specific and hard to copy assets, skills and knowledge. These are generally referred to as core competencies or distinctive capabilities that confer competitive advantage on the business. (Pitt and Clarke, 1999). Strategic management or management of strategic innovation is the purposeful orchestration and directed application of such organisational skills and knowledge. Such strategies, however, are not so easily implemented in a virtual community where concepts such as assets, skills and knowledge may not be firm specific but rather stem from the synergistic coalescence of multiple organisations networked in the virtual chain. It is nevertheless vital that as organisations become more virtual, experience, information and expertise is coherently managed and used to support future e-business initiatives and enhanced virtual alliances.

e-Knowledge - what it is and what it isn't.

Knowledge management is concerned with recognising and managing all of an organisation's intellectual assets to meet business objectives. Knowledge does not come from processes or activities; it comes from people and communities of people. An organisation needs to know what knowledge it has and what knowledge it requires – both tacit and formulated, who knows about what, who needs to know and an indication of the importance of the knowledge to the organisation and the risks attached. The goal of a knowledge management strategy should be to understand the presence of knowledge communities and the various channels of knowledge sharing within and between them, and to apply ICT appropriately. This takes place at the level of the individual, networks of knowledge within the organisation and community networks. This can be described as:

- Knowing individually what we know collectively and applying it
- Knowing collectively what we know individually and making it (re)usable
- Knowing what we don't know and learning it

(Havens and Knapp, 1999)

Knowledge management is both a discipline and an art. There are techniques that can be defined, taught, learned, replicated, customised and applied to yield predictable outcomes but, it's the art part that counts. Emphasis on the human nature of knowledge creation has moved knowledge management away from its early technology-centric interpretation towards a view that can provide multiple, diverse and contradictory interpretations. This is described as "the sense-making view" by Malhotra (2000) and is one that promotes continual challenge of the current company way and the basis for creative abrasion (Eisenhardt et al, 1997).

e-Knowledge strategies

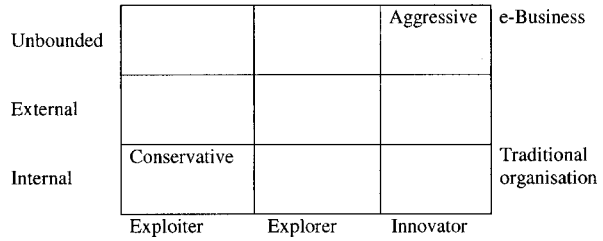
Competitive strategy must drive knowledge management strategy but categorising what an organisation knows and should know about its industry or competitive position is not easy (Zack, 1999; Hansen et al, 1999). If it were easy then competitive advantage would be unsustainable. As a first step the organisation needs to determine the value of knowledge to its business. In other words it must align its knowledge resources and capabilities to the intel-

lectual resources of its strategy. This should be measured against two dimensions and related to knowledge aggressiveness. The first dimension addresses the extent to which an organisation is primarily a creator or user of knowledge and the second addresses whether the primary sources of knowledge are internal or external. These together will provide the strategic framework in which knowledge management strategy needs to be developed. Internal knowledge is obviously especially valuable and should be exploited but as witnessed by insider trading deals, this needs to be conducted in an ethical and legal manner. Further, in today's competitive markets such niche or monopolistic positions are seriously challenged. In the virtual organisation exploitation of external knowledge can take place through the value network to create knowledge advantage within a bounded situation. This can be further extended along the supply chain into unbounded environments to include customers in knowledge exchange. Mechanisms include user groups, joint ventures, beta-testing, web sites, electronic mail, toll-free numbers, customer care centres, customer advisory boards, conferences and even social gatherings.

Combining the knowledge exploitation vs exploration orientation of the organisation with its internally vs externally acquired orientation towards knowledge strategy gives a framework for the e-business as shown in Figure 4.

Figure 4. Framework for e-Knowledge Strategy (adapted from Zack, 1999)

Exploration and exploitation typically occur in different parts



of the organisation and are often separated temporally and culturally as well as organisationally. Balancing these requires a knowledge culture, transfer and integration capability which is itself strategic and subject to constant reevaluation. The choice of exploitation, exploration or innovation reflects the overall competitive business strategy of the organisation. Strategic positioning within this framework reflects the knowledge management strategy in alignment with the business strategy. These two together can radically change the organisation and the way it is positioned within the marketplace. The successful virtual organisation will be the one who maximises the value which can be obtained from its strategic interorganisational alliances and moves towards the model of unbounded innovators. In knowledge intensive industries this aggressive strategy has been shown to outperform more conservative ones (Bierly and Chakrabarti, 1996; Zack, 1999).

Developing an Evolutionary Approach to Strategies

Knowledge is so dependent on individuals that a rigid distinction between strategy and organisation is inappropriate and, indeed, successful knowledge strategies involve almost every aspect of a company's organisational design. This is not something that can be lightly undertaken but it can be part of a staged growth development, which should be implemented through an iterative and parallel development process rather than linearly.

1. Find out where, how and **why** knowledge matters in the organisation
2. Continually review your current market alliances, customers, suppliers and competitors
3. Set the vision for value creation through knowledge management
4. Establish how an integrated view of knowledge management can be developed and maintained
5. Understand the implications of knowledge for organisational and network design
6. Experiment, prototype and fine tune.
7. Adjust the organisation's external posture and conduct and build value through innovation
8. Continually measure and monitor knowledge

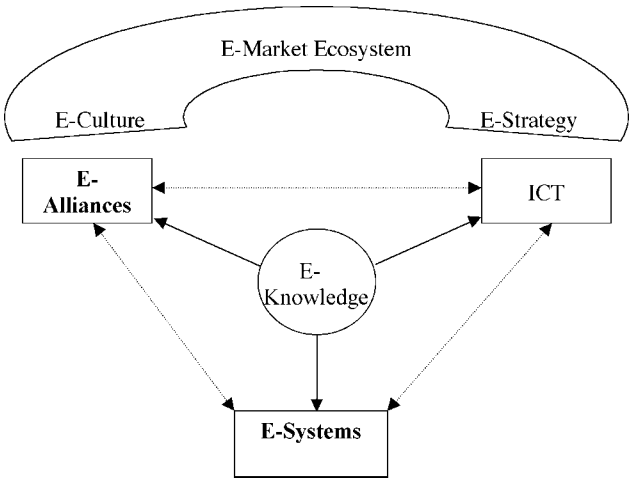
This perpetual strategy process can be described as creative abrasion (Eisenhardt et al, 1997) and is integral to the development of an effective competitive intelligence system which will drive the virtual organisation and enable it to embrace dynamic change in the virtual marketplace.

MANAGING EVOLUTIONARY CHANGE

As previously argued, the e-business has three choices for strategic direction, exploiter, explorer and innovator and these represent the entrepreneurial domain. The engineering and administrative domain are change factors that need to be integrated into the overall strategy and maintained in alignment. The degree to which virtuality can be applied in the organisation will relate to the extent to which the change management factors are in alignment. When these are not aligned then the organisation will find itself dysfunctional in its exploitation of the virtual marketspace and so be unable to derive the maximum value benefits from its strategic position. The framework shown in Figure 5 offers a conceptual model to position the e-business strategy in an organisation and to focus on specific management issues relating to this strategy.

The exploiter strategy will focus on maximising the effectiveness of business processes along the value chain through ICT, the explorer strategy will extend market reach by strengthening structural alliances and interorganisational partnerships along the supply/demand chain and the innovator will be attempting to integrate all these processes into a virtual value chain and to move into new e-markets.

Figure 5. E-Business Management Model



This will require an evolutionary approach to overall e-strategy as shown in Table 4, incorporating the processes and business requirements of customers and suppliers and building a foundation of trust. It is also essential to apply "outside-the-box" thinking to capture information from sources of innovation and create the opportunity to share information in non-competitive situations. The e-business that excels will learn from others.

Table 4. Staged Strategies

Strategy	Focus	Stage	Web site
Exploiter	Customer service personalisation and marketing	Presentation	Static or Mail Order web site – brochureware and advertising, online orders
Exploiter/Explorer	Cost reduction and speed of processing	Communication	Tailored to trading partner-View inventory/orders in hand
Explorer	Efficient pricing and expanded product lines	Interaction	Customer/Supplier order placement/mall/ auction bids
Explorer	Core business concentration	Fulfillment	Links to back-end fulfillment systems
Explorer/Innovator	Expansion of products/services/ business	Collaboration	Dynamic interaction
Innovator	Diffusion of niche markets	Collaboration and Competition	Virtual decision making and Diffused Control

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