Competitive advantage:
it takes knowledge to sustain the edge

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Nowadays, getting a competitive advantage is just the first step. Sustaining it is more difficult. There's no clear forumula, but successful companies are finding that knowledge is power, and are doing everything they can to nurture and absorb it.

The significance of the emerging, epoch-making e-business paradigm is that – like anything that introduces widespread change in any industry – it exposes companies within that industry to much higher levels of risk and reward.

Unless financial institutions are prepared to commit to company-wide transformation towards customer-centric business models and act on this commitment, they leave themselves extremely vulnerable to both financial sector and non-financial sector competitors.

In the past, South Africa could enjoy the luxury of being able to follow the lead of early adopters of technology, waiting for pioneers to iron out mistakes before adopting a particular approach. These days are over.

First-mover advantage will offer tremendous benefits to those bold enough to let go of their past and transform their approach to a customer-centric one.

It is no longer good enough to achieve a competitive advantage over your opponents in business; achieving sustainability of that competitive advantage is now the challenge.

In trying to formulate a strategy for achieving sustainable competitive advantage we find that in a world where customer preferences are volatile, the identity of customers is changing, and the technologies for serving customer requirements are continually evolving, an externally-focused orientation does not provide a secure foundation for formulating long-term strategy.

And for those who believe IT to be the answer to all their competition woes, there is bad news. Information technology does not always ensure a competitive advantage. Although there are a number of IT success stories, it would appear that only a few sustain competitive advantage (reputedly). Owing to imitation by competitors, some companies achieve a temporary competitive advantage from IT, until they are copied – and ultimately, the competitors end up enjoying the advantages of new and better technology at lower cost.

The answer, therefore, lies in complementing IT with other in-house resource endowments. According to our research, if IT is able to exploit a company's unique resources and change the value of key resources by reducing costs of integrating and co-ordinating economic activities, it increases production economics such as scale, scope and specialization.

Therefore, it is the differences in resources (heterogeneity) between competing companies that enable them to achieve and sustain competitive advantage from IT. The combination of unique firm assets and resources in conjunction with IT are critical factors in achieving sustained competitive advantage.

E-BUSINESS STRATEGY. In our definition, a company is said to have a competitive advantage when, based on its strategic architecture and complementary resource combinations (CRCs), it has the ability to implement an e-business strategy that generates returns and benefits in excess of those of its current competitors (who simultaneously are implementing strategies, similar or otherwise) because of the perceived value in the marketplace.

The definition therefore also depends on what the company, its management and its stakeholders define as the required returns and benefits. (An advantage need not be financial.)

To take this further, a company is said to have a sustained competitive advantage when it is implementing a value-creating e-business strategy which generates returns and benefits at a level not enjoyed by current competitors and when these other companies are unable to reach an equilibrium level with the company.

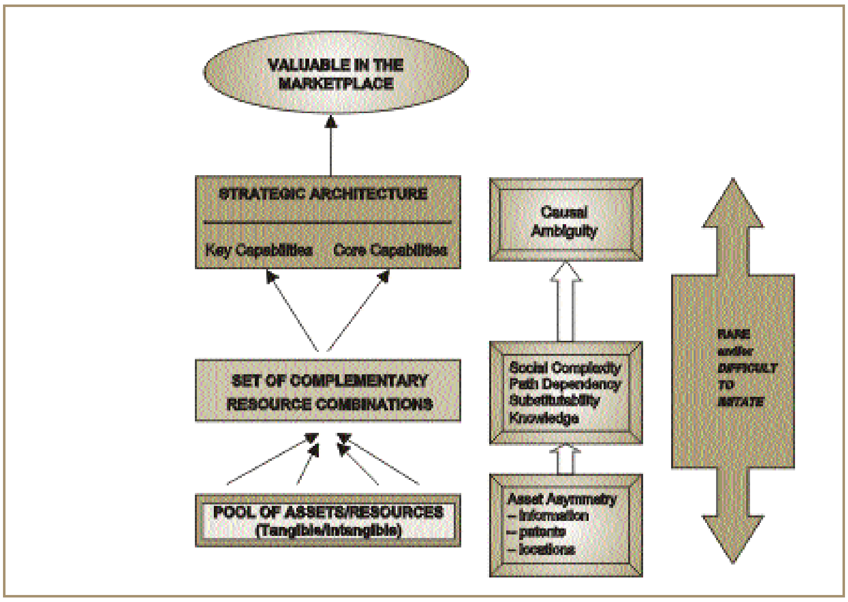

Exhibit 1: Chain of sustainability and its relationships

Thus, the definition of sustained competitive advantage adopted here does not imply that it will last forever, nor does it depend upon the period of time during which a company enjoys a competitive advantage.

By looking at a well established industry, such as the university situation in the UK, one can further understand our definitions. The fact that other universities in the UK have managed to increase their student intake, get world recognition and publish high quality research does not necessarily mean that Oxford University has lost its competitive advantage in the university education marketplace.

As a result of the perceived value of this institution's capabilities and CRCs in the marketplace, it is still able to extract returns and benefits that are greater than its competitors. Examples of such benefits are research funding levels, quality of student intake, quality of faculty that it is able to attract, recruitment of its graduates by sought-after employers and salary possibilities of graduating students, among others.

However, the sustainability of the advantage ceases, in our view, when other institutions are able to equal (reach equilibrium) or exceed the level of returns and benefits enjoyed by Oxford University, resulting from the perceived value of its capabilities and CRCs in the marketplace.

It would be interesting to see what would happen to the returns and benefits currently enjoyed by Oxford University, if the marketplace reacts to a 1999 newspaper article in The Times of the UK (23 April 1999). The article printed a UK university listing in which it rated both Cambridge University and Imperial College of London above Oxford University on certain criteria. Therefore, according to our definitions, if this means that either institution, as a result of this new information, reaches equilibrium or greater levels of returns and benefits than those previously enjoyed by Oxford, then

Oxford has lost its competitive advantage.

By contrast, some authors have suggested that a sustained competitive advantage is simply a competitive advantage that lasts a long period of calendar time (Porter 1985; Jacobsen 1988). This suggestion, in our view, is not helpful as it quickly degenerates into debates around the actual amount of time a company must enjoy an advantage for before it is termed a "sustainable advantage".

sustainability, the company's pool of assets or resources, its strategic architecture, and its set of complementary resource combinations.

It is argued here that, in the new economy, companies need to develop and build their idiosyncratic bases for sustaining competitive advantage through characteristics – also known as imitation barriers (Williamson 1979), or isolating mechanisms (Rumelt 1984) – which have been in business for a long time, but which

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From an e-business strategy perspective, it is more important to note whether there is any evidence to suggest that a company's current capabilities and CRCs can cause it to maintain an advantage in the future.

Unanticipated changes in the economic structure of an industry may make a one-time source of sustained competitive advantage no longer valuable for a company, and thus not a source of any competitive advantage.

These structural revolutions redefine what capabilities are valuable in an industry, and a firm enjoying a sustained competitive advantage may see its competitive advantage nullified by such changes.

A SUSTAINABILITY CHAIN. Resource-based theory suggests that, in a company's search for sustainability of competitive advantage in the e-conomy, a better start would be to look internally, rather than focus most of its attention externally.

Exhibit 1 sets out the chain of sustainability that exists within the company. It shows the relationship between the characteristics that are necessary to achieve and maintain need to be thought through, understood and implemented in new ways within the e-business paradigm:

- Rare/difficult to imitate.

  In moving from basic assets or resources, through to CRCs, and eventually to key and core capabilities, the company wants it all to be rare and difficult to imitate. Barney (1991 105) makes the point that it must be rare among a company's competitors. The rarity depends on the combination of physical rarity in the factor market and/or the rarity of the perceived value in the marketplace. That is, they must not be widely distributed within the financial services and banking sectors, as well as rare in the entire marketplace – since competitors will not necessarily only evolve out of the financial industry. They must also be closely identified with a given company, and therefore difficult to transfer or trade (eg a brand image or an exclusive alliance or partnership).

- Asset asymmetry.

  Asset asymmetry is when the company may be either lucky in acquiring rare assets, or has worked hard to make those assets rare. Examples of 'lucky' assets could be the co-optation of a sole raw material source (the company exclusively owns a raw material that gives it an advantage, eg De Beers and diamonds) or locations (the company owns prime real estate that gives it a competitive advantage, eg a hotel that owns land on the water's edge at a beachfront development).

- Social complexity, path dependency, substitutability and knowledge.

  Social complexity is when the source of advantage is known, but the method of replicating the advantage is unclear. Examples of this can include corporate culture (Barney 1986b; Teece 1987; Winter 1987), the interpersonal relations among managers or employees in a company (Hambrick 1987) or levels of trust between management and employees (Amit and Schoemaker 1993).

These CRCs exist in a complex web of social interactions and may even critically depend on particular individuals. Socially complex resource combinations depend on large numbers of people or teams engaged in coordinated action such that few individuals, if any, have sufficient breadth of knowledge to grasp the overall phenomenon (Barney 1991; Reed and DeFillippi 1990). The necessary work of e-strategists is understanding those socially complex resource combinations to develop them, nurture them, and grow them.

This is also in part the work of new human resource (HR) departments in the new economy. Human resource professionals are internal business consultants to the company, and understand the social complexities that enable the strategic architecture of the company. They are trained in business and do not partake in old style HR administration, payroll and data capture activities. Instead, they add value by analysing the CRCs of the company as it relates to the people issues, and play significant roles in developing business e-strategies.

Although physical and financial resources may produce a temporary advantage for a company, they often can be readily acquired on factor markets by competitors or new entrants.

cannot obtain them, and these resources are imperfectly imitable (eg Oxford University). Competitors cannot just go out and buy these CRCs instantaneously – instead, they must be built over time.

This is the lesson for e-business. Companies need to put in place CRCs in the given time and space (which are quickly disappearing), otherwise they will find it extremely hard (maybe impossible) to obtain them in the near future.

> “Physical and financial resources may produce a temporary advantage, but can often be readily acquired by competitors”

Conversely, a unique path through history (path dependency) may enable a company to obtain unusual and valuable resources, and resource combinations, that cannot be easily acquired, or imitated, by competitors. Path dependency, or time compression diseconomies (Dierickx and Cool 1989; Powell and Dent-Micallef 1997) happens when the complementary resource combinations of the company were developed over a long period, cannot be duplicated, and may depend on the history of the use of resources in an extremely complex (path dependent) process.

Path dependency within a company is contingent upon preceding levels of learning, investment, asset and resource stocks, managerial choice and decision, organisational infrastructure, and development activity (Dierickx and Cool, 1989). Barney (1991 107) asserts that a company's ability to acquire and exploit some resources depends upon its place in time and space. Once this particular unique time in history passes, companies that do not have space and time dependent resources

Would-be imitators are thwarted by the difficulty of discovering and repeating the developmental process and by the considerable lag involved. The longer-lasting a CRC is (durability), the more rungs it adds to its path dependency, and hence, the more difficult it becomes for competitors to imitate it.

In order for CRCs to be durable, they must be difficult to substitute. According to Black and Boal (1994), substitutability rests on the continuation of imperfect factor markets, the costs involved in the recreation of specific combinations, or the cost of finding a new combination of resources that will enable the company to compete for the same product or service market (ie a new path with new requirements).

Tacit resource combinations are skill-based and people intensive, and many now argue that knowledge, and particularly tacit knowledge, is strategically the most significant resource of a firm (Quinn 1992; Grant 1996a 1996b 1991; Spender 1996; Schendel 1996; Spender and Grant 1996; Davenport and Prusak 1998).

Knowledge, says futurist Alvin Toffler (1990), is now the basis of power and wealth creation. Tacit knowledge is when the knowledge of the company routines cannot be fully articulated by employees in the competitive company.

Tacit knowledge is usually defined as that which cannot be written down or specified, and is embedded in the interactive routines, rituals and behaviours of individuals within their companies. Such CRCs are intangible, based upon learning by doing, are accumulated through experience and refined in practice, and are often also immobile and thus bound to the company (Itami 1987; Polanyi 1962). Companies in the new economy thus have to find ways to identify their tacit knowledge, embed the tacit knowledge internally, and grow and nurture that tacit knowledge.

Thus, effective financial services and banking leaders in the e-conomy need to develop knowledge networks (people networks, as well as technological networks, both internally and externally), get knowledge management initiatives off the ground and develop new knowledge configurations.

It is also important for e-strategists to understand their company's specific absorptive capacity, which closely relates to its ability to reconfigure and grow existing knowledge. Grant (1996a) has argued that the primary role of the company is the integration and use of knowledge. This ability is labelled by Cohen and Levinthal (1990) as a company's absorptive capacity and stems from the premise that a company needs prior related knowledge to absorb and use new knowledge. According to Van den Bosch, Volberda and de Boer (1999), absorptive capacity comprises evaluation, acquisition, integration, and the commercial use of new inside knowledge. Other recent publications (Cohen and Levinthal 1990 1994 1997; Lane and Lubatkin 1998; Van den Bosch, Volberda and de Boer

1999) suggest that absorptive capacity is an important moderating factor for companies in assimilating new knowledge.

It may enable or restrict the level and range of exploration adaptations (Lewin, Long, and Caroll 1999) and therefore the necessary dynamic agility required of companies in the new economy.

Financial institutions confronted with dynamically changing knowledge environments, such as in the new economy, should aim to constantly keep reconfiguring their component knowledge (Van den Bosch, Volberda and de Boer 1999). Distinguishing between a few types of component knowledge helps:

- knowledge related to internal relationships within the company
- knowledge related to products and services
- knowledge related to business processes and business units
- knowledge related to specific projects and implementations
- knowledge related to customers
- knowledge of the marketplace

Component knowledge can reside within the company itself, within the company's traditional knowledge environment, and within knowledge environments that have yet to be explored – both inside and outside of the company.

Cohen and Levinthal (1990) inform us that outside sources of knowledge are critical to the innovation process in general. Component knowledge consists of both tacit and explicit knowledge (Nonaka 1994; Boisot 1998). E-strategists in South African financial institutions therefore have to make informed decisions about the type of innovation they want to implement, as it has consequences on the sorts of knowledge reconfiguration and new knowledge configurations that would be possible, as well as the future knowledge absorption capability of the company.

Building on, and adapting, Grant's (1996a) knowledge integration concepts, as well as the knowledge absorption characteristics of Van den Bosch, Volberda and de Boer (1999), there are five dimensions of knowledge absorption that are required in the new economy:

> "Absorptive capacity comprises the evaluation, acquisition, integration, and the commercial use of new inside knowledge"

- Efficiency: Efficiency of knowledge absorption refers to how companies identify, assimilate, and exploit knowledge from a cost and speed perspective.
- Effectiveness: Effectiveness of knowledge absorption refers to the use and correct, relevant application of component knowledge in adding value to CRCs in enabling the strategic architecture of the company.
- Scope: Scope of knowledge absorption refers to the breadth of component knowledge a company draws on – both internal and external component knowledge.
- Flexibility: Flexibility of knowledge absorption refers to the extent to which a company can access additional and reconfigure existing component knowledge.
- Scalability: Scalability of knowledge absorption refers to the extent to which a company can grow and develop relevant component knowledge.

New knowledge is often the product of a company's ability to generate new applications from existing knowledge components (Kogut and Zander 1992).

The knowledge reconfiguration and new knowledge configuration consequently serve as platforms for producing adapted and new CRCs, and thus affect the way in which a particular company is able to compete in the e-conomy.

The absorption of different types of new component knowledge becomes a critical ability to master for a company's management and leadership. Consequently, according to Van den Bosch, Volberda and de Boer (1999), the ability of the company to evaluate, assimilate and utilise outside knowledge for commercial ends is of crucial strategic importance.

- Causal ambiguity.

  Causal ambiguity refers to uncertainty regarding the causes of efficiency and effectiveness differences among companies, and a company's competitors are not sure which resource combinations are enabling specific capabilities, that are earning the profits. Barney (1991 108-109) defines it as follows: "Causal ambiguity exists when the link between the [capabilities] controlled by a company and a company's sustained competitive advantage is not understood or understood only very imperfectly."

It is difficult to understand why one company consistently outperforms other companies. Causal ambiguity is at the heart of this difficulty. This is the challenge for financial institutions to initially understand what these clusters of CRCs are that are driving and enabling their strategic capabilities to generate profit and then to embed that understanding within the business processes and thinking (therefore e-business strategy) within the company. ■