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THINKING STRATEGICALLY ABOUT E-COMMERCE TO ACHIEVE COMPETITIVE ADVANTAGE

1. Introduction

During the past 15 years since the Internet was opened to commercial purposes, the intersection of commercial and technological innovations provided dramatic shifts in wealth. Along with large successes, there were many negative failures that were unable to cash in on the “Internet Boom” of the late 1990s. The advantage of hindsight makes it relatively easy to explain why successful sites made it and failures occurred. However, at the time the new ventures were proposed and funded, it was much less difficult to predict which would ultimately make it.

Many of the decisions were made with a great deal of optimism and bewilderment and little analysis. It is common knowledge that many venture capitalists did not require diligently-prepared business plans before writing their checks for millions and millions of dollars. It is particularly interesting that many investors seemed to forget their business roots. For other decisions, they seemed rational enough, counting on analyses of return on investment and net present value. Every dollar invested in cost-avoidance projects seemed over-analyzed and over-justified, in comparison to new e-commerce investments. The irony was that the cost-avoidance projects were less risky than the new ventures, yet required less analysis. The Internet “gold rush” of the late 1990s paralleled the gold rush in the push to the western United States in many ways. The recklessness, haste, and fast decision-making seemed reminiscent of those old days.

To ignore the difficulty of making good decisions on new ventures would be not only inaccurate, but irresponsible for any speaker or writer today. To wait for detailed market studies would have imposed delays that were accompanied by their own set of risks. Many people were operating in a mode of high creativity and urgency, and if an investor took extra time to examine the options, someone else would think of the idea or another investor would step in and reap the benefits. It is not outlandish to state

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that perhaps it is difficult to imagine an outcome that differed from the one that we all have observed.

However, there are some long-standing strategic models that could have helped in the analysis of new prospects. While not replacing market studies, with their surveys, focus groups, and test markets, they might have helped identify significant strengths and weaknesses of even sketchy business plans at an earlier stage.

Web designers were a scarce commodity and many without formal training were in charge of entire projects, from strategies to operations. They were seen as “gurus,” those rare people who “understood” the technologies and their implications. Unfortunately, the technical skills provided a veneer that masked what was sometimes a highly variable bundle of skills.

While some were experts in various technical aspects of web design, by definition all were inexperienced in the new environment that was unfolding as they went along. New technologies were springing up all around them, and what worked in the past soon “broke,” and what was not possible in the past suddenly became *de rigueur*. Technology and business upheavals were occurring all around at a bewildering pace. It was now very clearly unrealistic to expect them all to have all of the skills that would enable proper strategies, construction, implementation, and operations of the sites they were charged with. Strategic models were even more important in such an environment.

These strategic models are oriented towards identifying business forces, stages at which they can be examined, and the aggressiveness that should probably be used in introducing a new market thrust. They can provide insights into the variety of ways to achieve competitive advantages, but perhaps more importantly, they can also help us make predictions of sustainability of the competitive advantage. The theme of this paper is therefore that the mystery and “magic” of e-commerce technology innovations therefore should not lead us to turn a blind eye towards the business implications of those innovations.

The rest of this paper reviews a strategic perspective of decision making in IT(information technology), covers several important strategic models, and applies some of them to electronic commerce. The talk will cover how the outcomes of two cases might have been predicted by using those models.

2. Making Important IT Decisions

E-Commerce decisions are some of the most important IT decisions that firms can make. Whether those decisions involve business-to-consumer, business-to-business, business-to-employee, or business-to-government applications, all require significant IT support. New servers must be purchased, or agreements drafted with providers. New applications must be purchased or developed. Decisions about backups, security, service levels, and networking must be made.

Those decisions are quite significant for a firm. If inadequate capacity is chosen, for instance, the site can often become overloaded and either load exceedingly slowly or not at all. If very few (or very modest) applications are obtained, to avoid scrutiny by upper management, then important business potential can be lost. If inadequate wireless protection enables hackers to sit in the parking lot of a firm like TJX (Sturdevant, 2007) and break in to download information stored about 100 million debit and credit cards, then it is clear that some business damage has been done. It is also worrisome that as late as January 2008, it was reported that 41% of businesses are opting to continue with what has seemed to work for them: inadequate security through WEP (McMillan, 2008).

According to Ross and Weill (2002), such decisions are often pushed off to an IT department because they sound technical. And even if management is told about some dangers, often there are not funds allocated to upgrades (Halamka, 2004), presumably because management did not have a realistic assessment of the dangers. Ross and Weill provide six IT decisions that should not be made by IT people:

1. How much should be spent?
2. What business processes should be chosen for that spending?
3. Which capabilities should be implemented companywide?
4. How good do the services from IT need to be?
5. How much security and privacy risks are acceptable?
6. When an IT initiative fails, where should the blame lie?

Ross and Weill do not blame IT personnel for a lack of skill, but blame the process of pushing such strategic decisions to one department of a firm. Their point is that executives, as a group, need to put all firm investments into perspective so that they can compare all costs and benefits across the firm. There should be no particular department that has more influence than any other.

When IT expenditures are strategic in nature, or can have strategic impacts, then models are needed to understand more fully the variety of aspects and considerations that should be taken into account when those spending decisions are made. Models can also be used to determine in which situations the IT expenditures are indeed strategic in the first place.

3. Strategic Models

Strategic models can provide guidance in many areas. They do not generate ideas or predict the future. However, they do allow some valuable evaluation of ideas, as long as enough details are known.

Porter's Competitive Forces

The most often-cited strategic model is that of Porter's competitive forces, developed by Porter (1980) and applied to IT by Cash et al. (1988). Porter presents three generic strategies for achieving a competitive advantage:

- Differentiation (unique product)
- Cost leadership (low cost producer)
- Focus (limited scope or niche)

Building from these generic strategies are more detailed goals. Seven detailed goals for achieving competitive advantage, as applied to e-commerce by Choudhury and Galletta (1998), are:

1. Building barriers to entry (making it difficult for competitors to enter the market). This is enabled by many mechanisms. For example, making use of proprietary technology, owning data that others do not have, gaining publicity by getting into an unusual market first, or acquiring skills that others do not have.
2. Increasing switching costs (making it difficult for customers to switch to another supplier, your competitor). This is accomplished in many ways as well, such as by , building loyalty, making use of customer data to reduce customer effort, or forging sole-source contracts.
3. Responsiveness to changes in the market (being able to anticipate ever-changing desires of customers). This can be done in several ways, such as by frequent collection of customer data, having a broad spectrum of suppliers, or using supply-chain management systems.

4. New products or services (offering items that incorporate technology). One of the best e-commerce-related examples of this is the development of search engines. It is difficult to believe that 15 years ago there was not a Google that customers could use on the spur of the moment from their desktops, laptops, and mobile telephones.
5. Specialized products (that occupy a particular market niche). One of the most powerful effects of e-commerce has been to energize the so-called “long tail” (Anderson, 2006). In the past only the largest cities could support stores that offer highly specialized goods, and catalog shopping made it easier to provide them. The Internet makes it easier to search for unusual items (thanks to search functionality), and opens a firm to discovery by a huge market. Also, consumer-to-consumer buying and selling supports a new international market to find rare or unusual products.
6. Dramatic reductions in cost. Examples of how to reduce costs include deploying supply chain management solutions, doing better forecasting, and mass customization.
7. Bargaining power against suppliers. One of the most powerful examples to build bargaining power against suppliers is the use of on-line auctions. Auctions can be used in the business-to-consumer, business-to-business, and consumer-to-consumer markets, and have revolutionized purchasing.

Hypercompetition

Another strategic model is provided by D’Aveni (1994). D’Aveni claimed that the market has become impossibly competitive, leading to hypercompetition. When a market is hypercompetitive, every advantage is lost quickly, and becomes a cost. Trying to sustain an advantage distracts executives from what is really important: creating new advantage. Therefore, a firm should focus on disrupting a market, not sustaining it. Finally, all advantages are gained on a step-by-step basis. D’Aveni says that you need to develop vision and the capabilities for disruption. Only then can you develop the necessary tactics.

Kester’s Investment Framework

The step-by-step process is reminiscent of a specific cell in Kester’s (1984) capital budgeting framework. The framework calls for assessing

the replicability of the investment (ability of other firms to copy it) and the strength of the competitive position (weak or strong).

If the investment cannot be copied, the firm should be aggressive and creative. For firms in a strong competitive position, implementation should be stretched out over time to prevent damage to the firm's success. For firms in a weak position, implementation should be performed quickly because not much can be lost.

If the investment can be copied by others, implementation depends on the strength of the market strength. If the firm is a strong contender, other firms should take chances and the strong firm should take the time to polish the approach. If the firm has a weak competitive position, a large project should not be implemented all at once. It should be broken into smaller innovations. Just as competitors copy the first step, the firm will continue to have an advantage only as long as it rolls out the next step. This issue brings up the notion of sustainability of competitive advantage.

Sustainability of Competitive Advantage

While some state bluntly that there is no such thing as sustainable competitive advantage (Carr, 2003), there are some open questions about the timeline necessary to consider an advantage to be sustainable. Accountants tend to consider anything longer than one year as "long term." So would an advantage need to last more than one year to be termed "sustainable?" Even to me, this seems a little short. So to be called "sustainable" is the answer five years? Is it ten years? Some actually have told me that the answer is "forever." However, this is clearly unrealistic as well. So while I would prefer a crisp answer, my working definition is a "few years."

Picoli, Feeny, and Ives (2003) provided a framework that posed four interesting and informative barriers to imitation, and therefore keys to sustainability. The four barriers are:

1. IT project barrier
2. IT resources and capabilities barrier
3. Complementary resources barrier
4. Preemption barrier

Each will be explained as it pertains to e-commerce.

An IT project barrier exists when it would take a competitor a great deal of capital or time to build the same kind of site. Such a large project would tend to keep competitors away, or at least delay them significantly

enough that improvements to the existing site can be made while the old one is being imitated, as recommended by Kester (1984) above. Also, if the site builds on proprietary technologies (such as Apple's iPhone operating system), it might not be possible for a competitor to copy it without inventing a substitute.

An IT resources and capabilities barrier exists when others lack some important ingredients for competing. While IT resources are commonly imagined to be computers or personnel, the most frequent resource for this category includes *data*. Just imagine the value of Amazon's customer list, complete with payment information, shipping addresses, and previous purchases. Such information makes it easy for Amazon to offer "one-click" purchasing, and perhaps more importantly, to suggest related purchases. Perhaps even less obvious is the fact that the mechanism for assessing feedback on Ebay sellers is perhaps Ebay's most powerful complementary resource for buyers. Without some degree of trust, buyers will be quite hesitant to make their bids. These are not IT project barriers because such a database cannot just be built at the command of management. It requires extensive and broad-based use by customers over a period of time.

A complementary resources barrier is created when the firm has related or seemingly unrelated characteristics that aid sustainability of the IT innovation. For instance, without Ebay's protection guarantees, the site might not survive at all. Another example is the strong and loyal community that comprises Ebay. Finally, the agreements Ebay has with certain merchants and certain shippers are further examples of complementary resources that make it harder for competitors to enter the market.

Finally, a preemption barrier exists when "getting there first" has provided some advantage that cannot be duplicated easily. For instance, it is obvious that the number of buyers on Ebay will attract even more sellers. The reason there are more buyers and sellers on Ebay is that it was the first consumer-to-consumer auction site and a critical mass was built there before others were able to erode their market share. Shonfeld (2002) reported that in 2001, Ebay was said to account for 20% of all consumer e-commerce.

A final aspect of sustainability is the "life cycle" that applications or sites go through. There are important pieces of advice along the way that are important because many products are consumed once over a long

period of time and then replaced. The “Customer Resource Life Cycle” model identifies what firms should do everywhere along the way.

Customer Service Life Cycle

The Customer Service Life Cycle (Ives and Learmonth, 1984) describes the major and minor steps that customers encounter along the way. Initially the model described how information systems in general can make a firm more customer-focused. The model, however, is even more interesting when applied to electronic commerce, because of the relatively short time in which we have been conducting business on line.

There were initially four stages proposed by Ives and Learmonth (1984), but more recently, Choudhury and Galletta (1998) proposed an additional, initial stage. The five stages are:

1. Awareness
2. Requirements
3. Acquisition
4. Ownership
5. Retirement

The Awareness stage is important for customers to even think of the merchant or product. Most often, advertisers push their names out to customers to create awareness that leads to demand. Familiarity has been shown to increase initial (“swift”) trust in a website (Lowry, et. al., 2007). Familiarity builds trust especially in those who have a predisposition to trust (Gefen, 2000). Lowry et. al. (2005) found that logos were useful in building the identity that will lead to trust. The implication is that on-line merchants and suppliers should develop ads, appeal to trustworthy people, and make use of logos that are familiar to customers. One difficulty is that most of the advertising dollars chase a small number of sites. Just gather the top ten sites as of May 2009 (Alexa, 2009): Google, Yahoo, YouTube, Facebook, Windows Live, MSN, Wikipedia, Blogger.com, Baidu.com, and Myspace.com. When you go very far past the top ten, the advertising they attract drops off quickly.

The requirements stage involves determining in more detail what the customer might want to buy. He or she would want to see pictures of the products that are available, examine pricing, and find how many are available and in what variations. The Internet can provide quite an array of tools for all of these requirements. Naturally, it would require photographs, complete descriptions, and keeping real-time inventory records and tying

the site to those records. The implication here is to make sure to cover the multiple ways for customers to develop their requirements and check whether the site has products that meet those requirements.

The acquisition stage includes finding where to go (or what to click) to buy the product, configuring it, checking order status, and determining how to take delivery. Many web sites offer these functions, but many lack one or more of them. Some sites deal in digital products, and all of these steps can be accomplished at the same sitting. However, when products such as flat-screen televisions or couches are the target of the purchase, there are some steps in the physical domain that the web site cannot provide. The web site can *assist*, though, by allowing package tracking and inquiry.

The ownership stage assists those people who have chosen to become customers. Lists of frequently-asked questions can be helpful, as can instant message windows to service agents. Updates can be downloaded, both for digital products such as operating systems, firmware for personal computers and even network-connectible non-computer products like Denon © hi-fi receivers and Sony © Blu-Ray DVD players. There are other less technical aspects of ownership, such as how to assemble products that can be provided in detail online. For instance, the author searched Youtube © to find out how to change brake pads in a particular brand of automobile. Firms should take the lead in all of these functions and make sure that users do not have to go elsewhere for their information.

Finally, the retirement stage helps the customer dispose of or return the product, obtain historical detail or summaries of their transactions (for example, as in Quicken), or recycle the product. Many chain restaurants print a URL on the sales receipt for diners to answer survey questions. Interestingly, returning a product does not need to be a negative thing, as equipment rental can be made much easier by specifying all details on a web site in advance, then following through during the actual rental.

Firms can review the highly detailed lists provided by Ives and Learmonth for each stage to make sure that they have covered many of the functions that customers might expect.

4. Summary and Conclusion

Strategic models are not only *helpful* for assessing the approach or approaches that an e-commerce firm takes, but it is *essential* to make those assessments. Many millions of dollars could have been saved by plotting

moves and anticipating countermoves that would be made obvious by the frameworks.

As the talk will demonstrate, two real firms covered by e-commerce teaching cases can be analyzed from the point of view of the strategic models. Both Charles Schwab (Applegate et al., 2007) and Lands' End (Ives and Piccoli, 2003) are non-e-commerce firms from the past, who decided to innovate through e-commerce initiatives.

Briefly, both firms adopted reasonable (from a perspective of "common-sense") strategies. However, Lands' End was much more successful than Schwab. By tracing the issues systematically through the strategic models, it is easier to explain the outcomes.

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Electronic Commerce is a fascinating intersection of commercial and technological innovation. The youth of the segment breeds confusion and many errors as successful business models begin to form. It is important that firms avoid one particular classic error of strategic decisions that are pushed away from executive teams. Teaming up IT officials and an executive team representing various functions of the firm is the best approach. Once a well-rounded team can represent the entire organization, various strategic models can be consulted to make well-rounded decisions that represent the interests of the entire organization. These models can assess competitive advantage of e-commerce initiatives, and also can provide a checklist for enhancing both competitive advantage and sustainability of the advantage.

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