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TOWARD AN APPROACH FOR EXAMINING THE "PLANNING-PERFORMANCE" RELATIONSHIP IN E-COMMERCE[1]

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Abstract

Prior literature in IS as well as strategic management presents inconsistent evidence regarding the impact of planning on organizational performance, arguably owing to the failure of researchers to recognize the existence of contingency variables influencing the relationship, and due to the limitations in the constructs used to measure performance and planning. In this paper we seek to clarify this issue in the context of e-commerce by: 1) arguing that conversion effectiveness mediates the planning-performance relationship; 2) suggesting an operationalization for performance using reliable measures; 3) proposing a typology of planning based on different activities involved in e-commerce planning; and 4) building conceptual arguments that link planning, conversion effectiveness, and performance.

Ke**ywords:** E-commerce planning, implementation, conversion effectiveness, performance, e-commerce planning typology

Introduction

Schumpeter (1942), a prominent twentieth century economist had suggested that big inventions are followed by continuous "outbursts" of technical innovation, which are in turn followed by the "creative destruction" of traditional businesses. As we are witnesses today, the invention of the "information superhighway" has brought about a complete change in the way people do business. With technologies such as the Internet, the concept of e-commerce has emerged, replacing in many cases, the traditional model of business (Cronin, 1994). However, in spite of this "outburst", many e-commerce initiatives are failing. Researchers have suggested that the reason for failure is often the lack of a well-thought-out plan (Wagner, 1997). The Gartner Group estimates that 75% of e-commerce initiatives will fail due to "lack of technological understanding and poor business planning" (Lord, 2000, p. 40). The objective of this paper is to theoretically explore the actual importance of planning on the success of e-commerce initiatives.

The primary research question that this paper seeks to address is: What is the nature of relationship between planning and organizational performance in the context of organizational e-commerce initiatives, and how can this relationship be studied?

The paper is organized as follows: First, a discussion on the relationship between planning and performance is provided. Thereafter, a discussion of the research model and the propositions are presented. Finally, the contributions of this paper and future directions are discussed.

Planning and Its Relationship with Performance

Mumford and Pettigrew (1975) define planning as a set of guidelines of some new organizational objectives and how they will be met. IS researchers have defined planning in similar terms, and have seen it as a coordinated effort of organizational members

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to reduce uncertainty, open the doors of communication among sub-groups, such that the organization will be better able to explore business opportunities within its competitive domain (Segars and Grover, 1999).

In the past few years, planning has been recognized as a fundamental activity amongst the top management (Segars and Grover, 1999). Empirical studies, such as those conducted by Bracker and Pearson (1986, p. 517) concluded that a formal planning process is crucial for their success, since a planning process provides the owners with "insights and knowledge, which lead to an understanding of the factors that contribute to growth and financial performance." The positive effect of planning on performance has been reported in the Management literature (e.g., Ansoff et al. 1970; Karger and Malik, 1975; Miller and Cardinal 1994) as well as in the IS literature (e.g., Kesner, 1988).

In the context of e-commerce, which can be defined as the sharing of "business information, maintaining business relationships, and conducting business transactions by means of telecommunication networks" (Zwass, 1999), planning is also believed to play a critical role. Ware, Gebauer, Hartman, and Roldan (1998) suggest that in the context of electronic commerce, a well-laid out plan will help the organization foresee possible contingencies and effectively prepare for them. Lord (2000) suggests that firms that jump into e-commerce before taking the necessary steps to develop a "practical approach are often doomed to failure." Hayes (2000) argues that in e-business "planning is everything." Turban, Lee, King, and Chung (2000) further suggest that executives of all successful EC companies have been found to lay out a well-defined strategic plan before the initiative.

Some studies however have provided evidence for refutation of the belief that planning leads to performance (e.g. Robinson and Pearce, 1983; Leontiades and Tezel, 1980). Other studies, such as one by Rhyne (1986), have found only a "lagged" relationship between planning and performance. Still other studies such as one by Fredrickson and Mitchell (1984) have found a negative relationship between comprehensive planning and performance in forest products firms. In the IS literature as well, Hart (1992) has argued that the results of planning can often be varied.

Interestingly, the planning literature in e-commerce and IS has tended to ignore the disconfirming evidence regarding the presumed positive relationship between planning and performance presented by some other researchers, and seem to have assumed (without significant empirical research) that planning will always lead to higher performance (Figure 1).
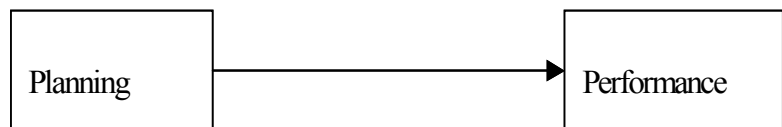

Figure 1. The Presumed Model Not Supported Consistently

The purpose of this paper is hence to fill this void and develop a conceptual model of how planning affects performance in e-commerce.

How Does Planning Affect Performance: The Missing Link of Implementation

Given the inconsistent results regarding the direct relationship between planning and performance in the general management literature (Robinson and Pearce, 1983; Leontiades and Tezel, 1980), it may be argued that the relationship between the two constructs is influenced by other contingency factors.

Research in strategic management focusing on planning seems to indicate that implementation is key for planning to be successfully translated to organizational performance. Researchers in the area of information systems such as Earl (1993) have found that both planning and implementation are equally important in an organization. On a similar note, Pearce II, Freeman, and Robinson, Jr. (1987) have suggested that implementation should be given a more important position in the planning process than it usually is, arguing that a *planning process if implemented inappropriately will lead to decreased performance.* Also, Walsham (1993) argues that in general, policies or plans are ambiguous, till they are implemented.

In the context of e-commerce too, implementation has been identified as a key variable that affects planning. Ware et al. (1998) suggest that planning is a precursor to implementation that help in identifying and estimating time, resource, and effort requirements. Turban et al. (2000) echo a similar argument, and suggest that before starting to implement the e-commerce initiative, it is important to build the plan, that will outline the steps to follow during implementation.

On the other hand, prior literature has suggested a direct link between implementation and performance. Most of the research on implementation directly or indirectly use performance as their dependent variable (Nutt, 1989; Govindarajan, 1988), and have empirically shown that successful implementation can lead to higher performance.

The above discussion clearly indicates that implementation can be viewed as a mediating variable between planning and performance, since almost all of the prior literature indicates a direct relationship between planning and implementation, and a direct relationship between implementation and performance, as opposed to a direct relationship between planning and performance.

From this review of the literature, we develop our conceptual model proposing that effective planning will lead to successful implementation, which in turn will impact the performance of the firms, both in general, and also in the context of electronic commerce (Figure 2).
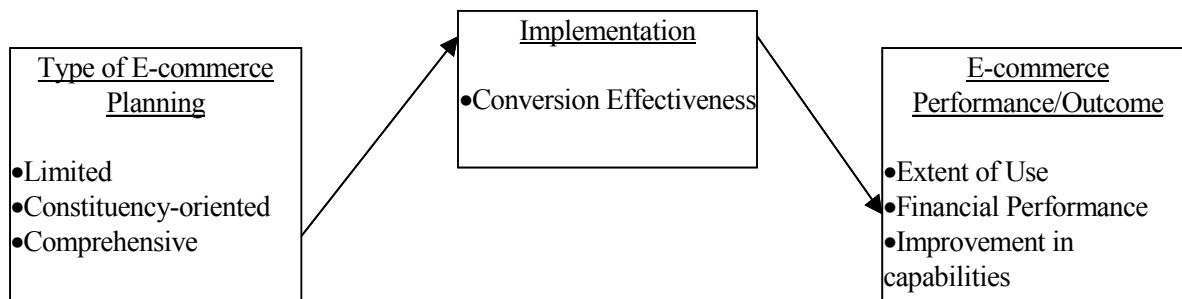
Type of E-commerce Planning

•Limited
•Constituency-oriented
•Comprehensive

Implementation

•Conversion Effectiveness

E-commerce Performance/Outcome

•Extent of Use
•Financial Performance
•Improvement in capabilities

Figure 2. Proposed Research Model

Research Model

Before we develop the research propositions, it is important to operationalize our three primary constructs (planning, implementation, and performance) in the context of e-commerce.

Operationalizing Planning

While there are as many as six dimensions of IS planning (comprehensiveness, formalization, focus, flow, participation, and consistency) discussed in the literature (e.g., Segars and Grover, 1999) Fredrickson (1984) as well as Fredrickson and Mitchell (1984) suggest that *planning comprehensiveness is arguably the most important dimension of planning* and has many long-term impacts in an organization.. Fredrickson (1984, p. 402) defines planning comprehensiveness as the "extent to which an organization attempts to be exhaustive or inclusive in making and integrating strategic decision." Segars and Grover argue that the *comprehensiveness* dimension of planning can consist of a "multitude of behaviors" such as a thorough canvassing of a wide range of options and alternatives, making detailed plans, and reexamining both positive and negative consequences of alternative solutions, etc.

Planning comprehensiveness has also been explored in the marketing literature. McKee, Varadarajan, and Vassar (1990) suggested that there can be three different types of comprehensiveness in planning: *limited planning*, *constituency-oriented planning*, and *comprehensive planning*. *Limited planners* as those who conduct a minimal level of planning, are more internally focused, and spend most of the time in resource allocation and other micro issues (Rhyne, 1986; McKee et al.1990). In *constituency-oriented planning*, the organization is more externally focused, and increases its openness to the environment, conducts competitor analyses, surveys key stakeholders involved with the organization, and scans the environment more extensively (Rhyne, 1986; McKee et al., 1990). Finally, *comprehensive planners* are those organizations which conduct a full-range of organizational planning activities and are both internally and externally focused.

From the existing literature on e-commerce, we identify four types of activities in planning. **The first type of planning (P1) is** the formulation of the broad strategic objectives, which includes the identification of opportunities and risks, making decisions such as whether or not to embark on e-commerce, whether to dissolve the regular business and go for cyberbusiness only, etc. (Turban et al., 2000). This type of planning activity also includes analyzing the environment and understand the relative position of the company in the context of e-commerce (Turban et al., 2000), finding ways to align the e-commerce strategy with the core business strategy of the firm (Ware et al., 1998), and devising methods and ways of justifying the project.

Once the decision to enter the e-commerce arena has been made, **the next phase is to plan for the right time and the right type of virtual community to enter (P2)**, by analyzing the fractal depth (the ways in which the community can be segmented) and the fractal breadth (the potential for building new areas and markets which have very little relation to the original focus) of a community (Hagel and Armstrong, 1997).

The third type of planning (P3) is resource planning, which includes plans about infrastructure, required technology, assets, human skills, etc (Ware et al., 1998). This type of planning also involves making decisions and gathering information about security-related issues, making plans about the duration of the project, estimated costs, etc. (Hagel and Armstrong, 1997).

Almost every kind of e-commerce initiative involves a web site, which forms the main interface between the company and its customers. **The fourth type of planning (P4)** is the one that precedes the design and implementation of the web site (Conger and Mason, 1998). Conger and Mason (1998) further suggest that in order to ensure the success of the web site, it is important for the designers to lay out an extensive plan regarding the information domain (the range of information that will be included in the web site), virtual value chain analysis, definition of users, decomposition of information (creation of a list or outline of information objects), and structuring of information using diagrams of information objects showing how they are related.

Based on the above discussion of the three types of planning and the four categories of planning activities, we propose a framework for mapping the kinds of activities that would be associated with each type of planning (Table 1). This framework can then serve as *a basis for categorizing comprehensiveness of e-commerce planning.* Elaborating on Table 1, we see that limited planners are those who conduct resource planning (P3) and extensive planning for designing and implementing the web site (P4). Similarly, constituency-oriented planners are those firms who conduct extensive planning for formulating the broad strategic objectives of the e-commerce initiative, aligning the e-commerce strategy with the business strategy, etc. (P1) and in understanding the fractal breadth and depth of the virtual community, etc. (P2). Finally, comprehensive planners are the organizations that conduct a wide range of planning activities from internal resource planning to external environmental scanning (P1, P2, P3, and P4).

Table 1. Activities Associated with Types of Planning in E-commerce

Activity sets →	P1	P2	P3	P4
Type 1: Limited Planning			X	
Type II: Constituency-oriented Planning	X	X		
Type III: Comprehensive Planning	X	X	X	X

Operationalizing Performance

Performance has previously been operationalized in multiple ways, the most common being financial performance. Cron and Sobol (1986) suggests using pretax profits, return on assets, return on net worth, and five-year growth rates, as good indicators of performance in the context of IS. Further, "improvements in capabilities" (used by Segars and Grover (1999) as measures of IS planning success) and extent of use or number of hits to the web site (based on Delone and Mclean's construct of use as a measure of IS success) can also serve as measures of e-commerce performance.

Operationalizing Implementation

In an empirical study examining the relationship between IT investment and organizational performance, Weill and Olson (1989) concluded that the effectiveness with which IT investments were converted was extremely important. They termed this construct as conversion effectiveness. Their study showed that implementation is the primary aspect of conversion effectiveness. In this paper, we operationalize implementation as the degree of conversion effectiveness.

Given the operationalizations, in the following section, we present an illustrative set of research propositions (See Figure 2).

Propositions

Weill and Olson (1989) argue that organizations that pay careful attention to IT investments, have a higher level of conversion effectiveness. In the context of planning in e-commerce initiatives, which is similar to an IT investment, it can be argued that organizations who are comprehensive planners will have a higher level of conversion effectiveness. In fact, McKee et al. (1990) suggest that comprehensive planners create a higher level of coordination among the various elements of the firm, and hence will be more efficient and capable of conversion effectiveness than the constituency-oriented planners and the limited planners.

> *Proposition 1a: Comprehensive planners will have a higher level of conversion effectiveness than limited or constituency-oriented planners.*

Weill and Olson (1989) further suggest that conversion effectiveness involves "resource management task," and that organizations who are usually good at resource management are usually more effective in conversion. In the context of e-commerce, limited planners are organizations that focus primarily on resource management, while constituency-oriented planners focus more on environmental aspects. Therefore, limited planners will have higher capability for conversion effectiveness than constituency-oriented planners.

> *Proposition 1b: Limited planners will have higher levels of conversion effectiveness than constituency-oriented planners.*

Weill and Olson (1989) argue that conversion effectiveness (which we use to operationalize implementation) significantly affects the final outcome in a firm. Based on these findings, in this paper it is proposed that, in the context of e-commerce planning, higher conversion effectiveness will lead to higher financial performance, and higher improvement in capabilities of the firm, and higher extent of use of the e-commerce site.

> *Proposition 2: Higher conversion effectiveness will lead to higher financial performance, increased improvements in capabilities, and higher extent of use of the e-commerce site.*

Based on an analysis of prior literature, we have proposed a conceptual model in this paper that posits conversion effectiveness to be a mediating variable between type of planning and e-commerce performance. Based on this model, and prior literature suggesting a direct relationship between planning and conversion effectiveness, and conversion effectiveness and firm performance, it is proposed that planning will lead to higher financial performance when there is higher conversion effectiveness. Similarly, planning will lead to increased improvement in the capabilities of the firm and higher extent of use, when there is higher conversion effectiveness.

McKee et al (1990) have shown that the performance of comprehensive planners are significantly higher than constituency-oriented planners and limited planners. This will hold true even in the context of e-commerce when there is higher conversion effectiveness.

> *Proposition 4: Comprehensive planners will experience higher financial performance, increased improvements in capabilities, and higher extent of use of the e-commerce site than limited and constituency-oriented planners when there is higher conversion effectiveness.*

Conclusion

It is evident from prior literature on IS as well as strategic planning, that there is very little consensus regarding the impact of planning on organizational performance. In this paper we seek to clarify this issue in the context of e-commerce by: 1) arguing that conversion effectiveness mediates the planning-performance relationship; 2) suggesting operationalization for performance using reliable measures; 3) proposing a typology of e-commerce planning based on different activities involved; and 4) building conceptual arguments linking planning, conversion effectiveness, and performance.

Overall, this paper attempts to address the confusion regarding the actual relationship between planning and performance in information systems, and proposes an alternate conceptual model that is applicable to e-commerce and to IS in general. However, empirical validation will be required before the proposed constructs can be validated, the mediating relationship can be firmly established, and theoretical as well as practical implications can be confidently inferred. Our next phase of research will be directed toward this goal.

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