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The Impact of Incremental Strategic Information Systems Planning in an Uncertain Environment

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ABSTRACT
The external environment plays a major role in the success or failure of many organizations. Researchers have suggested that more incremental strategic information systems planning (SISP) in an uncertain environment produces greater planning success. The purpose of this study was to test the effect of incremental SISP on planning success in environments of varying dynamism, heterogeneity, and hostility.

Using five-point Likert-scales, a questionnaire operationalized SISP in terms of the characteristics of incremental planning; environmental uncertainty in terms of dynamism, heterogeneity, and hostility dimensions; and planning success as composed of alignment, analysis, cooperation, and capabilities factors. Five IS executives pilot tested the instrument. A postal survey then collected data from 161 IS executives. The constructs were extensively validated.

In general, greater incrementalism in planning predicted less planning success, but dynamism moderated the impact of incremental SISP on SISP success whereas heterogeneity and hostility did not. These findings suggest that planners are more successful when shifting toward greater incrementalism in a more dynamic environment.

Keywords  
Incremental strategic information systems planning, planning success, environmental uncertainty.

INTRODUCTION
The rate and unpredictability of environmental change, the complexity and diversity of the environment, the scarcity of resources, and the degree of competition can impede strategic information systems planning (SISP). They can limit planners’ knowledge, diminish their planning horizons, reduce the precision of their plans, and make senior managers reluctant to implement those plans. Nevertheless, the high cost of information systems and the lengthy duration necessary to construct them do require such planning. As a result, SISP is viewed as a major challenge by both business and information systems executives (Brancheau, Janz and Wetherbe, 1996).

Researchers have suggested that an incremental planning approach – one that incorporates alacrity, flexibility, and agility - will be more effective in an uncertain environment. The purpose of this study was to examine the impact of such an approach as the environment becomes increasingly uncertain.

Incremental and Comprehensive Planning
SISP is the process whereby an organization determines a portfolio of computer-based applications to help it achieve its business objectives (Lederer and Sethi, 1988; Reich and Benbasat, 2000). Incremental SISP has been described in contrast with a comprehensive SISP approach in terms of five characteristics (Salmela, Lederer and Reponen, 2000). For example, the analysis done within the planning process can be either formal or informal. Incremental planning is more informal. It relies on personal experiences and judgment to derive plans (Sambamurthy, Zmud and Byrd, 1994; Vitale, Ives and Beath, 1986) whereas comprehensive planning uses more formal, multiple analyses to derive them (Bergeron, Buteau and Raymond, 1991, Earl, 1988; Raghunathan and Raghunathan, 1991).

Second, incremental planning creates plans that are loosely integrated with the overall strategy of the organization (Ciborra 1994; Sambamurthy et al., 1994) while comprehensive planning creates plans that are tightly integrated with its overall strategic plans (King, 1978; Premkumar and King, 1994; Raghunathan and King, 1988). Third, in incremental planning, IS plans are continuously reviewed to adapt to changed circumstances (Earl, 1993; Sambamurthy et al., 1994; Vitale et al. 1986). In comprehensive planning, IS plans are periodically reviewed to adapt to them (McFarlan, 1971; Galliers, 1987). Fourth, incremental planning is based on an informal network of a few key individuals (Earl, 1993; Pyburn, 1983; Vitale et
al., 1986) whereas comprehensive planning is based on formal representation from many different organizational groups (Galiers 1987; Earl 1989).

Finally, plans can be simple or complicated. Incremental, the simpler approach, involves the shared group understanding of a few key individuals as the basis for decisions (Ciborra, 1994; Sambamurthy et al., 1994). Comprehensive, on the other hand, involves well-defined methods and criteria as the basis for them (Ein-Dor and Segev, 1978).

Both case studies and survey research have provided evidence of the existence of incremental and comprehensive SISP. For example, the business-led approach/design school and the administrative approach/political school of Earl (1993) and Segars and Grover (1999), with their emphasis on informality and negotiation, illustrate incremental planning. Those researchers’ technological approach/planning school and method approach/positioning school, with their emphasis on structure and method, represent comprehensive planning.

Environmental Uncertainty

Uncertainty is the difference between the amount of information required to perform a task and the amount of it already possessed by the organization (Galbraith, 1977). In the context of SISP, it thus represents the lack of information on which to create IS plans (Sambamurthy et al., 1994).

Environmental uncertainty has been described as composed of three dimensions: dynamism, heterogeneity, and hostility (Miller and Friesen, 1980, 1983, 1982). The dimensions have also been referred to as dynamism, complexity, and munificence (Dess and Beard, 1984).

Dynamism is the rate and unpredictability of environmental change. Researchers have operationalized it in terms of the rate of product/services obsolescence, the rate of product/services technology change, the unpredictability of competitors’ moves, and the unpredictability of product/services demand changes (Miller and Friesen, 1983; Sabherwal and King, 1992; Teo and King, 1997).

Heterogeneity is the complexity and diversity of external factors. Researchers have operationalized it in terms of diversity in customers’ buying habits, diversity in the nature of competition, and diversity in product lines (Miller and Friesen, 1983; Sabherwal and King, 1992; Teo and King, 1997).

Hostility refers to both the availability of resources and the degree of competition in the external environment. Researchers have operationalized it in terms of the threats posed by labor scarcity, materials scarcity, price competition, product quality competition, and product differentiation (Miller and Friesen, 1983; Sabherwal and King, 1992; Teo and King, 1997).

All three dimensions have a potential impact on SISP. Nevertheless, Teo and King (1997) failed to find support for hypotheses that any of them were positively associated with the integration of IS and business planning. Sabherwal and King (1992) did find dynamism negatively associated with analysis during the decision making process preceding strategic IS applications, heterogeneity positively associated with analysis during the process, and hostility positively associated with politics during it; they concluded that dynamism pressures executives to decide during planning quickly whereas the other two do not. On the other hand, SISP success may also depend on particular SISP activities in conjunction with the environment; that is, more extensive strategy formulation during SISP has predicted successful planning in all three more uncertain environments, whereas more extensive planning of SISP itself predicted it in the less uncertain ones. In any case, most of the theoretical interest and empirical research have focused on dynamism rather than heterogeneity and hostility (Goll and Rasheed, 1997). The current study considers all three as well as the potential success of the planning process.

SISP Success

SISP success can be viewed as the degree of attainment of the objectives of SISP (Raghunathan and Raghunathan, 1994). Research has shown SISP success to be comprised of four dimensions, namely alignment, analysis, cooperation, and improvement in capabilities (Segars and Grover, 1998).

Alignment refers to the results of the linkage of the IS strategy and business strategy. It facilitates top management’s understanding of the importance of information systems and it improves IS management’s understanding of business objectives. It thereby encourages senior business executives to provide managerial leadership and financial backing for the implementation of new information systems that support the firm’s objectives rather than for new systems that extend current organizational patterns of usage.
Analysis concerns the results of the study of the internal operations of the organization. It is used to help planners better understand the firm’s current business processes and procedures, information technologies, and power structure for the purpose of discovering how the firm can use information technology to compete via an architecture of integrated applications and databases.

Cooperation refers to the results of the general agreement about development priorities, implementation schedules, and managerial responsibilities. Through it, planners ensure that key managers and users support the process and content of SISP. It can create a partnership between managers, other users, and systems developers, and thereby reduce the possible conflicts that may put SISP implementation at risk.

The fourth dimension, improvement in capabilities, represents the enhancement of the potential of the planning system. The adapting of the planning process over time represents a key component of planning effectiveness (Venkatraman and Ramanujan, 1987). Thus the organizational learning experienced through SISP should result in improved ability to align IS and business strategies; to analyze internal operations; to promote cooperation among managers, other users, and systems developers; to anticipate organizational and environmental changes; and to adapt to unanticipated changes.

**HYPOTHESES**

Environmental uncertainty makes SISP more difficult (Salmela et al., 2000; Salmela and Spil, 2002). An environment in which managers are uncertain about changes in their industry's products, services, and technologies (i.e., a dynamic environment); about diversity in products, customers, and the nature of competition (i.e., a heterogeneous environment); and about the scarcity of and tough competition for labor and materials (i.e., a hostile environment) can produce changes in business objectives and priorities as managers learn more about the environment. Changes in business objectives and priorities can produce changes in IS objectives and priorities. All of these changes can make managers uncertain about the organizational value of IS projects (Clemons and Weber, 1990), and reduce their commitment to them. Projects lacking managerial commitment may be started and stopped with such frequency that few are completed and little value is realized.

Similarly to SISP, strategic business planning is made more difficult by environmental uncertainty, and hence general management researchers have been concerned about the appropriate response to it (Grant, 2003). They have long believed that organizations using an informal, incremental approach to strategic business planning will be more successful in an uncertain environment (Lindblom, 1959; Minzberg, 1979, 1994; Minzberg and Quinn, 1996; Quinn, 1980). Likewise, many IS researchers believe that incremental IS planning will be more successful in such an environment (Earl, 1993; Pyburn, 1983; Sambamurthy et al., 1994; Vitale et al., 1986). Their rationale is that planning quickly in smaller steps with periodic reviews by small groups of planners would permit flexibility in adjusting the plan while still facilitating satisfactory choices. Simplicity in plans and loose integration with business strategy would also facilitate such flexibility in adapting to the environmental uncertainty.

On the other hand, more meticulous and formal analysis would require so much time that the changes taking place in a dynamic environment would render the plan obsolete. The diversity of a heterogeneous environment as well as the scarcity of resources in a hostile one would create management uncertainty to which slower, more formal, and more meticulous planning could not easily adapt. In other words, any planning other than incremental would be doomed to failure because data are unavailable, relationships obscure, and the future unpredictable; any other planning would simply not be flexible enough to be effective (Ciborra, 1994).

Research has provided some support for the expectation that incremental planning would be more successful in an uncertain environment. Fredrickson and Mitchell (1984) and Fredrickson (1984) empirically demonstrated that rational comprehensiveness in the strategic business planning process is negatively related to performance in a dynamic environment. In a subsequent study of the same firms in the same industries, Fredrickson and Iaquinto (1989) found this relationship stable over time. More recently, consistent findings emerged from Hough and White’s (2003) study of the decision making of executive teams.

IS research has provided some support for the expectation that incremental planning will be more effective in an uncertain environment. In one study, two organizations that practiced an informal planning approach considered their planning successful (Pyburn, 1983). In another, a trial-and-error approach to planning was credited with identifying applications that were highly praised by industry watchers (Earl, 1993). Based on the rationale for expecting incremental planning in an uncertain environment to be more effective, as well as on those studies, the following hypotheses are proposed:

**H1:** As the environment becomes more dynamic, more incremental planning predicts greater SISP success.
H2: As the environment becomes more heterogeneous, more incremental planning predicts greater SISP success.

H3: As the environment becomes more hostile, more incremental planning predicts greater SISP success.

On the other hand, not all observers agree that incremental planning would be more successful in an uncertain environment. Traditional strategic business planning theory predicts that organizations using comprehensive planning would be more successful in coping with an uncertain environment (Andrews, 1971; Ansoff, 1965, 1984; Ansoff and Sullivan, 1993; Hofer and Schendel, 1978; Janis and Mann, 1977; Rowe, Mason and Dickel, 1996). The same would be true in SISP (McFarlan, 1971; McLean and Soden, 1977; Premkumar and King, 1991; Raghunathan and Raghunathan, 1991). This would be because meticulous analysis would produce greater knowledge about the environment and thus greater ability to respond to the impact of its uncertainty. Meticulous analysis would permit the organization to develop plans less vulnerable to the detrimental consequences of that uncertainty. Such knowledge and ability would result in greater top management commitment and thus a better plan with greater likelihood of implementation.

Management research has provided some support for this position (Glick, Miller and Huber, 1993; Goll and Rasheed, 1997; Priem, Rasheed and Kotulic, 1995). Moreover, action research found that an organization practicing incremental SISP was less successful than one following comprehensive SISP in the same, extremely uncertain environment (Salmela et al., 2000).

**METHODOLOGY**

This research used a field survey of IS executives. The instrument operationalized three constructs, namely incremental SISP, SISP success, and environmental uncertainty. Each used five-point Likert scales.

The planning construct measured the extent of incrementalism in SISP in contrast to comprehensiveness in it by using the five characteristics derived from Salmela et al. (2000). One item represented each characteristic. Because the construct was new and had only five items, an overall summary item was added.


The success construct measured the extent the organization fulfilled its IS objectives of alignment, analysis, and cooperation, and the extent that IS capabilities improved over time. It used the 30 success items from Segars and Grover (1998).

**Pilot Test**

Five IS executives were contacted and asked to participate in a pilot test. All agreed. Four had the title of Chief Information Officer and one had the title of Director of Information Services. Their experience ranged from 17 to 38 years. They worked in a variety of industries.

Each completed the survey in the presence of the senior author in about 17 minutes. After doing so, they were asked for feedback. They commented on the contents, length, and overall appearance of the instrument. Changes from each pilot test were integrated into the survey before the subsequent pilot. The fifth test resulted in no change to the survey.

**Data Collection and Demographics**

A sample of IS executives was randomly selected from the East and West editions of the Directory of Top Computer Executives (1999). The survey was sent to 1,200 executives. A total of 220 returned the survey for a response rate of 18%. Fifty-nine sent only demographic data and stated that they had not participated in an organization’s SISP. Thus the data analysis used the remaining 161 surveys.

Respondents were employed in a variety of industries, well educated, and experienced. Fifteen percent of them worked in manufacturing, 12% in finance, 11% in insurance, and the remainder in other industries. Ninety-three percent held a four-year college degree while 68% had some postgraduate school and 50% had completed an advanced degree. They also had an average of 21 years of IS experience. They had been employed by their current companies an average of 14 years.

The scope of the planning was the entire enterprise for 81% of the subjects and a division for 16%. The planning horizon was two years for 12%, three years for 47% and five years for 21%. Organizations in this study used substantial IS resources. The average number of IS employees was 853 and the average IS budget was $131 million.
Validation of the Incremental SISP Construct

The incremental SISP construct contained six items. Confirmatory factor analysis (CFA) using EQS was done on them with requirements that the comparative fit index (CFI), robust comparative fit index (RCFI), and non-normed fit index (NNFI) be .90 or higher, the Satorra-Bentler chi square divided by degrees of freedom (SB $\chi^2$/df) ratio be 2.0 or less, the standardized root mean square residual (RMR) be .10 or less, and the root mean square error of approximation (RMSEA) be .08 or less (Browne and Cudeck, 1993; Gefen, Straub and Boudreau, 2000; Hatcher, 1994). The initial CFA results met those requirements.

The standardized factor loading for one item was .069, and not statistically significant (Hatcher, 1994). After dropping it, the others ranged from .47 to .79 (p < .001). These results supported convergent validity for the construct, and the CFA results continued to meet the requirements. Moreover, the internal consistency, calculated via Cronbach’s alpha, was .77, thus above the minimally required .70 level (Nunnally, 1978).

Validation of the Environmental Uncertainty Construct

Four items measured dynamism, three measured heterogeneity, and five measured hostility. The initial CFA results on those constructs did not meet the criteria. After dropping four items, however, all of the fit indices did so.

Cronbach’s alpha ranged from .72 to .85, above the minimally accepted level, thus supporting internal consistency. The standardized factor loadings ranged from .63 to .90 (p < .001), thus supporting convergent validity.

Three tests examined discriminant validity. First, after setting pair-wise correlations among the constructs to 1, the chi square differences between the standard and the revised measurement models were significant (p < .001). Second, the confidence intervals calculated for the construct did not include the value 1.0. Finally, both variance extracted estimates exceeded the square of the correlation between the given factors of interest. Thus, all three tests supported discriminant validity.

The results of this validation have some similarity to those of Sabherwal and King (1992) with almost the same identical instrument. Those authors dropped two hostility items (the threat due to scare supply of labor/material and the threat due to government interference - an item not used in this study) due to poor reliability. They did, however, employ a validation procedure somewhat less demanding than the CFA, convergent, and discriminant validity testing used here. Teo and King (1997) used the very same instrument as the current study, employed a validation procedure similar to Sabherwal and King’s, and dropped no items.

Validation of the SISP Success Construct

Eight items measured alignment and eight measured analysis, whereas seven measured cooperation and seven measured capability. The NNFI in the initial CFA was below the minimum cut-off. All of the fit indices met the criteria, however, after dropping one item.

Cronbach’s alpha ranged from .79 to .87, above the minimally accepted level, thus supporting internal consistency. The standardized factor loadings ranged from .50 to .76 (p < .001), thus supporting convergent validity.

After setting pair-wise correlations among the constructs to 1, the chi square differences between the standard and the revised measurement models were significant (p < .001). Also, the confidence intervals calculated for the construct did not include the value 1.0. Thus these two tests supported discriminant validity.

The variance extracted test provided mixed support for discriminant validity. However, with two conclusive tests and mixed support for the third, the analysis in general supported discriminant validity (Hatcher, 1994).

The results of this validation compare well to those of Segars and Grover (1998) on the same instrument. Those researchers dropped AL1 and AL2 of alignment and AN2 of analysis due to low reliability, as well as AN5 due to a significant cross loading with alignment.

HYPOTHESIS TESTING

Each hypothesis was tested using hierarchical moderator regression analysis. The independent variables were mean-centered to reduce multicollinearity between the main and interaction terms (Aiken and West, 1991). The interaction variable was entered into the regression model after its components to partial out the “conditional” main effects from the interaction term (Cohen and Cohen, 1983).
Table 1 presents the results of the regression model for H1 (i.e., as the environment becomes more dynamic, more incremental planning predicts greater SISP success). The table shows that in general, as planning becomes more incremental, success decreases (p<.0001).

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
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</thead>
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<td></td>
<td>Coefficient</td>
<td>P Value</td>
<td>VIF</td>
<td>Coefficient</td>
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<td>Incremental Planning</td>
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<td>&lt;.0001</td>
<td>1.02</td>
<td>-.252</td>
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<td>.157</td>
<td>1.02</td>
<td>.035</td>
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<td>Interaction of</td>
<td></td>
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<td>Incremental Planning</td>
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<tr>
<td>and Dynamism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.22</td>
<td></td>
<td></td>
<td>.24</td>
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<tr>
<td>F</td>
<td>21.53</td>
<td>&lt;.0001</td>
<td></td>
<td>16.13</td>
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</table>

Table 1 Regression of Success on Incremental Planning at Different Levels of Dynamism

The omnibus test (change in $R^2$) for the interaction term is significant (p<.05). Additional variance is explained in success by the interaction. Thus H1 is supported.

The positive interaction coefficient indicates that as dynamism increases, incremental planning has a greater effect on success. In other words, despite the overall negative impact of incremental planning on success, a higher level of incremental planning has a greater, positive effect on it under high dynamism and a weaker, positive effect under low dynamism. Following Cohen and Cohen’s (1983) recommended procedures with high and low dynamism determined one standard deviation above and below the mean, respectively, the simple slope of the regression of success on planning was -.329 for low levels of dynamism and -.176 for high levels of it (see Figure 1).

![Figure 1: Interaction of Dynamism and Incremental Planning on Success](image-url)
Tables 2 and 3 present the results of the regression models for H2 (i.e., as the environment becomes more heterogeneous, more incremental planning predicts greater SISP success.) and H3 (i.e., as the environment becomes more hostile, more incremental planning predicts greater SISP success). Again, the tables show that in general, as planning becomes more incremental, success decreases (p<.0001) in both cases, but neither interaction term is significant. Therefore, H2 and H3 are not supported.

<table>
<thead>
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<th>Model 2</th>
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<tr>
<td>Coefficient Estimate</td>
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<tr>
<td>Heterogeneity</td>
<td>-.001</td>
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<tr>
<td>Interaction of Incremental Planning and Heterogeneity</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.21</td>
</tr>
<tr>
<td>F</td>
<td>20.26</td>
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</tbody>
</table>

Table 2 Regression of Success on Incremental Planning at Different Levels of Heterogeneity

<table>
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<th>Model 2</th>
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<tbody>
<tr>
<td>Coefficient Estimate</td>
<td>P Value</td>
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<td>Incremental Planning</td>
<td>-.263</td>
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<td>Hostility</td>
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<td>Interaction of Incremental Planning and Hostility</td>
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<tr>
<td>R²</td>
<td>.21</td>
</tr>
<tr>
<td>F</td>
<td>20.83</td>
</tr>
</tbody>
</table>

Table 3 Regression of Success on Incremental Planning at Different Levels of Hostility

DISCUSSION

In all three environments, the negative coefficients of incremental planning demonstrated that it predicted less SISP success, that is, less improvement in alignment, analysis, cooperation, and capabilities than did comprehensive planning (p<.0001). In other words, more formal SISP, with its complicated plans created by many organizational groups and tightly integrated with business strategy, predicted greater planning success than did less formal SISP with its simpler plans created by a few individuals and less integrated with business strategy.

On the other hand, as the environment becomes more dynamic, the positive impact of comprehensive planning decreased (H1). That is, the shift toward incremental planning in an environment of greater changes in products and services, and their technologies, led to greater success (i.e., less reduction in success). This is consistent with the expectation that (1) a rapidly changing environment can produce changes in business and IS objectives and priorities, which in turn, can threaten the organizational value of IS projects as well as top management’s commitment to them, and (2) that incremental planning can produce more flexible plans that can better adapt to the uncertain environment and lead to more successful planning.

However, the effect of such a shift was not present in a heterogeneous environment (H2). Perhaps the diversity of customers’ buying habits, product lines, and the nature of competition are sufficiently insulated from information systems planning so...
that incremental planning does not moderate their effects. Uncertainty due to heterogeneity does not, perhaps, threaten the organizational value of IS projects and top management’s commitment to them. Likewise, the effect of the shift was not present in a hostile environment (H3). Perhaps the tough competition of such an environment is also sufficiently insulated from IS planning so that incremental planning does not moderate its effects either. Regardless, the findings in this research are consistent with some previous studies and inconsistent with others. They are consistent with those of Fredrickson and Mitchell (1984), Fredrickson (1984), and Fredrickson and Iaquinto (1989) who empirically demonstrated that rationality, represented by comprehensiveness of the strategic business planning process, was negatively related to performance in a dynamic environment. They also are consistent with the findings of Hough and White’s (2003) study of the decision making of executive teams.

However, they contradict Salmela et al.’s (2000) action research in which incremental SISP in a turbulent environment performed poorly. Perhaps the larger sample size in the current study explains the difference.

Implications for Future Research

The current study found support for H1, namely that environmental dynamism moderated the effect of incremental IS planning on IS planning success. This finding has several potential implications for future research. First, it suggests researchers investigate the actual extent of incrementalism in planning that managers practice to better maintain planning effectiveness as the environment becomes more dynamic. For example, how informal would such planning be? How loosely integrated with business strategy would the IS plan be? How few in numbers would the representatives on the planning team be? How simple would IS plans be? In other words, although the current study used reasonable scales for measuring SISP, from a practical perspective, how might managers choose their extent of incrementalism in order to be consistent with more successful planning? Likewise, how might they assess the dynamism in an applied manner, and then determine how incremental their planning would be?

Second, the current study opens the question about potential contextual factors. For example, does incremental planning have a greater impact when an organization’s existing or planned information systems are more or less extensive? What role do organization size, type of industry, sophistication of IS management, or sophistication of business management play in the impact of incrementalism on success in an uncertain environment?

Third, a fundamental assumption underlying the current research is that information systems planning success leads to information systems success and thus organizational success. That assumption is of paramount importance, and future research could examine it more thoroughly than has been done in the past.

Finally support for H1 raises the question as to how organizations can implement incremental planning. Are there any special impediments to doing so? Are there any special features that might improve it?

The current study failed to find support for H2 and H3, namely that heterogeneity and hostility moderated the effect of incremental information systems planning on information systems planning success. Future research might investigate why. Speculation here suggests that the diversity of customers’ buying habits, product lines, and the nature of competition as well as the tough competition itself in an uncertain environment are sufficiently insulated from information systems planning so that they do not moderate its effects. Uncertainty due to heterogeneity and hostility does not, perhaps, threaten the organizational value of IS projects and top management’s commitment to them. Future research might investigate that speculation. It might also seek and test alternative explanations for the failure to support the two hypotheses.

Future research might also attempt to compensate for the limitations of the current study. The current study used an established measure of environmental uncertainty, but the validation resulted in the dropping of four of its items. Future research might develop a better measure of environmental uncertainty.

Implications for Practice

Strategic information systems planning is a critical challenge to managers in today’s rapidly changing and highly competitive world. Although correlation is not causation, the findings of this research are consistent with the expectation that incremental planning is more effective in a dynamic environment. This suggests that as the environment becomes more volatile, IS planners should consider more incrementalism in their planning. That is, they should consider a shift toward less complicated IS plans created based on representation from a few individuals with plans less tightly integrated with business strategy. In this manner, they may be able to realize greater value from their information systems planning, and thus from their information systems themselves.

CONCLUSION

Researchers have suggested that an incremental planning approach – one that incorporates alacrity, flexibility and thus agility - will be more effective in an uncertain environment. The current study confirmed that belief for a dynamic one, but did not
do so for a heterogeneous or hostile one. In today’s highly uncertain world, such findings offer new directions for IS researchers in their efforts to understand the environment as well as encouragement for IS managers to attempt to be more agile in it.

REFERENCES


