Operational Success of Computer Systems in the Marketing Organization

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ABSTRACT

In recent years the use of computer systems within marketing organizations has dramatically grown. While the general consensus has been that computers enrich the abilities of managers, how this enrichment occurs remains chiefly unsubstantiated. A survey of marketing executives found computer systems perceived as successful by end-users facilitate a variety of operational and strategic outcomes (i.e., financial success, improving decisions, system usability, improved operations, and new and strategic opportunities). Based on these findings, managerial implications and conclusions are provided.

The primary focal point for organizational members rests with successful performance. For information systems personnel, this typically means supporting other functional units accomplishing their responsibilities. In contrast to this internal customer orientation of information systems, the chief responsibility of the marketer is to cultivate vitally important external success. Increasingly however, in an interesting alliance of marketers and information systems personnel, these two parties are developing crucial organizational connections.

The complexity and significance of understanding marketing performance has increased in recent years, as technology [1], information [40] [44], and information technologies [7] [64] have all been proposed by marketers to provide grounds for competitive superiority [9]. Yet, despite these assertions, and the intuitiveness and practically of such contentions, it remains unknown if technologies and performance are related [62]. That is, beyond general declarations, little is known about the impact of technology on organizational disciplines, including marketing.

To explore linkages between marketing performance and technology, it is helpful to note the historical tendency to measure outcomes based on functional responsibilities. In marketing, the emphasis has typically been on specific outcomes related to their primary tasks (e.g., generate sales revenue). A basic tenet of this type of assessment is that performance originates from one activity (e.g., selling) and/or group (i.e., marketing department) and can subsequently be isolated. In contrast to this traditional approach, however, organizations and environments are becoming more complex, leading marketers to pursue organizationally collective goals [19]. That is, success germinates from a variety of sources, both internal and external to the marketing department. Under this premise, marketers are calling upon more comprehensive tools (e.g., computer systems) to accomplish more complex tasks in increasingly demanding environments.

It is the need to cultivate performance, coupled with a growing awareness, importance, and acceptance of computerization as a vital marketing tool [7] that provides the foundation of this article. The crucial question examined is what outcomes from computerization are perceived as determining success to the marketer. More specifically, do outcomes from computer systems and their interactions contribute to the success of marketers? The importance of this study can be noted in its contrast to previous examinations (e.g., [23] [56] [59]). This investigation explores the benefits of computerization with crucial non-technical users (i.e., marketers), who are widely recognized as making significant contributions to the organization.

Marketers and Computer Systems

During the early stages of computer introduction into the business community, there was a general reluctance by marketers to adopt and use computers [15] [58]. While organizational change is not easy however [20], this trend is improving [15] [67] as the influence of technology [37], computers [45], and information technology is becoming increasingly important [25] to marketers. The basis for these increases in usage can be found in marketers' perceptions of their needs and the context in which these systems are used [5]. In turn, this use impacts the perceived success and quality of information systems [74]. Therefore, as computer

technology is increasingly socialized into the firm, specific demands for use will continue to escalate [2], and firms must concurrently improve their delivery of computer systems to users [69].

Although many benefits typically are fostered from computer usage, the most crucial underlying basis for marketers to adapt technology, is the competitive advantage provided by the ownership of information, computer systems, and information technology [3] [4] [7] [14] [52]. Consequently, the premium marketing organizations place on developing and maintaining a differential advantage underscores that computer usage is influenced by the need to succeed in a competitive environment.

Boundaries of Computer System Success

Grasping the qualities that make any organizational unit successful and then associating these characteristics with other performance measures is always demanding. Understanding computer and information system performance is particularly difficult [63] because the perceptions of computer system performance are influenced by the individual [74], situation [34], and organizational differences creating unique interpretations of the factors constituting perceptions of success. Further complicating the assessment of computer system performance is the difficulty of evaluating outcomes in an area that includes users or customers across a variety of seemingly unrelated disciplines (e.g., accountants and marketers) and activities.

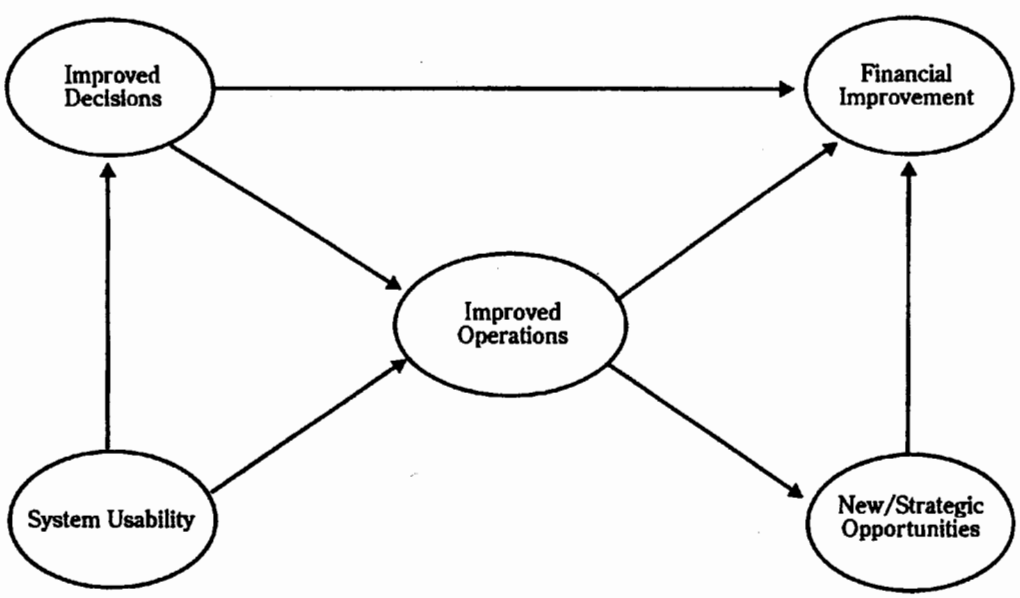
Regardless of these measurement difficulties, computer and information systems remain vital to the general success of many firms [3] [12] [26] [71], as well as the specific needs of marketers [17] [36] [38]. In this context, Delone [13] proposed that computer and information system success can be categorized into three major areas. These areas are the extent to which these systems are used [74], the impact they make on an organization [34], and the degree to which the system contributes to the firm's core business areas [61]. In order to understand the perceptions of marketers regarding computer system success, it is therefore necessary to investigate individual marketer's attitudes and behaviors with respect to the contributions made by computer systems to the marketing organization. This manuscript examines such perceptions of marketers, applying existing knowledge to a framework established through the hypotheses and the model introduced below.

The Model and Hypotheses

The success model for a marketer's computer system is presented in Figure 1. Figure 1 shows seven interrelationships between the outcomes of a successful computer system in the marketing organization. These interrelationships, or paths, are hypothesized to eventually directly or indirectly impact an overall success outcome, which has frequently been identified in the marketing organization as profitability [30] [39]. In this research, which is consistent with external outcomes generally sought by marketers, profitability is measured by

FIGURE 1

The Perceived Operational Success of Computer Systems Model



perceptions of financial improvement. These hypotheses and their rationale are stated below and numbered H1-H7.

Hypothesis One (H1): The perceived degree of system usability has a significant, positive impact on the perception of improving decisions supported by the system.

Because end-user attitudes and involvement with regard to computers [32] [65] [66] [74] are crucial to the success of a system, system usability is a logical variable to study. System usability for non-technical users such as marketers is particularly crucial, given their historical tendency to not use computerization [15] [58]. In this context, system usability includes the frequency of system availability and its ease of use. The premise for this hypothesis rests with the finding that while marketers perceive computer systems to improve operational elements, such as decision-making [44], for a non-technical user, it is evident however, he/she must first be able to use a computer system before benefits can be cultivated.

Hypothesis Two (H2): The perceived degree of system usability has a significant, positive impact upon the perception of improving operations in the organization.

Consistent with the use of system involvement as a major influence on output [50], it is expected for the importance of system usability to non-technical users to be considerable. In this framework, it is proposed the more extensively a system is used, a firm should improve organizational operations. For example, the wide use of computerization for spreadsheets [22] suggest the technology improves managerial abilities. Presumably then, the more usable a computer system is, the greater it will be used. In the marketing organization, greater use concurrently implies improved information use and operations. This is also consistent with the perspective that marketers are "external" personnel, who must collect environmental data, which is subsequently used internally. Congruently, enhanced information and its use have positive influences on the marketing organization. While a variety of factors have been proposed to be important operational success factors in different domains [35], the perceived usability of the system seems to be a critical element in developing the perception of computer success.

Hypothesis Three (H3): The perception of improved decisions has significant, positive impacts on the perception of improving operations in the organization.

While it has been previously proposed that computer and information systems need to be more effective [38], it is the responsibility of management to continually redesign the organization to facilitate the use of technologies. Although information has a vital role in an increasingly complex marketing environment [17], gaps continue to exist in the research associating decision-making and operational guidelines [27]. Logically, however, enhanced decisions concerning operations lead to improved capabilities or outputs. For example, the perception of better decisions concerning how and when to use resources should be perceived as improving operations.

Hypothesis Four (H4): The perception of improved decisions has significant, positive impacts upon the perceived financial improvement of the organization.

Hypothesis Four also proposes managers who make good decisions should expect improved outputs. It should also be noted organizations acquire and distribute information internally for the purpose of enhancing control and decision-making [26]. Consequently, as the marketer's quality of decision increases, the firm should experience financial improvement. This is particularly appropriate in marketing where developments in information processing and handling have been shown to impact financial outcomes [42]. It is also the case that in marketing, while success and decisions are closely linked [11], systems are also needed to manage data and assist in decision-making [73].

The importance of Hypothesis Four is evident in two related, but separate beliefs. First, understanding decisions is crucial to sales and marketing organizations [31]. Second, better decisions frequently lead to improved resource use, which remains a major challenge for computer system managers [46] and computer system success [35]. Because computer-aided marketing applications frequently impact revenues [21], improved resource use should enhance the firm's revenues, reduces costs, and subsequently increases profits.

Hypothesis Five (H5): The perception of improved operations has significant, positive impacts on the perception of financial improvement of the organization.

Intuitively, changes in the operations of the firm should impact the success of the organization [8], which for the marketer, typically includes financial success. More specifically, improved operations should enhance the firm's revenues and/or reduce costs. Such examples have been seen where changes in operations impacted financial returns [68] through a variety of methods, such as better control of internal activities to reduce organizational costs.

Hypothesis Six (H6): The perception of improved operations has significant, and positive impacts on the perceived identification and exploitation of new/strategic opportunities.

White and Leifer [70] have reported that a "gap" may exist between the theory and actual practice of systems design. This gap may suggest a weak association between improved operations and new/strategic opportunities in unsuccessful installations. However, one outcome of operations which is of interest to the marketer and has been linked to computer

usage [25], is improved productivity. The increased intertwining of computer and information system functions with the operations of the firm [60] supports the need to establish or improve a strategic advantage [72].

The continuation of uncertain markets has resulted in marketers increasingly attempting to extend their domain to include more strategic opportunities. This emphasis has resulted in marketers using computer and information systems to address strategic problems [17]. Yet, the search for new and strategic opportunities would logically be most effective after major organizational operations are perceived to be in appropriate functioning order. That is, since it is reasonable that strategic activities can only be addressed after operational needs are fulfilled, it is proposed improving operations will lead to greater abilities to identify and exploit new and strategic opportunities.

Hypothesis Seven (H7): Perceived identified new/strategic opportunities have significant, positive impacts on the perceived financial improvement of the organization.

A variety of organizational factors influence the success of computer and information systems [55]. Specifically, computer and information systems represent strategic resources that provide competitive advantages in the general context of the firm [29] [53] as well as in the marketing organization [43] [44]. Consistent with the needs of marketers to provide organizational revenue, this hypothesis proposes new and strategic opportunities in the form of identifying new markets, products, and services, can be enriched through computerization.

The Research Design

In order to empirically examine these seven hypotheses, a questionnaire was developed. Included on the questionnaire were several demographic questions directed toward gaining information about the respondents and their firms. Also included were items concerning the outcomes of computer system success. Each item began with the phrase "I personally consider a computer system a success if it ..." The respondents were given a 5-point Likert-type scale on which to respond. The scale and weights were: 1-Strongly Disagree; 2-Disagree; 3-Neutral; 4-Agree; 5-Strongly Agree.

The questionnaire items were developed to focus on the five outcomes of perceived computer system success described in the hypotheses. In order to examine the face-validity of these items, the questionnaire was first discussed with five marketing executives who are familiar with computers and use these systems in their capacities with their firms. Based on their input, the questionnaire was then pretested on a sample group of 15 marketing managers. From the pretest, a few minor modifications in terms of wording and content were made to develop the final form of the questionnaire.

The final questionnaire was mailed to 1500 marketing executives selected in a systematic random fashion from a purchased, national mailing list. These individuals were selected to participate in the study, because as an executive in the marketing unit, he/she bears the responsibility of marketing performance. Consequently, as such a decision maker, their perceptions concerning the success of a computer system should be representative of their marketing organizational unit. It is expected for these respondents to answer the items within the framework of reference provided by their organizational experiences. This approach is also consistent with the belief that the benefits of information are crucial to the marketing manager [10] [48].

A systematic random sampling design was used to assure a geographically representative sample and to avoid any sample bias since the mailing list order was by zip code numbers. The systematic portion of the sampling design was provided by selecting every third name on the mailing list. The stochastic element was introduced by using a random number to select the first name off the mailing list [18]. As the result of mailing list restrictions, no attempts were made to contact the individuals once the questionnaires were mailed. From the 1500 mailed surveys, 225 usable responses were received, producing a 15% response rate. This approach and response rate compare favorably with similar research of marketers' usage of computers [6] [41] [43] [57]. Consistent with similar research investigating marketers' perceptions about computers [44] [51], the survey was administered in multiple organizations and not in a single firm. The rationale for the multiple organization approach was to increase the overall ability to generalize the results across firms.

The profile of the average respondent can be indicated by the mean responses to the demographic items on the questionnaire. The mean sales size of the respondents' organizations was $40 million. The average number of sales representatives employed by these firms was 56.03 individuals. The average number of employees in the respondents' firms was 173.63. The percentage of international sales for these firms was 9.06%.

Response Bias

As in any survey research, response bias may be a concern. In this particular case, several procedures were performed to examine the possible presence of response bias. First, a cutoff date was established after which all returns would be considered nonresponses and excluded from the sample. A total of 41 questionnaires were received after this cutoff date. These 41 questionnaires were used to simulate the nonresponses in the population. The demographics were then compared between the 184 questionnaires included in the sample and the 41 simulated nonrespondents using t-tests [54]. No significant differences for these demographics

were identified by the t-tests across the two groups. The specific demographics and their t-values were: sales (-1.61), number of sales representatives (-0.19), number of firm employees (-1.63), and the percentage of international sales (-0.56). Based on these results, response bias should not present a serious problem for this study [54].

Measure Development and Their Psychometric Properties

The outcome measures of a successful computer system were developed based on 13 computer system success items from the questionnaire. Each item theoretically measured only one of the five outcome dimensions of computer system success. In order to verify the theoretical groupings of these items into the measures of computer system success, a confirmatory factory analysis was performed using structural equations [24]. Besides confirming the outcome measures of computer systems success, the confirmatory factor analysis results were used to evaluate the psychometric properties of the measures. In this structural equations model, the success outcome measures were the latent constructs. These were exogenous and allowed to pair-wise correlate. The questionnaire items were the indicants of their respective measures. Each indicant was impacted by a disturbance term which was free to vary and a path equal to one. The estimation was performed using the observations described above, CALIS (i.e., Covariance Analysis of Linear Structural Equations) in PC SAS version 6.04 and maximum likelihood estimation. The five success outcome measures and their questionnaire items and the corresponding factor loadings are displayed in Table 1.

The overall fit of this confirmatory factor analysis to the data was good. Several statistics summarizing this fit include: a Goodness of Fit Index of 0.94; an Adjusted Goodness of Fit Index equal to 0.90; a 0.04 Root Mean Square Residual; a Chi-Square Statistic equaling 77.51 (with 55 degrees of freedom which was statistically significant at a 3% level). Further, the Normed Chi-Square Statistic was 1.41, Bentler's Comparative Fit Index was 0.98 while Bentler and Bonnett's Normed and Non-Normed Indexes were 0.91 and 0.98.

From the confirmatory factor analysis, the first psychometric property of the success dimension measures examined was the average percentage of variance extracted by each measure. These averages are shown in Table 1 and were: 64% for perceived improved decisions, 61% for perceived system usability, 61% for perceived improved operations, 77% for perceived new/strategic opportunities, and 69% for

TABLE 1

The Measures of Perceived Computer System Success

Questionnaire Item	Standardized Path Coefficient	Percentage of Shared Variance	Reliability Coefficient
I personally consider a computer system a success if it ...			
Perceived Improved Decisions		64%	0.77
1. helps decisions to take less time.	0.76		
2. helps make better decisions.	0.83		
Perceived System Usability		61%	0.76
3. is available when needed.	0.78		
4. is easy to use.	0.78		
Perceived Improved Operations		61%	0.78
5. improves the accuracy of data available in the organization.	0.78		
6. corrects data throughout the organization.	0.78		
7. allows strategic price adjustments.	0.64		
Perceived New/Strategic Opportunities		77%	0.91
8. leads to the identification of new products or services.	0.81		
9. leads to the identification of new markets.	0.97		
10. leads to the identification of new ways to compete.	0.84		
Perceived Financial Improvement		69%	0.87
11. reduces costs.	0.72		
12. increases revenues.	0.86		
13. improves the financial status of the organization.	0.90		

perceived financial improvement. These values indicate that each measure demonstrates satisfactory average percentage of shared variance [56]. The second psychometric property of the examined computer system success measures was the reliability of each measure. These reliabilities are also displayed in Table 1 and ranged from a low of 0.76 for the measure of perceived system usability to 0.91 for perceived new/strategic opportunities. The reliabilities for the remaining measures were 0.77 for perceived improved decisions, 0.78 for perceived improved operations, and 0.87 for perceived financial improvement. These values indicate that the measures possess satisfactory composite reliability [47].

Discriminant validity was the third psychometric property examined. If two measures demonstrate discriminant validity, the squared correlation between the measures is less than each measure's average percentage of shared variance [28]. In order to examine discriminant validity, the correlation coefficients between each pair of measures (i.e., the latent variables) computed in the confirmatory factor analysis were squared. These squared correlations were: 0.08 for perceived improved decisions and perceived system usability; 0.27 for perceived improved decisions and operations; 0.13 for perceived improved decisions and perceived financial improvement; 0.10 for perceived improved decisions and perceived new/strategic opportunities; 0.29 for perceived system usability to perceived improved operations; 0.18 for perceived system usability to perceived financial improvement; 0.04 for perceived system usability to new/strategic opportunities; 0.37 for perceived improved operations to perceived financial improvement; 0.22 for perceived improved operations to perceived new/strategic opportunities. These results indicate the measures and their indicants display discriminant validity [28]. The correlation coefficients among each pair of questionnaire items were also computed, and are displayed in Table 2.

Based on the analysis of the measures' psychometric properties, it is concluded they possess satisfactory characteristics. The reliabilities of the measures indicate that composite reliability is satisfied. Since all the standardized path coefficients for the indicants were greater than 0.60, item reliability is satisfied. This result, coupled with satisfactory average percentage of shared variance imply that convergent validity is satisfied [56]. Since discriminant validity is also satisfied, the developed measures demonstrate construct validity [54].

The Model and Its Estimation

The empirical technique employed was structured equations with latent variables. Structural equations is a technique which examines a series of dependent relationships simultaneously. These relationships are expressed as a system of simultaneous equations. As a result, the approach allows the study of all relationships providing a more complete perspective of the problem. In this particular study, the questionnaire items provided the indicants of the measures (i.e., perceptions of computer success outcomes). Each indicant was related to each measure by an equation in the system. In addition, the interrelationships among the measures (i.e., the hypothesized relationships) are expressed by equations in this system. Each indicant was impacted by a disturbance term that was free to vary while its associated path was set equal to one. For the success outcome exogenous to the model (i.e., system usability), its error variance was set equal to one. The remaining success measures were endogenous to the model with error variances free to vary and associated paths equal to one.

TABLE 2

The Correlation Coefficients Between the Questionnaire Items

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1.00												
2	0.63	1.00											
3	0.21	0.19	1.00										
4	0.19	0.10	0.62	1.00									
5	0.35	0.30	0.39	0.38	1.00								
6	0.24	0.30	0.24	0.29	0.56	1.00							
7	0.27	0.26	0.23	0.17	0.44	0.54	1.00						
8	0.17	0.18	0.11	0.03	0.12	0.34	0.29	1.00					
9	0.21	0.26	0.14	0.12	0.31	0.40	0.34	0.79	1.00				
10	0.21	0.25	0.06	0.10	0.24	0.36	0.26	0.68	0.81	1.00			
11	0.22	0.26	0.26	0.30	0.32	0.30	0.31	0.28	0.29	0.25	1.00		
12	0.21	0.26	0.32	0.31	0.34	0.34	0.34	0.32	0.39	0.39	0.60	1.00	
13	0.24	0.24	0.26	0.25	0.41	0.44	0.43	0.27	0.36	0.34	0.63	0.77	1.00

The developed model was estimated using the previously discussed questionnaire responses, success measures, indicants, and interrelationships using the procedure CALIS in SAS PC version 6.04. The estimation method used was maximum likelihood.

The Results

The overall fit of the model to the data was good, as illustrated by the summary statistics shown in Table 3. The Goodness of Fit Index was 0.94, while the same index adjusted for the degrees of freedom in the model had a value of 0.91. The Root Mean Square Residual was 0.04. The Chi-Square Statistic measuring the significance of the difference between the model or theoretically implied variance-covariance matrix to the variance-covariance matrix not restricted by the model was statistically significant. This statistic had a value of 81.45 with 58 degrees of freedom and was significantly different from zero at a 1% level. Ideally, this statistic would be insignificant. Yet, it is possible in moderately large samples for the fit between these two variance-covariance matrices to be good and the Chi-Square Statistic to be significantly different from zero [24]. Supporting this assertion is the Normed Chi-Square Statistic of 1.40. Its value supports the argument that this fit cannot be significantly improved by adjusting the model [24]. Bentler's Comparative Fit Index was 0.98. Four Incremental Fit Indexes (i.e., Bollen's Normed and Non-normed Indexes and Bentler and Bonnett's Normed and Non-normed Indexes) ranged from a low of 0.91 to a high of 0.98.

TABLE 3

The Summary Statistics of the Model's Fit

Goodness of Fit Index	0.94
Adjusted Goodness of Fit Index	0.91
Root Mean Square Residual	0.04
Chi-Square Statistic (58 degrees of freedom)	81.45**
Normed Chi-Square Statistic	1.40
Bentler's Comparative Fit Index	0.98
Bentler & Bonnett's Non-Normed Index	0.97
Bentler & Bonnett's Normed Index	0.93
Bollen's Normed Index	0.91
Bollen's Non-Normed Index	0.98

*statistically significant at the 0.01 level

Based upon these fit results, the model depicting the interrelationships among the perceived computer system success outcomes provides a good fit with the data. As a result, the model appears to be an appropriate description of the computer system success outcomes and their interrelationships as perceived by marketers.

The Individual Indicants and the Outcomes of Perceived Success

The details of the estimated model and the empirical results are shown in Figure 2. All the indicants of the perceptual success outcomes were significantly different from zero, using a 1% significance level. Also, these indicants had standardized path coefficients with the expected signs and which were sufficiently large to be meaningful. The values of these coefficients ranged from 0.64 to 0.97. Similarly, the standardized path coefficients between the perceived success outcomes are also displayed in Figure 2 along with their corresponding hypotheses (i.e., H1-H7). Six of the seven path coefficients were significantly different from zero, based upon a 1% significance level (i.e., hypothesis H1-H3, H5-H7). Further, all six had meaningfully large path coefficients with the expected signs. Their estimated path coefficients in standardized form ranged from 0.19 to 0.52.

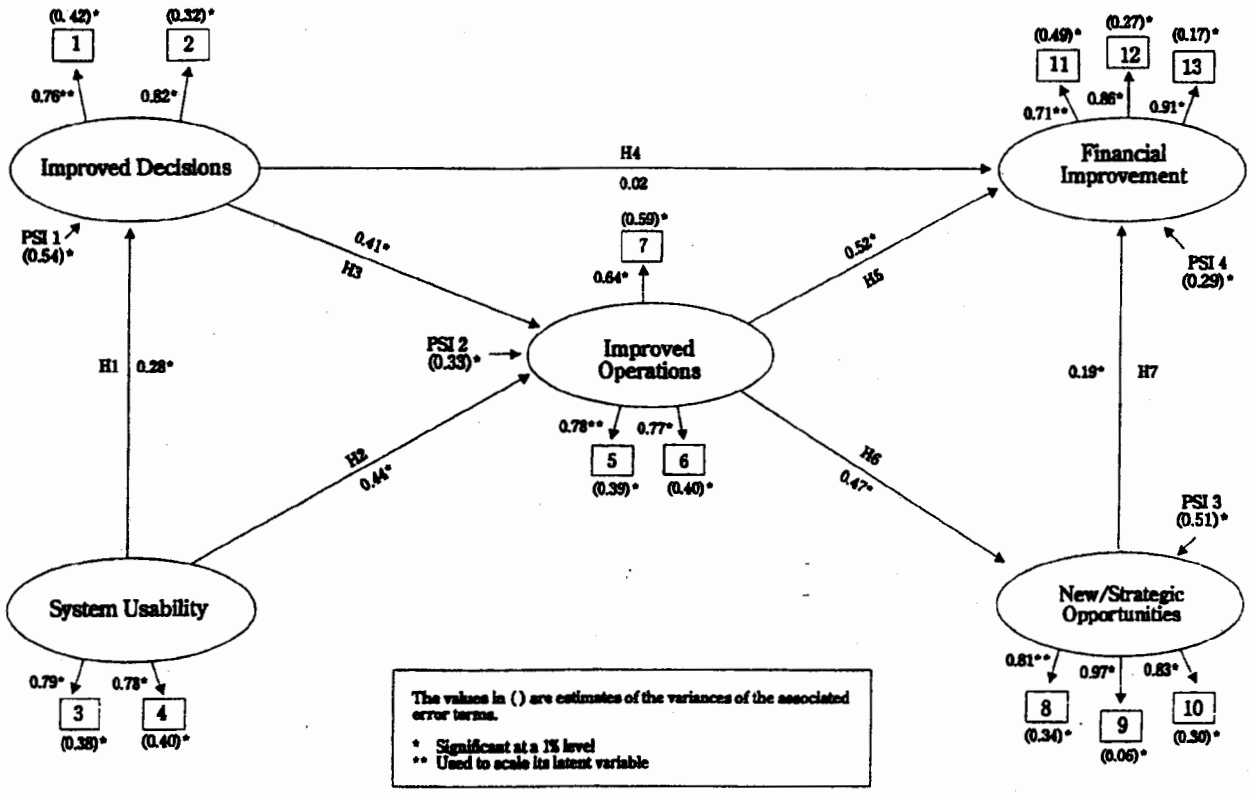
The remaining path coefficient, which was neither significant nor meaningfully large, was the path from perceived improved decisions to perceived financial improvement (e.g., Hypothesis H4). Its standardized coefficient was 0.02. In terms of the hypotheses described earlier, the empirical results provide evidence to support all the hypotheses except that perceived improved decisions have direct, positive impacts on the perceived financial improvement of the organization. In other words, marketers do not view making better decisions as directly improving their firm's financial position. But the empirical results do indicate that perceived improved decisions impact perceived financial improvement indirectly through perceived improved operations (i.e., marketing operations). Thus, improved decisions are perceived to improve marketing operations which than produces financial improvement. Further, the estimates of all the error terms were significantly different from zero at a 1% level. The magnitudes of these estimates ranged from 0.06 to 0.59 and are shown in Figure 2. From these estimates it can be seen that no Heywood cases existed.

Managerial Implications

While there is a need for more information-usage-related survey research [49], the emphasis should be to empirically investigate information employment in a formal setting [26]. The use of marketers provides the basis for such a comprehensive examination of the outcomes of computer system success in a crucial operational environment that is unique. The results of this investigation are particularly germane therefore, because of the growing belief that technology engenders organizational success [16], as well as the crucial nature of information in providing marketers a competitive

FIGURE 2

The Perceived Operational Success of Computer Systems Model with Standardized Path Coefficients



advantage [17].

In the marketing environment, where technology has emerged as a problem solver [33], and consistent with the importance of economic motivators to the marketer (i.e., ensure organizational survival), the findings of this study indicated, on a perceptual level, that successful computer systems ultimately lead to financial improvements in the organization. It is this congruency between perceived financial needs and computerization that suggests an important broadening of the role of technology in marketing.

The role of using perceived financial improvement as a measure of success suggests that computer systems can be measured against an economic basis of gain and loss. That is, in the future, computer systems in the marketing department may be assessed against the same perceived "bottom line" criteria used on other marketing tools. Consistent with this finding, the perceived roles of new/strategic opportunities and improved operations in impacting financial improvements also indicate other areas that computerization influences.

Another finding of interest is the insignificance of the perception that improved decisions directly impact perceived financial improvement. It appears marketers look for decisions to improve operational capacities first, and subsequently, enrich financial positions. The lack of a perceived direct linkage between decisions and financial improvement results from the operational outlook of these marketers. Specifically, because marketers are typically responsible for the daily financial survival of a firm, their focus may be on the operational improvements that decisions foster. Perceived improvements in operations then lead to perceived financial improvements. Subsequently, marketers may not envision the direct relationship hypothesized between the perceptions of improved decisions and financial improvement. The insignificance of this relationship is an area in which further research could provide meaningful contributions.

Importantly, the results also indicate perceived computer system success in the marketing organization is multidimensional and these dimensions are interrelated. This indicates the perception of computer success is a complex variable, requiring input from several areas. For the marketer, this

suggests perceived performance can be based on a variety of factors. Given the increasingly complex and diverse system applications that will develop over the next decade, it can therefore be anticipated that what makes a computer system successful will change. Hence, there is a need for marketers and information systems personnel to be technically flexible. Organizations that are able to satisfy these changing needs will be better positioned to utilize computerization to their advantage. For example, it is unlikely that ten years ago operational managers (i.e., marketers) would have believed computerization could be measured in terms of financial gain. From this perspective, the question arises as to what will the next generation of computer systems be expected to perform for the user? Thus, there is a need to continually assess system acceptability and the expectations of users, as static technical offerings will likely hurt future users.

Conclusions

The purpose of this article was to explore how the marketer perceives to be enriched through computerization. While the selection of marketers was based on their importance to the firm as well as the need to retain a competitive position, the outcomes of the study suggest computer systems can no longer be considered the tool of just one group (i.e., the Information Systems Department). In a view of this specific environment, a survey of marketing executives found operational and strategic outcomes influence the perception of what constitutes successful computer systems. In turn, these findings provide a number of important managerial implications.

REFERENCES

[1] Alderson, W. 1965. *Dynamic Marketing Behavior.* Homewood, IL: Richard D. Irwin.

[2] Allen, B. R. and Boynton, A. C. 1991. "Information architecture: In search of efficient flexibility." *MIS Quarterly* 15 (December): 435-445.

[3] Apte, U., Sankar, C. S., Thakur, M., and Turner, J. E. 1990. "Reusability-based strategy for development of information systems: Implementation experience of a bank." *MIS Quarterly* 14 (December): 421-433.

[4] Bergeron, F. and Begin, V. 1989. "The use of critical success factors in evaluation of information systems: A case study." *Journal of Management Information Systems* 5 (Spring): 111-124.

[5] Bergeron, F. and Raymond, L. 1992. "Planning of information systems to gain a competitive edge." *Journal of Small Business Management* 30 (January): 21-26.

[6] Berry, D. 1983. "How marketers use microcomputers-now and in the future." *Business Marketing* 68 (December): 47-51.

[7] Bloom, P.N., Milne, G.R., and Adler, R. 1994. "Avoiding misuse of new information technologies: legal and societal considerations." *Journal of Marketing* 58 (January): 98-110.

[8] Cheney, P. H., Mann, R. I., and Amoroso, D. L. 1986. "Organizational factors affecting the success of end-user computing." *Journal of Management Information Systems* 3 (Summer): 65-80.

[9] Collins, R. H. 1987. "Sales force support systems: Potential applications to increase productivity." *Journal of the Academy of Marketing Science* 15 (Summer): 49-54.

[10] Cravens, K. S. 1991. "The strategic role of information." *Strategic Marketing* by David W. Cravens, pp. 593-617. Homewood, IL: Irwin.

[11] Curren, M. T., Folkes, V. S., and Steckel, J. 1992. "Explanations for successful and unsuccessful marketing decisions: The decision-maker's perspective." *Journal of Marketing* 56 (April): 18-31.

[12] DeBrabander, B. and Edstrom, A. 1977. "Successful information system development projects." *Management Science* 24 (October): 191-199.

[13] DeLone, W. H. 1988. "Determinants of success for computer usage in small business." *MIS Quarterly* 12 (March): 51-61.

[14] Dickson, P. R. 1992. "Toward a general theory of competitive rationality." *Journal of Marketing* 56 (January): 69-83.

[15] Dyer, R. F. and Forman E. H.. 1991. *An Analytic Approach To Marketing Decisions.* Englewood Cliffs, NJ: Prentice-Hall.

[16] Edelman, F. 1981. "Managers, computing systems, and productivity." *MIS Quarterly* 5: 1-19.

[17] Evans, K. R. and Schlacter, J. L. 1985. "The role of sales managers and sales people in a marketing information system." *Journal of Personal Selling & Sales Management* 5 (November): 49-58.

[18] Freund, J. E. 1988. *Modern Elementary Statistics.* 7th ed. Englewood Cliffs, NJ: Prentice-Hall.

[19] Good, D. J. 1992. "A need for the revitalization of indicants of performance in the marketing organization." *Journal of Marketing Theory and Practice* 1 (Fall): 31-39.

[20] Goodstein, L. D. and Burke, W. W. 1992. "Creating successful organizational change." *Organizational Dynamics* 19 (Spring): 5-17.

[21] Greco, A. J. and Hogue, J. T. 1990. "Developing marketing decision support systems." *The Journal of Business & Industrial Marketing* 5 (Summer/Fall): 27-36.

[22] Grohowski, R., McGoff, C., Vogel, D., Martz, B., and Nunamaker, J. 1990. "Implementing electronic meeting systems at IBM: Lessons learned and success factors." *MIS Quarterly* 14 (December): 369-383.

[23] Guimaraes, T., Igbaria, M. and Lu, M. 1992. "The

determinants of DSS success: An integrated model." *Decision Sciences Journal* 23 (March/April): 409-430.

[24] Hair, J., Jr., Anderson, R. E., Tatham, R. L., and Black, W. C. 1992. *Multivariate Data Analysis: with Readings.* New York: Macmillan Publishing Company.

[25] Henderson, J. C., Rockart, J. F., and Sifonis, J. G. 1987. "Integrating management support systems into strategic information systems planning." *Journal of Management Information Systems* 4 (Summer): 5-24.

[26] Huber, G. 1982. "Organizational information systems: Determinants of their performance and behavior." *Management Science* 28 (February): 38-155.

[27] Huber, G. 1983. "Cognitive style as a basis for MIS and DSS designs: Much ado about nothing." *Management Science* 29 (May): 567-582.

[28] Igbaria, M. and Greenhaus, J. H. 1992. "Determinants of MIS employee's turnover intentions: A structural equation model." *Communications of the ACM* 35 (February): 35-49.

[29] Jenster, P. V. 1986-87. "Firm performance and monitoring of critical success factors in different strategic contexts." *Journal of Management Information Systems* 3 (Winter): 17-33.

[30] Kotler, P. 1988. *Marketing Management.* 6th ed. Englewood Cliffs, NJ: Prentice-Hall.

[31] LaForge, R. W. and Cravens, D. W. 1981-82. "A market response model for sales management decision-making. "*Journal of Personal Selling & Sales Management* 2 (Fall/Winter): 10-16.

[32] Le Blanc, L. A. and Kozar, K. A. 1990. "An empirical investigation of the relationship between DSS usage and system performance: A case study of a navigation support system." *MIS Quarterly* 14: 263-277.

[33] Little, J. D. C. 1979. "Decision support systems for marketing managers." *Journal of Marketing* 43 (Summer): 9-26.

[34] Lucas, H. S. 1975. "Performance and the use of information systems." *Management Science* 21 (April): 908-919.

[35] Magal, S. R. and Carr, H. H. 1988. "An investigation of the effects of age, size, and hardware option on the critical success factors applicable to information systems." *Journal of Management Information Systems* 4 (Spring): 60-76.

[36] Mayros, V. and Dolan, D. J. 1988. "Hefting the data load: How to design the MkiS that works for you." *Business Marketing* (March): 47-58.

[37] McCarthy, D., Spital, F. C., and Lauenstein, M. C. 1987. "Managing growth at high-technology companies: A view from the top." *Executive* (November): 313-322.

[38] McLeod, R., Jr. and Jones, J. W. 1986. "Making executive information systems more effective. "*Business Horizons* (September-October): 29-37.

[39] McNamara, C. P. 1972. "The present status of the marketing concept." *Journal of Marketing* 36 (January): 50-57.

[40] Menon, A. and Varadarajan R. 1992 "A model of marketing knowledge use within firms." *Journal of Marketing* 56 (October): 53-71.

[41] Mentzer, J. T., Schuster, C. P., and Roberts, D. J. 1987. "Microcomputer versus mainframe usage by marketing professionals." *Journal of the Academy of Marketing Science* 15 (Summer): 1-9.

[42] Meredith, L. 1989. "Developing and using a data base marketing system." *Industrial Marketing Management* 18 (November): 245-257.

[43] Moncrief, W. C. III., Lamb, C. W. Jr., and Mackay, J. M. 1991. "Laptop computers in industrial sales." *Industrial Marketing Management* 20: 279-285.

[44] Morris, M. H., Burns, A. C., and Avila, R. A. 1989. "Computer awareness and usage by industrial marketers." *Industrial Marketing Management* 18: 223-232.

[45] Mummalaneni, V. 1991. "The impact of computer-based sales support systems on salesperson performance and customer satisfaction." In March C. Gilly, et al. (eds.), *Enhancing Knowledge Development in Marketing: AMA Educators Proceedings*, 536, 1991.

[46] Niederman, F., J. C. Brancheau, and J. C. Wetherbe. "Information Systems Management Issues for the 1990s." *MIS Quarterly*, December 1991, 15, pp. 475-1990.

[47] Nunnally, J. 1978. *Psychometric Methods.* 2nd ed. New York: McGraw-Hill.

[48] O'Callaghan, R., Kaufmann, P. M., and Konsynski, B. R. 1992. "Adoption correlates and share effects of electronic data interchange systems in marketing channels." *Journal of Marketing* 56 (April): 45-56.

[49] Omar, M. H. and Goodwin, J. S. 1991. "An investigation of decision support systems research literature." *Interface* 3: 18-22.

[50] Paddock, C. E. and Swanson, S. E. 1986-87. "Open versus closed minds: The effect of dogmatism on an analyst's problem-solving behavior." *Journal of Management Information Systems* 3 (Winter): 110-122.

[51] Plank, R. E., Reid, D. A., Kijewski, V. and Lim, J. 1992. "The impact of computer usage by purchasing." *Industrial Marketing Management* (August): 243-248.

[52] Porter, M. E. and Millar, V. E. 1985. "How information gives you competitive advantage." *Harvard Business Review* 63 (July-August): 149-160.

[53] Pyburn, P. J. 1983. "Linking the MIS plan with corporate strategy." *MIS Quarterly* (June): 1-14.

[54] Rainer, R. K., Jr. and Harrison, A. W. 1993. "Toward development of the end-user computing construct in a university setting." *Decision Sciences Journal* (Novem-

ber/December): 1187-1202.

[55] Raymond, L. 1990. "Organizational context and information systems success: A contingency approach." *Journal of Management Information Systems* 6 (Spring): 5-20.

[56] Rivard, S. and Huff, S. 1987. "Factors of success for end-user computing." *Communications of the ACM* 31: 552-561.

[57] Rogers, J. C., Williams, T. J., McLeod, R. Jr. 1990. "Microcomputer usage in marketing departments of Fortune 500 firms: What should marketing students study?" *Journal of Marketing Education* 18 (Spring): 18-23.

[58] Russ, K. R., Hair, J. F., Erffmeyer, R. C., and Easterling, D. 1989. "Usage and perceived effectiveness of high-tech approaches to sales training." *Journal of Personal Selling & Sales Management* 9 (Spring): 46-54.

[59] Sanders, L. G. and Courtney, J. F. "A field study of organizational factors influencing DSS success." *MIS Quarterly* 9: 77-93.

[60] Sawy, O. A. El and Nanus, B. 1989. "Toward the design of robust information systems." *Journal of Management Information Systems* 5 (Spring): 33-54.

[61] Senn, J. A. and Gibson, V. R. 1981. "Risks of investment in microcomputers for small business management." *Journal of Small Business Management* 19 (July): 24-32.

[62] Sinclair, S. A. and Cohen, D. H. 1992. "Adoption of continuous processing technologies: Its strategic importance in standardized industrial product-markets." *Journal of Business Research* 24: 209-224.

[63] Singleton, J. P., McLean, E. R., and Altman, E. N. 1988. "Measuring information systems performance: Experience with the management by results system at Security Pacific Bank." *MIS Quarterly* 12 (June): 325-337.

[64] Shocker, A. D., Srivastava, R.K., and Ruekert, R.W. 1994. "Challenges and Opportunities Facing Brand Management: An Introduction to the Special Issue." *Journal of Marketing Research* 31 (May): 149-158.

[65] Tait, P. 1988. "The effect of user involvement on system success: A contingency approach." *MIS Quarterly* 12 (March): 91-107.

[66] Tait, P. and Vessey, I. 1988. "The effect of user involvement on system success: A contingency approach." *MIS Quarterly* 12 (March): 91-107.

[67] Taylor, T. C. 1991. "The PC evolution: Desktop...laptop... palmtop... ?top." *Sales Marketing Management* 143 (February): 50-61.

[68] Vitale, M. R. 1986. "The growing risks of information system success." *MIS Quarterly* (December): 327-334.

[69] Watson, H. J. and Carr, H. H. 1987. "Organizing for decision support system: The end-user services alternative." *Journal of Management Information Systems* 4 (Summer): 83-95.

[70] White, K. B. and Leifer, R. 1986. "Information systems development success: perspectives from project team participants." *MIS Quarterly* 10 (September): 215-223.

[71] Wightman, K. R. 1990. "The marriage of retail marketing and information systems technology: The Zellers Club experience." *MIS Quarterly* 14 (December): 359-366.

[72] Wiseman, C. 1988. *Strategies and Computers: Information Systems as Competitive Weapons*. 2nd ed. Homewood, IL: Dow Jones-Irwin.

[73] Wortman, L. A. 1987. "A marketing management system: Strictly for professionals." *Business Marketing* 72 (July): 17-18.

[74] Zmud, R. W. 1979. "Individual differences and MIS success: A review of the empirical literature." *Management Science* 25 (October): 966-979.

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