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INFLUENCE OF INFORMATION TECHNOLOGY ON JOBS AND PERFORMANCE EVALUATION MEDIATED BY GLOBALIZATION AND COMPETITION

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ABSTRACT

Effective utilization of IT innovations requires changes in organization structure and management practices. Lately, globalization imperatives and competition imperatives have been added to technological imperatives to study changes in organization and are together labeled as drivers of change. This paper examines the influence of these drivers of change on managers' jobs and performance evaluations. This study finds that managers recognize these drivers influencing their jobs and performance evaluations to varying degrees based on their receptiveness of technology. High technology oriented managers recognize a greater influence from these drivers than do the medium and low technology oriented managers. Similarly, high technology oriented managers perceive more influence from globalization imperatives and competition imperatives on their jobs and performance evaluations. Based on their use of IT, managers perceive the use of financial or non-financial performance measures related to IT, competition, and globalization in their performance evaluation.

Keywords: *Information technology, globalization, competition, drivers of change, performance evaluation, financial and non-financial performance measures, post-modernism, process theory.*

The influence of information technology (IT) on organizations and effective utilization of IT innovations have been subjects of many recent studies. Effective utilization of IT innovations requires changes in organization structure and management practices. Not all organizations can easily incorporate necessary changes to benefit from IT innovations. Along the way, IT has evolved from organizational problem solving tool to a social- technical network (Kling and Lamb 2000) of technology, organizations, and individuals on a global scale. Emerging directions, multidisciplinary concepts, and new theories have enriched the domain of research in the field. Relationships between various aspects of organization and IT have been studied using different empirical and theoretical perspectives (e.g., Eason, 1988; Kling and Lamb, 2000; Abecker, Bernardi *et al.*, 1998; Leavitt and Whisler, 1958; Markus and Robey, 1988; Orlikowski 1992; Aldrich, 1972; Pfeffer and Leblebici, 1977; Davis and Taylor, 1986; and Kling, 1978). Leavitt and Whisler (1958), in their seminal article, "Management in 1980's", envisioned considerable influence of information systems on organizational change, and speculated impacts of

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information systems on future managerial jobs and organizational structures. In this study I intend to explore some aspects of these speculated impacts.

By reviewing the extant literature, Markus and Robey (1988), in their widely cited article, organized current IS and organization research in a theoretical framework. They concluded that there is insufficient research to generalize the relationship between organizational change and information systems. They analyzed the causal structure of theoretical models on three dimensions: (1) causal agency, (2) logical structure and (3) level of analysis. This paper links its theoretical underpinning to Markus and Robey's framework in terms of technological imperatives (Orlikowski, 1992), organizational imperatives, and process theory. Technological imperatives emphasize technology as the cause of organizational change. Organizational imperatives attribute the consequence of information systems to the choices made by the organization and individual managers. Organizational imperatives stipulate that human actors design information systems to satisfy organizational needs. Within this context, (Rahman and McCosh 1976) showed that managers' choose IS based on their decision making styles and organizational subunit characteristics. Process theory, unlike deterministic variance theory, does not propose invariant relationship between the organization and information systems. Outcomes are conceived as discrete or discontinuous phenomena. Process theory emphasizes user choice and stipulates different levels of use of IS by managers within the same organization. The process theory supports the argument that, the availability of technology is a necessary condition but not the sufficient condition for the use of technology (Mohr 1982). Similarly, Orlikowski proposed the duality theory of technology where technology is viewed as a physically and socially constructed artifact. The process theory provides the basis for the research model in this study.

From the above discussions one may conclude that studies in IT and organizational change can be based on technological imperatives, organizational imperatives, and process theory. I have incorporated the concept of drivers of change (DC) to these concepts to extend the research domain. Drivers of change include three factors: technology, globalization, and competition. We have observed in the process theory that technological imperatives are necessary but not sufficient conditions for change. This keeps open the possibility of including other factors in such studies. I have added globalization imperatives and competition imperatives to expand the boundary of the current research in IS and organizational change.

Technology, globalization, and competition are termed as drivers of change (DC). The DC effect is a fusion of social and economic transitions that are characterized by a rapid turnaround of ideas, actions, and products. To manage the constant organizational and global changes, organizations develop new theories, systems, rules, policies, and procedures. Some of the DC realities of interest to practitioners and scholars include new industry and organization structures, innovative competitive strategies, and global networking technologies.

Hierarchical organizations modify themselves to respond effectively to advances in information technology (IT) and global markets. Traditional organizations supplement their hierarchical structures with formal and informal network-organizations to solve complex communication and coordination problems. Effective management in global institutions

requires organic organization structures and new human capital development. No single structure and strategy model can answer all questions for global enterprises ((Barret and Goshal 1997).

Research questions

This research focuses on the role of DC imperatives within an organization in a dynamic and complex global environment. Within this context, I looked at the following three areas:

(a) Managers' IT use orientations and their influence on performance evaluation.

(b) Influence of managers' IT orientations on jobs and performance evaluation mediated by competition imperatives.

(c) Influence of managers' IT orientations on jobs and performance evaluation mediated by globalization imperatives.

To address these research questions, this paper first examines the surrounding theoretical and normative issues.

Theoretical Perspectives

The formulation of the research questions and the construction and measurement of the specific variables were based on the interpretive practices of post-modernism. Post modernists look at the present, considering both the past and the future. Their critically interpretive theories are conceived with input from different disciplines. Similarly, this paper uses multiple perspectives and methodologies to build an interpretive research framework.

In an interpretive framework the main focus is on questions asked and analytical interpretations rather than validation of assumed realities. Here, the definition of dependent and independent variables is a strategy of analysis and not based on assumed reality. As (Willmott 2001) observed, "what is held to be an independent variable or a dependent variable when one abstracts general variable from a highly interdependent and complex social system is less of an assertion about reality than a strategy of analysis." This means that no one model can be the best fit for post-modernization.

Instead, postmodern theories are a synthesis of various perspectives within a set of common themes: global enterprise, rapid change, access to global resources, and concern for people (Gustafson 1995) . This paper poses research questions based on the concept of change. As Ely remarked, "post modernization is a concept of a philosophy of change. Posing questions is the fundamental task of philosophy" (Ely 1999).

The support for the use of technology or globalization as independent or moderating variables stems from a postmodern view. In post modernism, the philosophical orientation of IT or globalization varies from individual to individual. The best way to look at postmodern IT or globalization philosophy is as a general social condition.

Because IT and globalization integrate ideas and actions from various fields, this paper assumes that these factors conform to the post-modernist agenda proposed by Solomon (Solomon

2000). According to Solomon, post-modernism takes a pluralistic view of the world. As such, post modernism embraces an eclectic combination of ideas and resources, constructed knowledge, subjective truth, indispensability of communication (IT is the basis of all communication), dynamic and complex systems, and multiple roles for individuals.

In this paper, organization structure is viewed as a construct of ideas, beliefs, and values as perceived by the actors - a reflexive expression or an interpretive scheme. Thus, the research focus on managers' jobs and performance evaluations at the organizational level, inherently deals with structure and control issues.

Organizational performance evaluation includes financial and non-financial measures. This paper finds that financial measures (FM) and non-financial measures (NFM) meet the postmodern expectations at varying levels. NFM are more amenable to post modernism than FM. In our study we included measures in both areas. The following table illustrates post modernism perspectives of FM and NFM.

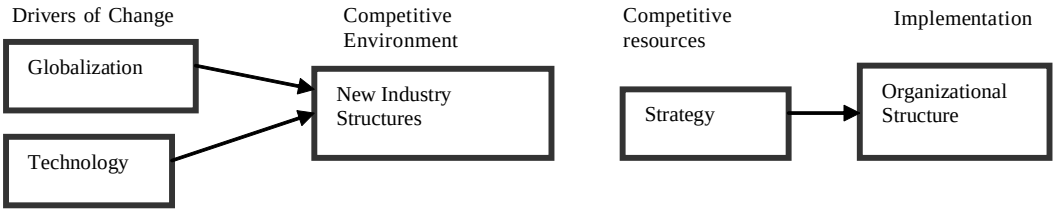
Table 1
Performance Measures and Post Modernism

	Post modernism	*Financial Measure (FM)*	*Non-financial Measures (NFM)*
1.	Pluralistic view	Limited	Multiple views
2.	Eclecticism	One discipline	Multiple disciplines
3.	Knowledge	Rules based	Judgment based
4.	Truth	rational	subjective
5.	Language	Economic	Social
6.	Communication	Financial transactions	All transactions
7.	Complexity	Precise and defined	Fuzzy and uncertain
8.	Self	Singular role	Pluralistic role

There are strong arguments in favor of including NFM with FM in organizational performance evaluation. For example, (Kaplan and Norton 1996)have found that the inclusion of non-financial measures has the potential to improve the long-term effectiveness of the organization. However, some scholars have argued that NFM inclusion is not compatible with the inclusion of standard accounting performance measures (Kaplan and Norton 2001), (Otley 1999). Most recently, (Hussain and Hoque 2002) discussed that decisions to include NFM in managerial performance measures depend on eleven factors including accounting standards, economic constraints, external institutional pressures, best practices, regulatory control factors, executive managers, corporate cultures, professional roles, competitors, and organizational characteristics and strategic orientations.

Practitioners, as well as academics, recognize the importance of NFM. A recent study done for Deloitte Touche Tohmatsu surveyed 249 executives and board members from around the globe and found that most executives expressed the need for non-financial information. In 92% of the companies surveyed, the boards of directors stated that they feel responsible for monitoring both the financial and non-financial measures of their business performance (Saliemo 2005). However, these business leaders expressed a concern for finding reliable NFM. Saliemo found that only a third of the surveyed executives is satisfied with the quality of NFM.

Figure 1: Base Model: Drivers of Change Model by Bradley, Hausman, and Nolan (1999)



The Research Model

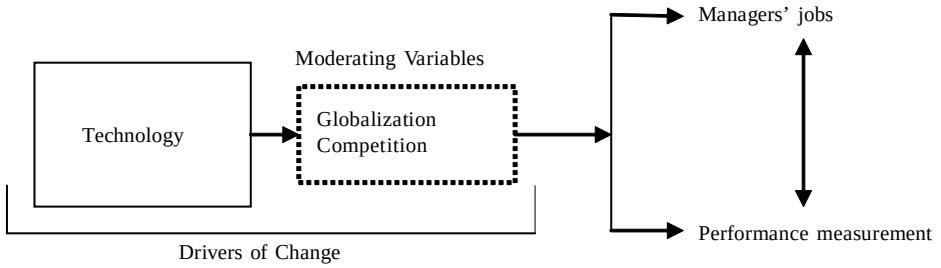
The theoretical model for this research has been derived from the model reported by (Bradley, Hausman *et al.* 1999). This base model is shown below:

This model shows the influence of technological imperatives and globalization imperatives on structure and strategy of organization mediated by competition imperatives. Organizations change to accommodate the demands of technology, globalization, and competition.

While the focus of the base model is of global context, the one presented in this paper is organizational focused. The current research extends the base model to explore how DC effects are perceived within organizations. This extended model assumes that organizational control strategies are a part of naturally occurring structural processes defined by rules, roles, and relationships. Managers are key players in these processes. Their perceptions of their jobs and performance measures are integral in the design and implementation of organizational structures.

In order to understand DC effects, on organizational change, the extended model postulates that, managers' perceptions of their jobs and performance evaluations are influenced by technology adoption and moderated by globalization and competition. The extended model identifies managers' jobs and performance evaluations as dependent variables, moderated by globalization and competition. Technology is shown as the independent variable.

Figure II. Extended Drivers of Change Model



Definition of Major Variables

Globalization

Globalization is a "process of economic integration of the entire world through the removal of barriers to free trade and capital mobility, as well as through diffusion of knowledge and information" (Asian Development Bank 2003). Dannon-Leva ((Dannon-Leva 2005) views

globalization as a "cross-border integration and relationships, and cross border movement of trade, finance, technology, and information". This paper focuses on organizational change as aspects of globalization. It examines how managers fulfill globalization mandates with respect to information systems, customers, suppliers, and controls. In other words, this research seeks to measure the influence of global orientations on managers' jobs and performance evaluation.

Technology

Technological innovations provide multi-faceted ways for firms to advance in modes of procurement, production, and distribution. Technological imperatives demand changes in organization structures and strategies. Technology in this research means information technology (IT). IT helps solve global management problems (Neo 1991). The study includes nine IT applications that shape the competitive landscape.

Competition

Firms seek competitive advantages to achieve success in global environments. Global firms face limitless opportunities and threats to acquire and manage customers and suppliers worldwide. The focus in this study is on managers' orientations to selected strategies, such as price, cost, products, customers, and services, and the relative effect these competitive strategies have on their jobs and performance evaluations.

Delineation of Study Variables

In line with the research model, this paper develops three sets of variables for technology, globalization, and competition to measure their influence on managers' jobs and performance evaluations. The banking industry was chosen as the context for this study because it is a service industry where IT plays an important role. Furthermore, banking penetrates global and local markets easily and faces global competition. Based on professional and academic literature in banking, experts' opinions, and published research a list of 37 variables (excluding demographic variables), was developed (Appendix A). The technology variable is constructed from nine variables for job perception and six variables for performance evaluation; the globalization construct includes five variables for job perception and performance evaluation; the competition construct is developed from six variables each for job perception and performance evaluation. The performance evaluation variables include both financial and non-financial measures. Descriptive statistics for each construct are shown in the Results and Discussion section in the following pages. Descriptive statistics are computed by adding the values of all components for each construct.

Questionnaire and Test of Validity

A forty-nine item questionnaire was designed to measure perceptions of bank managers. The study results are based on data from the sections of the questionnaire relevant to technology, competition, globalization, and demographic information. To ensure content validity and face validity several steps were taken. A preliminary questionnaire was prepared based on literature surveys. A sample of eight managers pre-tested the questionnaire. To ensure additional content

validity, face-to-face interviews were conducted with two managers. The questionnaire was modified incorporating information from the pre-test and face-to-face interviews to fit with bank managers' conceptual domain and improve the quality of communication of concepts. Cornbach's á is 0.97 indicating high internal reliability and consistency. Usually, large number of items in the questionnaire and high average inter-correlation produce high Cornbach's á. In this study both of these conditions were present.

Data Collection

With the help of a senior bank administrator questionnaires were circulated via email (web-based) and in print form to 35 mid-level managers of the UAE branches of a multinational European bank (Bank X). The UAE branches are aggressively managed due to intense competition from many foreign and local banks. Thirty completed questionnaires were received.

Location

The UAE branch of Bank X operates in a highly competitive environment consisting of top multinational and local banks, advanced technology, global outreach, and qualified banking professionals. It is an ideal setting for a global study.

Bank X is a prominent international bank established more than a century ago. It ranks among the top 15 banks in Europe and top 25 in the world, based on tier 1 capital (book value of stock plus retained earnings). It has more than 3500 branches in over 55 countries and has more than 100,000 employees. The sample for the present study was drawn from the commercial banking segment of the UAE branch.

Demographic Data

Fifty-nine percent of the managers are in the 30 - 40 year age range, 27 percent managers are in the 40-50 year age range and the remaining 14 percent are in the 30 and below age range. Nine of the respondents are vice-presidents[1], eight are managers, and the remaining thirteen are senior officers and officers. Their average banking experience is 13.5 years, with 25 years being the highest and six the lowest. All respondents have at least one baccalaureate business or economics degree and nine respondents have additional professional qualifications[2]. Eight out of nine vice-presidents have MBA degrees and only two have added professional qualifications.

Measurement of Variables

Technology Orientation

The questionnaire items, used to measure IT influence on jobs and performance evaluation, were selected after a careful consideration of their content and relevance. The internal validity of the items is demonstrated by their inter-correlations. Inter-correlations are listed in Appendix B. All correlations except three are significant at 5% or lower (2-tailed). A composite variable was computed by adding values of all items included in the technology imperatives, termed as technology variable.

Hierarchical clustering techniques (Johnson 1967) were used to classify managers on their technology orientations. The clustering techniques are heuristic algorithms. The size and number of clusters are not inferred from any sampling theory. Therefore, this study tests the invariance of clusters in various ways: (1) changing the number of variables and the number of clusters and (2) inter-techniques validation (Roscoe 1974). The paper uses (a) Ward Method, (b) Average Linkage Method, and (c) K-Means Cluster Analysis. The multiple methods provide comparable results. From the Ward Method, three clusters were extracted for further analyses.

Competition and Globalization Variables

Competition and globalization variables were measured as perceptions of the influence of these variables on jobs and performance evaluation. It is an indirect measure of organizational climate. Organizational climate is assessed through managerial perceptions that are eventually reflected in control systems via performance measurement. The measurement of organizational variables was designed using Likert's interaction - influence model (Foreland and Gilmer 1954) which assigns central importance to organizational characteristics as they are perceived by individuals.

Competition orientation of managers was measured by questionnaire items. Managers were asked questions as to how six different aspects of competition influence their jobs and performance evaluations. I have ensured the content validity of the variable set as discussed earlier. For internal validity I computed Pearson correlations among the competition variables (Appendix C). High levels of significance of the correlations imply high internal validity of the construct.

Similarly, globalization orientations were measured on five variables. Questions were asked as to how different aspects of globalization influence jobs and performance evaluation. Appendix D shows inter-correlations of the globalization variables.

Performance evaluation variables include measures related to revenue, cost, market, and customer. These variables are included in each of the three sections of the questionnaire - technology, competition, and globalization.

RESULTS AND DISCUSSION

Hierarchical clustering techniques, based on the average scores of managers' perceptions lead to three technology orientation clusters significantly different from each other. Out of the

Table II
Technology Orientations*

Cluster	*n*	*Mean*	*Median*	*Standard Deviation*	*Minimum*	*Maximum*
Low tech	11	2.767	2.890	0.539	1.89	3.33
Med-Tech	10	3.712	3.670	0.218	3.44	4
High Tech	9	4.271	4.264	0.243	4.00	4.67

Results were analyzed using the Kruskal-Wallis text ($\chi^2 = 25.375.2$ df. $P \leq 0$) and the mann-Whitney U-test for two independent samples. Clusters differe significantly from one another, $p \leq 0$ for asymptotic and exact probability.
**Note*: Results reporting formats in this and other tables for Kruskal Wallis Tests and Mann- Whitney Tests were composed following Vicente's paper (Vicente, Bravo et al. 2004).

total sample of 30 managers, nine are included in the high technology group (Hi Tech), ten are in the medium technology groups (Med Tech), and 11 fall into the low technology group (Lo Tech). I performed Kruskal-Wallis Test and Mann-Whitney Test to compare the differences between the groups (Table II). Kruskal Wallis test shows that the three groups are significantly different ($c^2 = 25.375$ for 2 df., $P < 0.00$). Mann Whitney's U for all pairs (Hi Tech x Lo tech, Hi Tech x Med Tech and lo Tech x Med Tech) are lower than the critical value of U at $P < 0$. These tests confirm that three technology groups are significantly different from one another.

It is not surprising to note that managers from the same bank vary as to their perception of technology adoption and its influence on jobs. Not only do they perceive varying influences of technology but also differ in their emphasis on different technologies. Technology implementation does not necessarily mean uniform technology adoption across the organization. Using average scores, the nine business application technologies included in the survey are ranked in Table IIIa.

Table III
Business Application Technology Ranks

Ranks	*Hi Tech (n=9)*	*Med Tech (n=10)*	*Lo Tech (n=11)*
1	Communication	Storage and	Communication
2	Messaging	Web applications	Web applications.
3	Speed and Web applications	Messaging Applications S.W.	Speed, Applications S.W., and Messaging
4	Data Processing	Speed	
5	Applications S.W.	Communication	Imaging
6	Storage	Data Processing	Storage
7	Imaging Database	Database Imaging	Database Data processing

These ranks were based on the average scores for each technology in each group. An assigned rank is an indication of the relative importance of the technology to managers in each group.

The above table shows variations in managers' perceptions of how different IT applications influence their jobs. Table III shows ranks assigned to each application by the technology groups. The top three ranked applications for the Hi Tech group are communication, speed, web applications, and messaging. For the Med Tech group, the top three are storage, web applications, messaging and applications software. Communication, web applications, application software, speed, and messaging are the top three applications for Lo Tech group. The three technologies perceived as having most influence on managers' jobs are communication, web applications, and messaging. These information technologies are recognized as having profound influences in the work place. It is not surprising to note that IT emphasis in business has shifted from office applications to communication and web applications with the changing information processing needs. This shift is partly driven by globalization and competition. Imaging, database, and data processing are at the bottom of the list. I think it is because these are back-office technologies and managers' interactions

with them are increasingly becoming minimal. This changing emphasis on applications may bring internal changes in organizations.

Technology and Performance Evaluation

We asked the managers to indicate on a 5-point scale the extent to which IT adoption and usage has affected their performance evaluation in the areas listed in Table IVa below.

Table IVa
IT and Performance Evaluation

Measures	*Hi Tech Mean (rank)*	*Med Tech Mean (rank)*	*Lo Tech Mean (rank)*
Cost related	3.40 (4)	3.60 (3.5)	2.80 (5)
Customer s related	4.10 (2.5)	3.40 (6)	3.20(4)
Revenue related	4.20 (1)	3.90 (1)	3.70 (2.5)
Over all productivity	4.10 (2.5)	3.80 (2)	3.70(2.5)
Market ratio	3.10 (5.5)	3.60 (3.5)	2.50 (6)
Service Quality	3.10 (5.5)	3.5 (5)	3.80 (1)
Total of means	24.78	19.80	17.91

Table IVb
IT and Performance Evaluation

Cluster	*n*	*Mean*	*Median*	*Standard Deviation*	*Minimum*	*Maximum*
Low tech	11	2.98	3.00	0.615	2.17	4.00
Med-Tech	10	3.30	3.33	0.471	2.50	4.17
High Tech	9	4.13	4.00	0.339	3.67	4.83

Results were analyzed using the Kruskal-Wallis text (χ^2 = 15,28,2 df. P ≤ 0) and the Mann-Whitney U-test for two independent samples, P ≤ 0 for asymptotic significance and exact significance. Clusters differe significantly from one another.

Statistical tests show that the groups are significantly different from one another. Higher technology oriented managers see more influence of technology on their performance evaluation than the lower technology orientated managers (Table IVb). Correlations of evaluation variables with the technology variables' total scores are significant (P ≤ 01). One may note that IT adoption by managers has differentiated influence on performance evaluation and managers enjoy flexibility in choosing the level of IT use. At managerial levels IT adoption is not rigidly structured. For all groups, IT adoption has more influence on revenue and overall productivity related measures than cost or market related measures. This maybe a reflection of the bank's aggressive strategy in pursuing revenue and overall productivity growth and less emphasis on cost control. Rigid cost controls tend to affect productivity growth adversely. This view is in agreement with the flexible approach to technology adoption.

Strong association of technology adoption with productivity and revenue measures indicate that the bank emphasizes both financial and non-financial measures to evaluate the performance

of its managers. In other words, information systems is contribute to cost control, revenue improvement, and over all productivity, where revenues and costs are financial measures and productivity includes both financial and non-financial measures.

Technology and Competition

Competition is one of the drivers of change. Some managers might pursue certain strategic competitive measures more than others to create competitive advantages for the bank. To test such perceptions, this research selected the six competitive measures, shown in Tables Va and Vb , and asked managers to indicate on a 5-point scale their perceptions of the influence of each on their jobs. Managers were then asked to indicate how the same six competitive tools influence their performance measures.

Table Va
Competitive Strategies and Technology

Competitive factors	*Hi Tech Average (rank)*	*Med Tech Average (rank)*	*Lo Tech Average (rank)*
Cost efficiency	3.90 (4.5)	3.60 (4.5)	3.50 (1.5)
Price Competition	4.10 (2)	3.60 (4.5)	3.30 (4)
Product differentiation	4.00(3)	4.00 (3)	3.20 (5)
Service quality	4.20 (1)	4.20 (1)	3.50 (1.5)
Market Penetration	3.90 (4.5)	4.10 (2)	3.40 (3)
Channel Usage	3.40(6)	3.0 (6)	2.90 (6)
Total of averages	26.11	22.50	18.00

Table Vb
Competitive Strategies and Technology

Clusters	*n*	*Mean*	*Median*	*Standard Deviation*	*Minimum*	*Maximum*
Low tech	11	3.00	3.50	0.927	1.67	4.33
Med-Tech	10	3.75	3.91	0.391	2.67	4.50
High Tech	9	4.13	4.33	0.436	3.67	5.00

Results were analyzed using the Kruskal-Wallis test ($\chi 2 = 13.2$,2 df, $P \leq 05$) and the Mann-Whitney U-test for two independent samples, $P \leq 05$ for asymptotic significance and exact significance. Clusters differ significantly from one another.

Based on their technology orientations, managers differ significantly in recognizing the importance of different competitive strategies. The mean scores are given in Table Vb. All competitive strategy variables are significantly correlated with the technology variable. As shown in Table Vb, the differences between the groups are statistically significant. Service quality, product differentiation, and price competition are more important strategies for Hi Tech managers than other strategies (Table Va). Although Med Tech and Lo-tech managers agreed with Hi Tech managers with regard to service quality, they did not chose price competition as an important strategic measure for competitive advantage. Channel usage is the least important strategy to all managers.

While service quality is important to all groups, each group adds other strategies to it. Hi Tech managers include price competition and product differentiation for better competitive

advantages and not cost efficiency and market penetration, which are the preferences of Lo Tech managers. Med Tech managers opt for market penetration and product differentiation as important competitive strategies. Combining the preferences of all groups, this research observes that service quality, price competition, market penetration, product differentiation, and cost efficiency are useful competitive strategies in creating competitive advantage.

Competitive Strategy and Performance Evaluation

Service quality is the most important factor in creating competitive advantage for all three technology orientation groups. Similarly, managers from all three groups agree that service quality is important in performance evaluation as well. Least important for performance evaluation are cost criteria and channel usage.

Table VIa
Competitive strategy and Performance evaluation

	Hi Tech Average (rank)	*Med Tech Average (rank)*	*Lo Tech Average (rank)*
Cost efficiency	3.50 (5.5)	3.10 (2)	2.90 (4)
Price Competition	3.70(4)	2.80 (4)	2.90 (4)
Product differentiation	4.10 (1.5)	2.90 (3)	2.90 (4)
Service quality	4.10 (1.5)	3.80 (1)	3.40(1)
Market Penetration	4.00 (3)	2.70 (5)	3.33 (2)
Channel Usage	3.50 (5.5)	2.30(6)	2.50 (6)
Total of averages	25.44	17,60	16.27

Table VIb
Competitive Strategy and Performance Evaluation

Clusters	*n*	*Mean*	*Median*	*Standard Deviation*	*Minimum*	*Maximum*
Low Tech	11	2.712	3.00	0.779	1.50	3.67
Med-Tech	10	2.934	3.085	0.486	2.17	3.50
High Tech	9	4.214	4.17	0.265	4.00	4.67

Results were analyzed using the Kruskal-Wallis test ($\chi^2 = 18.57$, 2 df, $P \leq 00$) and the Mann-Whitney U-test for two independent samples, observed was $P \leq 05$ for asymptotc significance and exact significance except. Low Tech vs. Med Tech. All clusters differ significantly from each other except Low Tech vs. Med Tech.

The differences in perception between Hi Tech and the other two groups are statistically significant as shown in Table VIb. The difference between Lo Tech and Med Tech is not significant at pd" 05. All competition variables are significantly correlated with the technology variable ($P \leq 01$). Top two competition variables influencing performance evaluation in each group are: service quality and product differentiation for the Hi Tech managers, cost efficiency and service quality for the Med Tech, and service quality and market penetration for the Lo Tech managers. The overall ranking shows that service quality, market penetration, and product differentiation are among the top three strategies influencing performance evaluation. Being a service industry, the bank's emphasis on service quality is consistent with industry characteristics.

It may be noted that banks compete using non-financial measures, such as, customer service, market penetration, and product differentiation as their marketing strategies and not so much cost minimization which are financial in nature. Thus, bank managers consider non-financial measures as more relevant performance measures for competitive advantages than financial measures like cost and price.

IT, Globalization, and Performance Evaluation

In order to examine the influence of technology moderated by globalization on managers' jobs and performance evaluations, I included the five globalization variables listed in Table VIIa. Inter-correlations among globalization variables are in Appendix D. Differences in managers' responses to and ranking of globalization items are examined according to the three technology orientation groups.

Table VIIa
Globalization and technology

Globalization elements	*Hi Tech Average (rank)*	*Med Tech Average (rank)*	*Lo Tech Average (rank)*
Competition from outside the country	3.50 (3.5)	4.0(1)	4.00 (1)
Customers from outside the country	3.30 (5)	3.80 (3)	3.20 (5)
Service outsourcing	3.50 (3.5)	3.80 (3)	3.50(2.5)
Organizational restructuring	4.20 (1)	3.80 (3)	3.50(2.5)
Vision realignment	4.00 (2)	3.40 (5)	3.40(4)
Total of averages	20.44	18.80	16.09

Table VIIb
Globalization and technology

Clusters	*n*	*Mean*	*Median*	*Standard Deviation*	*Minimum*	*Maximum*
Low Tech	11	3.218	3.00	0.308	2.60	4.00
Med-Tech	10	3.760	3.80	0.429	2.80	4.40
High Tech	9	4.08	4.40	0.819	2.80	5.00

Results were analyzed using the Kruskal-Wallis text ($\chi 2 = 20.70$, 2 df, $P \leq 00$) and the Mann-Whitney U-test for two independent samples, observed was $P \leq 00$ for asymptotic significance and exact significance except High Tech vs. Med Tech. All clusters differ significantly from each other except High Tech vs. Med Tech

The differences between all three groups are significant (Kruskal Wallis test, $P \leq 0.00$). In the case of pair wise comparison, the difference is significant between the Hi Tech and Lo Tech and Lo Tech and Med Tech. The difference between Hi Tech and Med Tech is not significant. Correlations between technology and three globalization variables-service quality (0.385, P = 0.039), organization restructuring (0.713, P = 0.00), and vision realignment (0,579, P = .001) are significant. Correlation for competition from outside the country and customers from outside the country are not significant. It indicates two things, (a) managers cannot influence the competition from outside the country and (b) the bank does not focus on customers from outside the country. So, we may conclude that the bank provides services to the local customers globally. However, considering groups individually, for Hi Tech managers 'organizational restructuring' has the highest rank and 'customers from outside the country' has the lowest

rank. Med Tech and Lo Tech place 'competition from outside the country' on the top of their lists. Taking all groups together, the managers' responses show organizational restructuring, competition from out side the country, and service outsourcing are of the greatest influence on managers' jobs. These findings are in agreement with general expectations that organizations emphasize restructuring and service outsourcing to fulfill globalization mandate and the choice of IT by managers makes a difference in the globalization emphasis.

Globalization and Performance Evaluation

Managers' perceptions of the influence of globalization on performance evaluations tend to be the same as that on jobs. Correlations between the technology variable and competition from outside the country (0.535, P = 0.003), customers from outside the country (0.580. P = 0.001), Service quality (0.468, P = 0.011), organization restructuring (0.466, P = 0.015) and vision realignment (0.609, P = 0.00) are significant. The groups are significantly different from each other (Kruskal Wallis Test, $P \leq 0.02$). Managers in each group vary from managers in other groups in their preference for globalization factors. Organizational restructuring is perceived as having more influence on performance evaluations than any other globalization factors (Table VIIIa).

Table VIIIa
Globalization and Performance Evaluation

Globalization elements	*Hi Tech Average (rank)*	*Med Tech Average (rank)*	*Lo Tech Average (rank)*
Competition from outside the country	3.79 (2)	3.15 (4)	3.00 (1)
Customers from outside the country	3.38 (4.5)	2.87 (5)	2.25 (5)
Service outsourcing	3.38 (4.5)	3.69 (1)	2.50 (3)
Organizational restructuring	3.88 (1)	3.48 (2)	2.63 (2)
Vision realignment	3.63 (3)	3.23 (3)	2.38 (4)
Total of averages	18.06	16.42	12.75

Table VIIIa
Globalization and Performance Evaluation

Clusters	*n*	*Mean*	*Median*	*Standard Deviation*	*Minimum*	*Maximum*
Low Tech	11	2.545	2.60	0.727	1.60	3.60
Med-Tech	10	3.230	3.40	0.391	2.80	3.80
High Tech	9	3.62	3.69	1.33	1.00	5.00

Results were analyzed using the Kruskal-Wallis test ($\chi 2 = 8.21$, 2 df, $P \leq 02$) and the Mann-Whitney U-test for two independent samples, observed was $P \leq 05$ for asymptotic significance and exact significance except. High Tech vs. Med Tech. All clusters differ significantly from each other except High Tech vs. Med Tech.

It is the only factor that affects managers' performance evaluation highly in all groups. Along with organizational restructuring competition from outside the country and service outsourcing are also important globalization elements influencing performance evaluations (Table VIIIa). Thus, three globalization elements which moderate most the influence of technology on performance evaluation are: organizational restructuring, competition from out

side the country, and service outsourcing influence. All three elements are non-financial measures.

SUMMARY AND CONCLUSION

Effective utilization of IT innovations requires changes in organization structure and management practices. Not all organizations can easily incorporate necessary changes to benefit from IT innovations. Adoption of IT is necessary but not a sufficient condition for its effective utilization. Of late, globalization and competition are added to technology as drivers of change. These drivers have brought changes of enormous magnitude to organizations. Organizations use new tools, techniques, and strategies to cope with these changes.

Technology, globalization, and competitive imperatives influence organizations' internal structures as organizations implement processes to cope with the ensuing changes. This study has investigated the influence of technology mediated by globalization, and competition on managers' jobs and performance evaluations. Data were collected from mid-level managers from Middle East branches of a large multinational European bank.

This study has shown that IT adoption has significant influence on managers' jobs and performance evaluations. The research sample provided three significantly different clusters of managers based on their perceptions of the influence of IT adoption on their jobs and performance evaluations. Managers with the high technology (Hi Tech) orientation perceive that communication, speed, web applications and messaging have most influence on their jobs. Medium technology (Med Tech) managers perceive storage, web applications, messaging, and applications software as the most important technologies. Low-technology (Lo Tech) managers give most importance to communication, web applications, applications software, speed, and messaging. Taken together, the responses from all three groups demonstrate that communication, web applications, and messaging have the most influence on bank managers' jobs. IT adoption also influences managers' performance evaluations. IT adoption influences revenue and overall productivity-related performance measures more than the cost-related measures.

Managers with different technology orientations tend to emphasize different competitive strategies. Nevertheless, all managers recognize that service quality is the most important competitive strategy and channel usage is the least important strategy. Hi Tech managers perceive that price competition and product differentiation create better competitive advantage than cost efficiency and market penetration. Lo Tech managers perceive cost efficiency and market penetration as important strategies. These competitive strategies are emphasized in managers' performance evaluations.

Managers' technology orientations and globalization orientations are related. Hi Tech managers give top consideration to vision realignment and organizational restructuring. Competition from outside the country is the top priority for both Mid Tech and Lo Tech managers. All managers perceive organizational restructuring and service outsourcing due to globalization as important factors in shaping their jobs.

Organizational restructuring has more influence on managers' performance evaluations than other globalization factors. Competition from outside the country and service outsourcing also

influence performance evaluations. Overall, Hi Tech managers see more influence of globalization factors on their jobs and performance evaluations than do med Tech and Lo Tech managers.

This paper concludes that technology use moderated by globalization and competition influence managers' jobs and performance evaluations in banking. Managers vary in their use of technology. Managers with a high technology orientation perceive greater influence of change drivers than managers with a low technology orientation. To some degree, managers choose to use a level of technology that they are comfortable with. Managers perceive the use of financial and non-financial measures related to IT, competition, and globalization in their performance evaluation.

This is an exploratory study based on data from one country and one organization. In spite of the statistically significant results, one needs to be careful in proposing generalization from this study. Future research could include data from several different countries to compare and contrast the influence of IT use in various settings. Comparison between developing and developed countries may expose many interesting and opposing perspectives. Furthermore, cross industry data analyses would give interesting information on the influence of drivers of change in different types of organizations. Results from future studies of this kind would allow global organizations to recognize variations in managers' orientations between countries and industries and would help them in implementing structural and strategic changes due to the adoption IT innovations and globalization.

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Appendix A: Variable list

Technology		
	Var 1 Application Software	Var 2 Data processing
	Var 3 Database	Var 4 Web applications
	Var 5 Storage	Var 6 Speed
	Var 7 Communication	Var 8 Imaging
	Var 9 Messaging	
Technology on performance evaluation		
	Var 10 Cost related	Var 11 Customer related
	Var 12 Revenue related	Var 13 Over all productivity
	Var 14 market share	Var 15 Service quality
Competition		
	Var 16 Cost efficiency	
	Var 17 Price competition	Var 18 Product differentiation
	Var 19 service quality	Var 20 Market penetration
	Var 21 Channel usage	
Competition on performance evaluation		
		Var 22 Cost efficiency
	Var 23 Price competition	Var 24 Product differentiation
	Var 25 Service quality	Var 26 Market penetration
	Var 27 Channel usage	
Globalization		
	Var 28 Outside competition	
	Var 29 foreign countries' customers	Var 30 Service out sourcing
	Var 31 Organization Restructuring	Var 32 Vision realignment
Globalization on performance evaluation		
	Var 33 Outside competition	Var 34 foreign countries' customer
	Var 35 Service out sourcing	Var 36 Organization Restructuring
	Var 37 Vision realignment	
Biographic data		
	Education-formal and professional	Age
	Years of experience	Position

Appendix-B: Inter-Correlations of Technology Variables (N=30)

	VAR01	*VAR02*	*VAR03*	*VAR04*	*VAR05*	*VAR06*	*VAR07*	*VAR08*	*VAR09*
VAR01	1	.557(**)	.181	.650(**)	.682(**)	.631(**)	.650(**)	.214	.439(*)
Application S.W.		.001	.339	.000	.000	.000	.000	.256	.015
VAR02	.557(**)	1	.434(*)	.655(**)	.551(**)	.551(**)	.545(**)	.346	.501(**)
Database	.001		.016	.000	.002	.002	.002	.061	.005
VAR03	.181	.434(*)	1	.181	.223	.180	.388(*)	.600(**)	.526(**)
(Storage)	.339	.016		.338	.237	.342	.034	.000	.003
VAR04	.650(**)	.655(**)	.181	1	.528(**)	.520(**)	.553(**)	.131	.546(**)
Communication	.000	.000	.338		.003	.003	.002	.490	.002
VAR05	.682(**)	.551(**)	.223	.528(**)	1	.626(**)	.544(**)	.364(*)	.456(*)
Messaging	.000	.002	.237	.003		.000	.002	.048	.011
VAR06	.631(**)	.551(**)	.180	.520(**)	.626(**)	1	.783(**)	.254	.355
Data Processing	.000	.002	.342	.003	.000		.000	.175	.054
VAR07	.650(**)	.545(**)	.388(*)	.553(**)	.544(**)	.783(**)	1	.445(*)	.484(**)
Webapplication	.000	.002	.034	.002	.002	.000		.014	.007
VAR08	.214	.346	.600(**)	.131	.364(*)	.254	.445(*)	1	.537(**)
Speed	.256	.061	.000	.490	.048	.175	.014		.002
VAR09	.439(*)	.501(**)	.526(**)	.546(**)	.456(*)	.355	.484(**)	.537(**)	1
Imaging	.015	.005	.003	.002	.011	.054	.007	.002	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix C: Inter-Correlations between Competition Variables

	VAR01	*VAR02*	*VAR03*	*VAR04*	*VAR05*	*VAR06*
VAR01	1	.598(**)	.550(**)	.506(**)	.531(**)	.562(**)
Cost efficiency		.001	.002	.005	.003	.001
	29	29	29	29	29	29
VAR02	.598(**)	1	.708(**)	.798(**)	.704(**)	.339
Price competition	.001		.000	.000	.000	.072
	29	29	29	29	29	29
VAR03	.550(**)	.708(**)	1	.775(**)	.749(**)	.482(**)
Service quality	.002	.000		.000	.000	.008
	29	29	29	29	29	29
VAR04	.506(**)	.798(**)	.775(**)	1	.854(**)	.379(*)
Channel usage	.005	.000	.000		.000	.043
	29	29	29	29	29	29
VAR05	.531(**)	.704(**)	.749(**)	.854(**)	1	.417(*)
Product differentiation	.003	.000	.000	.000		.024
	29	29	29	29	29	29
VAR06	.562(**)	.339	.482(**)	.379(*)	.417(*)	1
Market Penetration	.001	.072	.008	.043	.024	
	29	29	29	29	29	29

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix D: Inter-Correlations between Globalization Variables

	VAR01	*VAR02*	*VAR03*	*VAR04*	*VAR05*
VAR01	1	.719(**)	.244	.086	.123
Outside competition		.000	.203	.657	.526
	29	29	29	29	29
VAR02	.719(**)	1	.140	.146	.180
Foreign customers	.000		.470	.451	.351
	29	29	29	29	29
VAR03	.244	.140	1	.309	.298
Org. restructuring	.203	.470		.103	.116
	29	29	29	29	29
VAR04	.086	.146	.309	1	.877(**)
Service outsourcing	.657	.451	.103		.000
	29	29	29	29	29
VAR05	.123	.180	.298	.877(**)	1
Vision realignment	.526	.351	.116	.000	
	29	29	29	29	29

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).