

The Effects of Organizational and Environmental Constraints on Innovation - A Field Study

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Abstract:

Today, innovation moves through most sectors of the economy with lightning - like speed. Innovation has become not only the domain of a few progressive enterprises, but the key to survival and success of the many. (Sapolsky, 1967, Ettlie & Bridges, 1982; Oldham & Cummings, 1996; Hoffman, 1999).

However, research in the domain is primarily grounded in a universal approach to the study of innovation. Further support for the recognition of innovation is needed if the intended goal is to promote innovation. This study empirically validates the study of innovations by examining the differential effects of organizational and environmental constraints on innovation in a third world country (Kuwait). A survey administered to employees in the banking sector; a sample of 248 managers were selected from nine banking organizations in Kuwait. The results indicate that environmental constraints (complexity) and organizational constraints have a direct and positive effect on innovation.

Introduction

There has been some evidence that researchers have begun to show an increasing interest in investigating the role of innovation in the work place (Hegarty and Hoffman, 1990; Robinson and Stern,

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1997; Miller; 1999). Innovation has been defined as something new to the firm rather than to the world (e.g., Hegarty and Hoffman, 1990). The former is known as incremental innovation, whereas, the latter is known as radical innovation. Incremental innovations are far more common (Hegarty and Hoffman, 1990) and, therefore, represent a more frequent management challenge.

In an increasingly dynamic world, firms are being forced to become more innovative. (Nohria and Gulati 1996). Innovation is derived from the Latin *innovatorem*, the literal meaning of which is “of action”. Therefore, innovation is an action-oriented word. (The Oxford Dictionary, Oxford University Press, 1989, p. 996). Innovation means looking beyond what is current reality to what could be at some point in the future. (Clemmer, 1999).

Scholars have hypothesized about the effect of a number of factors on innovation (Hage and Aiken 1967; Montanari, 1978; Thurlings & Koenraad, 1996). These factors include environment turbulence or stability, and some organizational structure constraints like firm size, complexity, centralization and integration. Empirical work has focused on correlating these factors with previous behavior, as elements linked to creativity, some apply to individuals and some to organizations. (King, 1998).

1 - ENVIRONMENTAL CONSTRAINTS:

Rigid boundaries slow organizations down and keep them from competitive success. No company can break down the barriers to speed, flexibility and innovation without pain, patience, and persistence (Ashkenas, 1999). Ethicists and corporate social responsibility scholars have argued that innovation is critical to corporate social performance (Wood, 1991; Montanari, 1978) who followed clearly suggest that both internal and external factors are relevant in trying to define a “zone of discretion”.

Environment refers to the acquisition (either formally or informally) of information on trends and events in the manager’s environment, which might affect their firm either now or in the future. Three aspects of the perceived environment were selected. Dyna-

mism, hostility, and complexity, widely recognized as important concepts of the perceived environment affect organizational behavior (Miller and Friesen, 1983).

Dynamism: Dynamism or uncertainty refers to the rate of change in an industry and the unpredictability of competitor and customer actions (Lawrence and Lorsch, 1967; Miles & Snow, 1978). It has been argued that, an environment becomes more dynamic when innovative activity increases to maintain a competitive advantage in the marketplace. Additional support for a positive relationship between Dynamism and the desire for innovative activity is evident (Ettlie & Bridges, 1982). As organizations are faced with increasingly dynamic environments, the need to innovate will be further stimulated. Accordingly it has been hypothesized that innovation will have significantly higher levels of perceived dynamism.

Hostility: Hostility is the degree that environmental pressures such as competitor actions, industry trends, government intervention, and customer changes ((Miller & Friesen, 1983) threaten a firm. The authors report inconclusive findings relating hostility and innovation, possibly due to inconsistent reactions. Innovative ideas may be less likely to flourish as growth is controlled and avoidance of risk is preferred. Yet, innovations may be an acceptable way to avoid risk and still remain competitive in the marketplace. Therefore, it is hypothesized that innovations will have significantly lower levels of perceived hostility.

Complexity: Complexity or heterogeneity, refers to the variations among activities of a firm including individuals, competitors, and markets that require diversity in production and marketing orientations (Miller & Friesen, 1983). They propose that complex environments are best confronted with product, service, or technological innovations. Others view complexity as a deterrent to innovative activity as complex environments may place constraints on firm growth (Utterback, 1971). Forced consumption of resources may occur as organizations cope with cumbersome interdependencies in the environment. Thus, they may have less inclination to invest in

innovative activity. Therefore, it's hypothesized that innovations will have significantly higher levels of complexity.

2 - ORGANIZATIONAL STRUCTURE:

Research exploring the link between organizational structure and innovation is extensive, but the vast majority of studies have been limited to innovative activity in the developed countries (Sapolsky, 1967; Utterback, 1971; and Hage & Aiken, 1967).

Organizational structure research has concentrated on six aspects of the firm: centralization, formalization, complexity, size, integration and locus of control (Hage & Aiken, 1967).

Centralization: Centralization of an organization may be determined by the hierarchy of authority and participation in decision-making within an organization (Hage & Aiken, 1967). As the locus of control increases in an organization, the opportunity for participation in decision-making will decrease. Thus, a higher degree of centralization may constrict the flow of needed information as employees are denied the power to make their own decisions (Hamilton and Sanders, 1992). Past research has suggested that increased levels of centralization inhibit innovative thinking by fostering a conservative risk-avoidance approach to management (Kimberly and Evanisko, 1981).

Collectively, the research above seems to indicate that participation in the work place is a key factor in employee innovation; and that when participation is absent, a threatening impact on innovation will result (Hamilton & Sanders, 1992; Mitnick, 1994, Oldham & Cummings, 1996).). However, more empirical work is necessary in this area to assess the impact of this work-related factor on innovation. Hage and Aiken (1967) found a negative relationship between the hierarchy of authority and adoption of new programs in health and welfare organizations. From a different perspective, Kahn and Krem (1994) have argued that internal models established in childhood dictate individual responses to authority.

Integration: Integration of an organization refers to the degree of effort exerted or the structural devices erected to join various

subsystems and successfully coordinate the goals of an organization (Kim, 1980). Integration has been widely argued as a positive force in the procession of advancement for an organization as individuals share information and resources for the achievement of goals and objectives (Utterback, 1971; and Miller, 1986). A common assumption is that integration stimulates interactions.

Lawrence and Lorsch (1967) proved that effective organizations, confronted with high environmental uncertainty, were likely to demonstrate high levels of integrative activity. Interaction between divisions in an organization has been viewed as a stimulant for innovative activity (Kim, 1980; and Shrivastava & Souder, 1987). Cohen (1988) proposed that systems integration could be achieved by large as well as small organizations. Systems integration was viewed as a requirement for retail banks, thus enabling decision-makers to access databases for demand deposits, certificates of deposit, and loans. Interaction amongst employees offered simplified banking procedures and faster implementation of management plans. Thus, innovation is herein proposed to be positively related to the adoption of all types of innovations.

Formalization: A great deal of research in this area has concentrated on role ambiguity and role conflict (Kahn et al., 1964). Role ambiguity exists when an individual has inadequate information or knowledge to do a job. The employees are constantly in a state of uncertainty concerning their exact job duties, thereby affect innovation. (kim, 1980). Rigid rules and procedures may produce less opportunity to partake in new activities, thus deterring the generation of creative ideas. Whereas organizations with well defined rules and procedures may be more likely to enforce innovations (Sapolsky, 1967). Therefore, it is proposed that higher levels of formalization will be found in organizations, which adopt innovations.

Complex Tasks: The complexity of an organization is depicted as the extensiveness and propensity of knowledge in an organization. it is determined by the number of occupational specialities, degree of professional training, and participation in professional

affiliations reported in an organization (Hage & Aiken, 1967). By experiencing complex tasks, they proposed that employees would experience a sense of responsibility and their organizational role as meaningful. Increased complexity results in difficulties due to lack of opinions during decision-making (Sapolsky, 1967). Several experimental studies (DePaulo et al., 1981) have shown that tasks perceived to be difficult may require individuals to strive harder than tasks not perceived as difficult.

Locus of Control: Locus of control refers to a stable personality trait that describes the extent to which people attribute the cause or control of events to themselves (internal orientation) or to environmental factors (external orientation). The strength of an organization's internal control is a factor that affects innovation. (Thurlings and Koenraad (1996). They demonstrated the importance of strong control systems, as a tight internal control system can increase the amount of discipline exercised over the selection of new projects. Of course, if the controls are too tight and employees have too little discretion, the organization may choke all entrepreneurial initiatives. Thus, we expected the strength of an organization's internal control system to have a positive effect on its innovativeness.

Size: The size of an organization has been calculated from assorted measures such as sales dollars generated, output levels produced, total assets, and number of employees (Rothwell, 1978 and Bantel & Jackson, 1989).

The influence of size may be viewed from varying perspectives. A relatively large size organization may be thought of as having the technological capacity, knowledge pool, and financial resources to partake in more expansive activities (Kimberly & Evanisko, 1981). However, it may be argued that the opposite is true. An organization may be too large, resulting in bureaucratic inefficiencies, sluggish responses to changing consumer needs, and scattered attempts at overcoming threats from competitors (Rothwell, 1978).

The Problem

The success of an organization is to a great extent influenced by

its adeptness at fostering innovations within the constraints of its environment. Organizations are acutely aware of the need for improved innovative activity if the desired goals are to strengthen competitive positions and prepare for a world of increasing change. This awareness is reflected in an increasing body of literature stressing the importance of innovation activity in an organization (Knight, 1967, Utterback, 1974; Drucker, 1985; and Gomory, 1989). A theoretical approach that recognizes the impact of innovation on likelihood of adoption may help explain and reduce disparate findings prevalent in past innovation research.

United States firms, for example, have been justly criticized for slow development and implementation of new technologies, thus ambling foreign firms to capture a strong share of formerly U.S. dominated markets (Clark, 1989; and Florida & Kenney, 1990).

Objectives:

This research offers an uncommon view of the innovation by concentrating on the service sector of the Kuwaiti economy via the banking industry, where new technologies are impacting service operations in the banking sector by altering associations with customers, in addition to internal improvements often unrecognizable to the public.

The specific objectives of this exploratory research are: 1 - identify external and internal barriers to innovation. 2 - Study the relationships between managerial perceptions of the external environment and innovation 3 - Study the relationships between organizational structure and innovation.

In an attempt to fulfill these objectives, we will contribute to the study of innovation by offering theoretical and empirical knowledge of innovation activities in the banking industry in a third world country. Arguments are made for the differential effects of organizational structure variables and environmental constraints on innovation. It must be emphasized that it is not the intent of this study to examine in isolation the type of innovation adopted in an organization.

Methodology:

Research Setting:

The banking industry in Kuwait was selected as the domain of analysis for several reasons. The phenomenal success in recent years of the banking industry in Kuwait provides an insightful and revealing environment for a study of the innovation. Banks have reported extraordinary increases in profits and returns in comparison to other service medians such as utilities, and transportation or industrial sector. Above all, taking action means removing traditional obstacles to innovation. In financial services, home banking, credit cards and ATMs are eliminating the need for bank branches. What were once barriers to competition are rapidly becoming costly signs of obsolescence. The banking industry has for years cultivated a conservative reputation. However, as the impact of deregulation is realized banks are making much needed investments to modernize facilities, provide innovative product portfolios, and improve technological efficiencies. This dynamic and competitive arena provides an ideal setting for the study of innovations.

Description of Questionnaire:

Due to the desire for generalizability and external validity, a field study utilizing a survey instrument, as a data collection method appeared to be the most appropriate. The benefits of using this method of data collection to study these particular objectives appear to overcome the limitations inherent in survey research (Losciuto, 1981).

A questionnaire was formally administered to managers in the banking industry in Kuwait. The questionnaire for the data collection was divided into four parts. The first part provides evidence of adoption of innovations. Each respondent is asked to indicate the extent that the organization has considered adopting, has adopted on a trial basis, has formally adopted, or has adopted and since dropped the innovation from use. It is assumed that development and adoption of all viable product and process innovations are supported by banking staffs. Thus, maintaining the status quo is not

assumed to be a strategic alternative. A single score based on a count of adopted innovations was appropriate since it would adequately distinguish between the adopting or not.

The second and third parts of the survey provide evidence as to the structure of the organization and managerial perceptions of the environment. These items are rated on a seven-point Likert-type scale. The fourth research component is the measurement of the barriers variable.

The questionnaire was pre-tested on a representative sample of 25 individuals to ensure that all respondents would understand the directions and questions.

Measurements:

Nine constructs have been selected to determine the extent that innovations may be predominantly adopted under assorted organizational structures and environmental conditions. Six of the constructs have been commonly identified as affecting organizational behavior and were chosen to depict organizational structure complexity, centralization, formalization, integration, locus of control, and size. Similarly, perceived environmental constructs have been identified in past research and include three constructs: dynamism, hostility, and complexity. Although the nine selected constructs have been simplified for purposes of a preliminary discussion, each construct will be operationalized using composite measures. This will enable the researcher to empirically discern the relationships identified between an innovation and a construct.

Items from existing research instruments that deal with innovation related factors are selected and updated to ensure face validity. Items are added, or rephrased to ensure that the instrument has both content and face validity. The existing instruments are:

- Hage & Aiken's organizational structure Scale (1967).
- Hage & Dewar's organizational structure Scale (1937).
- Kim's organizational structure Scale (1980).
- Miller & Friesen's Scale (1983).

- Newstorm's Scale (1986).
- Rotter's External-Internal Locus of Control Scale (1966).

Tests were conducted to determine content, construct, and external validity. The instrument was subject to intense scrutiny by academics, independent practitioners, and retail bank personnel. Also, extensive literature reviews were conducted during the entire research exercise. As a result of this inspection items were added, deleted, or modified to ensure content validity.

The scales used to measure organizational structure and perceptions of the environment had been previously validated in prior research efforts. However, as additional support, Pearson correlation coefficients were calculated for the constructs and corresponding items. All coefficients were found to be significant (Table 1), thus providing further evidence of the validity of the instrument. Furthermore, reliability of the instrument was assessed by Cronbach Alpha and Guttman Split-Half measures of the research constructs and variables. All Alpha values were above .50. The Guttman Split-Half measures further confirm the reliability of the instrument (Nunnally, 1978).

The innovation typology was determined by t-test analysis for comparing independent means. Hypotheses were tested using one-way analysis of variance (ANOVA). In addition to the tests cited above, numerous statistical procedures were performed to ensure reliability and validity of the measures and provide further support for any conclusions drawn as a result of the above hypotheses testing.

Participants:

Respondent managers were ranging from senior executives to middle managers, considered to be knowledgeable about the operations of their organizations and the external environment, with at least ten years of experience in the industry, be involved in work activities and be able to provide appropriate responses, having the knowledge and experience necessary for familiarity of innovative activity in the industry. The criteria were adopted to ensure the

Table 1
Constructs Cronbach Alphas and Split-Half Measurement

Scale	Average Inter-Item Correlation	p <	Cronbach Alpha	Test-Retest	Guttman Split-Half
Environment					
Dynamism	.7387	.01	.72	.93	.0051
Hostility	.7845	.01	.56	.91	n/a
Environmental Complexity	.6973	.05	.79	.87	.8547
Organizational Structure					
Centralization	.5421	.05	.91	.75	.6736
Complexity	.6748	.05	.67	.83	.4769
Integration	.6462	.01	.86	.81	.4157
Formalization	.7534	.05	.79	.88	.5814
Locus of control	.6734	.05	.83	.71	.3521
Size	.7524	.01	.66	.84	n/a

participants had discretionary responsibilities in their current employment and to screen out any newcomer effects.

The managers were employed in various capacities within the retail banking industry and were located across the country. Data were obtained through a self-reported questionnaire. A sample of 400 Kuwaiti managers was randomly selected from nine Kuwaiti banks. The name of participating banks are as follows: National Bank of Kuwait, The Gulf Bank, Commercial Bank of Kuwait, Burgan Bank, Al-Ahli Bank, Kuwait and Middle East Bank, Kuwait Finance house, Real Estate Bank, Industrial Bank.

On average, twenty-three managers from each participating firm provided complete data. The managers were mostly male (all but 3), averaging about 38 years old (25-65 + yrs.), and have been in their present position for an average of five (0.2-28) years. The managers were either the head of department or reported directly to that position. In addition, the responding individuals had over thirteen

years of experience in the industry and over ten years of experience with their present employer. This level of expertise provides sufficient assurance that the respondents had adequate knowledge of the subject matter.

Participants were asked to provide responses only for those innovations of which they were familiar. Only three missing responses were generated for the adoption scenarios. As such, incomplete or missing responses were not an issue in this study. In total 248 usable responses, 62% is considered an acceptable response for a field study of this kind (Raho, Belohav, and Fiedler, 1987).

Results

1 - Environmental constraints and innovation:

Pierce and Delbecq (1977) were among the first researchers to examine the environment constraints, and hypothesized that perceived uncertainty was positively related to innovation. While Miller and Friesen (1983) studied the relationships among strategy, perceived environment, and innovation based upon predetermined successful and unsuccessful respondent firms, the authors found that increased dynamism seemed to occasion the need for increased innovation in successful but not unsuccessful organizations.

Successful firms facing complexity in their environments were also found to have strong relationships with innovation in comparison to unsuccessful firms. Firms may benefit from exposure to diverse markets, as more innovative methods are needed to cope with such complex and varied needs. The authors found inconclusive evidence as to the effect of hostility on innovation, possibly due to diverse reaction patterns discussed earlier or the precise nature of the threats.

The results of the current study show that (see Table 2) there is no significant relation between levels of dynamism and hostility with innovation, where we can assume that environmental dynamism and hostility have no effect on innovation. This finding is similar to Miller and Friesen (1983). While there is a significant correlation between

Table (2)
Cross Tabulation of Innovation and Constructs

Construct	Mean	S.D.	Significant Levels	P <
Environment				
Dynamism	3.0612	.52	.00231	.05
Hostility	3.0045	.57	.00205	.05
Environmental Complexity	5.4721	.59	.38169	.01
Organizational Structure				
Centralization	6.2091	.58	-.12745	.01
Complexity	5.4721	.54	.08169	.10
Integration	5.0090	.57	.16570	.01
Formalization	6.0873	.56	.41352	.05
Locus of control	4.7856	.51	.03266	.05
Size	5.0045	.56	.50205	.05

innovation and complexity. It seems that environmental complexity increases the desire to adopt more innovation. The reason might be the competition between banks, and the desire to be the leading bank in the state and the region. In addition, to the presence of a large number of different nationalities with large stimulated innovative behavior.

2 - Organizational structure and innovation:

Greater participation in decision making and higher level of hierarchy show correlation with innovation (Table 2). This is consistent with the relation between formalization and innovation, which indicates that innovation in the banking sector in Kuwait is under formal control from upper management. Participation appears to facilitate innovative ideas due to increased levels of involvement and development of rewarding associations (Zaltman, Duncan, 7 Holbek, 1973 and Hage & Aiken, 1967). Alternatively, adoption of innovations may be constrained as too many individuals partake in decision-making causing conflict of roles and lack of managerial consensus.

Table 2 shows a high correlation between formalization and innovation, which supports the findings of Moch and Morse (1977), Dewar and Dutton (1986). This might indicate that specific rules and regulations require upper management approval to encourage innovation, which is logical as minimal control and coordination is required for encouraging innovation. The significant correlation with innovation means that formal rules and procedures may be necessary to guarantee successful adoption into the organization (Sapolsky, 1967). By broadening the circle and making innovation an everyday, company-wide imperative, we will create a new level of loyalty and commitment from employees who quickly understand the value of innovative thinking (Hoffman, 1999).

Complexity was found to be significantly correlated with innovation, while there was no significant correlation between level of education and training with innovation. This result was unexpected as bank management encourages both formal higher education, as well as employees attending specialized training sessions. In fact the banking sector has established the Center for Banking Studies, where they provide quality education and training for employees in the banking sector.

Complexity has been proven to be positively related to innovative activity which is consistent with Lawrence & Lorsch, (1967) and Cohn, (1981). A common viewpoint is that complexity in the form of increased occupational specialties leads to an improved knowledge pool and correspondingly increased generation of new ideas.

Size of the organization was correlated with innovation. It is generally supported that size and innovation are positively related (Meyer & Goes, 1988). An increase in size may provide financial resources and managerial support necessary for innovative activity (Bourgeois, 1980). However, there is evidence to the contrary whereby large organizations are viewed as highly bureaucratic and typically with too sluggish response patterns to promote innovative growth. Smaller firms are recognized as being more innovative in nature as they are more capable of changing and responding to marketplace demands (Rothwell, 1978 and Merrill, (1995).

Table 3
One-Way analysis of Variance (ANOVA)

Construct	Significant Level	p <
Environment		
Dynamism	3.5401	.05
Hostility	4.0389	.05
Environmental Complexity	3.2201	.05
Organizational Structure		
Centralization	4.1298	.01
Complexity	3.0921	.05
Integration	1.2651	.05
Formalization	3.0112	.01
Locus of control	2.9327	.01
Size	4.8020	.05

3 - Analysis of the Hypotheses:

As in table 3 results of ANOVA testing show that:

Hypothesis 1: Innovation has significant relation to lower level of centralization, which is consistent with Dewar and Dutton (1986) and Moch and Morse (1977). The reason might be that organizations encourage customer contact in an effort to provide better services. A decentralized management staff has a much better chance to deal with customer's needs. More autonomous decision-making and lower level of hierarchy of authority give managers more innovative ability to handle their responsibilities in reacting to customer's requirements. Innovation must become, like the quality revolution of 20 years ago, the right and responsibility of every individual in a company, (Yates and Skarzynski, 1999).

Hypothesis 2: Innovation has significant relation to lower level of formalization. The reason for that might be the orientation of the organization. Formalized rules and procedures may be needed to successfully benefit from innovative ideas and to implement them. As discussed earlier, minimal coordination and control is needed to encourage innovation.

Hypothesis 3: Innovation has significant relation to higher level of complexity. Education and professional training result in better understanding in dealing with innovation requirements, as banks need higher level of complexity to cope with today's fast growing technology and competition. These results are in agreement with the findings of Bantel and Jackson (1989) where innovation occurred more frequently on organizational structures with higher levels of complexity. This may be attributed to the vast knowledge base accessible to these organizations. In other studies, task complexity was found to have a consistently positive and significant relationship to innovation (Moch & Morse, 1977; Daft, Bantel & Jackson, 1989).

Hypothesis 4: Innovation has significant relation with lower level of integration. It seems that the banking sector may foster integration to try to let employee go into innovative thinking. Also because there was no intention to encourage sophisticated technological development as service organization. Consistent with the above hypothesis, innovation had significant relation with higher levels of integration as well as with relationships and interactions. It appears that integration through encouragement of relationship building, via meetings and interactions with other divisions, stimulates innovation. This rationale supports the findings of Shrivastava and Souder (1987) whereby organizations whose employees regularly engaged in interactions with other divisions had greater evidence of innovation.

Hypothesis 5: Innovation has significant relation with internal locus of control. As the locus of control increases, creative thinking may be stifled resulting in less assertiveness in promoting innovations. The relationship might show that people who have the initiative also have the control, and they are in the best position to produce profitable innovation, (Yates and Skarzynski, 1999).

Hypothesis 6: Innovation has significant relation with larger in total asset size. This is consistent with the rationale that larger organizations have financial resources to afford more innovations. Evidence of this assumption is already apparent in the retail banking industry. As discussed earlier, a small group of banks are responsible for the development of the vast majority of innovations

introduced into the industry. This select group is very powerful inasmuch as they control the largest asset pools of commercial banks in Kuwait. For example, Kuwait National Bank, is considered to be one of the most progressive and innovative retail banks in the region. NBK tops some of the largest international banks, in the report published in June 1999 by 'Euromoney', Fitch IBCA, one of the top three credit rating agencies, rates National Bank of Kuwait as one of the best banks in the world. Only five banks in the world are rated A. The quality of the bank's management, its conservative approach to lending and its consistent high performance are reasons cited for NBK's top rating. NBK ranks higher than some well-known banks in Europe and the United States (i.e. Citibank, Bank of America, Chase Manhattan Bank, J.P. Morgan, Barclays Bank, and Deutsche Bank. It is also ranked as the largest commercial bank in Kuwait total asset size (Central Bank of Kuwait, 1999). These organizations have the financial strength and respect of competitors to be leaders in the industry.

Hypothesis 7: Innovation has no significant relation with either dynamism or hostility. (if there is relation: it means environment exudes hostility).

Hypothesis 8: Innovation has significant relation with higher level of complexity. Which indicates that managers are exposed to environmental complexities beyond their control.

4 - The major barriers to innovation:

Table 4 reports the perceptions of participating sample of the major barriers to adopt innovation in the organization. From their perceptions, we adopted a rank-ordered list of major barriers to innovation (Table 4).

Lack of reinforcement on the job was the major barrier perceived by these participants. Only too often, employees receive little or no encouragement or approval from managers, supervisors, or co-workers for trying to apply new skills on the job.

A second significant barrier in many organizations is non-supportive organizational environment; interference in the work

Table 4
Participant's perceptions of barriers to innovation

Rank: High to Low	Organizational Barrier
1	Lack of reinforcement on the job
2	Non supportive organizational culture
3	Training for innovation is impractical
4	Interference in the work environment
5	employees' discomfort with change
6	Poor training design and/or delivery
7	Peer pressure against change

environment; learners often lack necessary resources (equipment, information, time, etc.) to apply new learning.

The third major barrier is non-supportive organizational culture which inhibits learners from applying new skills because they don't fit the prevailing organizational culture. The nine barriers effectively stop learners from trying to apply new knowledge and skills, so they revert to former behaviors that are more acceptable.

Discussion and Conclusion:

Innovation has maintained a reputation as a necessary activity that an organization must embrace if its desired goals are sustained; growth, progress, and profitability. This high level of interest in innovation has generated social and economic praises fostering extensive multidisciplinary research. Irrespective of the recognized need for innovation activity, the actual definition of what constitutes an innovation and often referred to processes that cultivate its acceptance are still subject to much debate.

The analysis revealed significantly lower levels of centralization, formality, and environmental complexity. It was evident that greater levels of formalization, integration, and education and training were significantly associated with the innovation. Innovation was associated with higher locus of control and participation in decision making, as greater participation in decision-making seems to

encourage innovation. The only non-significant relation was between innovation and dynamism and hostility. Specifically, managers seeking to influence structural innovations should scan their environment, use their firm's formal control procedures, and possess general management expertise.

For the integration, significant correlation was found between employees regularly engaged in interactions with other divisions with innovation, where relationship and team building is encouraged through meetings and interactions with other departments, as well as participation in decision making, which was discussed earlier in the study. This supports the findings of Shrivastava and Souder (1987).

Innovation with necessary organizational support is measured by the internal and external factors, not by the cost of the training, the number of participants, or even their knowledge and skills gained during the learning events. With this new perspective, executives and managers at all levels can make wiser investments in innovation activities as one of the means to reach organizational and management development.

Organizations in the banking sector in Kuwait must make dramatic changes to become efficient and competitive. In particular, they must develop and cross-train the new coming and the current workforce to gain new skills and become flexible, to adopt innovation in jobs, processes, and organizations.

Above all, this study reveals the importance of studying organizational innovations and external environment together. Future research should examine all aspects of organizational technologies/innovations within an international context. Even though our data limitations prevented us from exploring some of the aforementioned issues, we think they present some of the most exciting opportunities for future research on the determinants of innovation. The result of this study should be interpreted in the light of some of its limitations.

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Appendix A

Operationalization of Organizational Structure

Centralization

- Upper Management hires staff
- Upper Management promotes staff
- Upper Management decides adoption product innovation
- Upper Management decides adoption process innovation

Hierarchy of Authority

- Upper Management approves decisions
- Upper Management approves actions
- Decisions without management approval discouraged
- Upper Management approval for subordinate permission
- Employees need supervisor approval for tasks

Complexity

- Variety of occupational specialties
- Different occupational specialties achieve goals
- Employees have specialized functions
- Employees' college degrees
- Employees receive external training
- Employees join prof. associations.

Formalization

- Employees act as own boss
- Individuals make work decisions
- Employees do as they please
- Job tasks determined by employees
- Employees make rules and agendas
- Rule violations are monitored
- Rules are strictly adhered to

Size

- Total Asset Size of Bank

Integration

- Encouraged Relationships divisions
- Meetings held with other divisions
- Employees interact with other divisions

Locus of Control

- Internal orientation
- External orientation

Appendix B

Operationalization of Perceived Environment

Dynamism

- Predicting changes of competitors is easy
- Changing competitors activities is a concern
- Predicting changing customers tastes is easy
- Changes in customer tastes is a concern
- Predicting product/service innovations is easy
- Amount of product/service innovations is a concern
- Predicting technological innovations is easy
- Amount of technological innovations is a concern

Hostility

- Pricing products/services is competitive
- There is competition in products/services
- There is competition in technologies
- Competition distribution products/service
- Competition promotion products/services
- Industry upswings/downswings are predictable
- Unfavorable demographic trends are predictable
- Severe government regulations are a threat

Complexity

- There are many competitors in the industry
- Competitors are diverse in strategies/tactics
- Customers are offered many products/services
- Diverse offerings of product/services
- Technological expertise is extensive
- A wide spectrum of technological expertise
- Many channels of distributions for products
- Diverse distribution channels for products
- Size of the customer base is extensive
- Customers diverse tastes and preferences
- Promotion entails a variety of campaigns