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The Effect of Information Technology (IT) Support on Innovations Concepts: A study of Textile Sector in Pakistan

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Abstract

Innovations are considered as a soul of firms. Alignment of Information technology (IT) with innovations concepts is necessary to achieve the favorable innovations results within organizations. The purpose of this study is to explore the effects of IT support on Innovations Concepts. For the purpose of data collection eleven operating textile firms were selected by using convenience sampling technique. This study employed SPSS to test the hypothesized relation between IT support and innovations concept. The results showed that most of the textile firms are trying to make better utilization of IT resource to achieve favorable level of innovations. All innovations concepts were positively correlated with Information Technology (IT) Support. This study provides the importance of IT to achieve favorable level of innovation concept within the organization. This study is also helpful for mangers and industrialists to make better understanding about the importance IT tools to implement innovations concepts within organization.

Keywords: Information Technology (IT) Support, Innovations Concepts, Textile Sector, Pakistan.

1. Introduction

This is age of intense and uncertain business environment in which businesses are facing complex and rapid competition. Businesses try to gain and remain competitive in this turbulent environment. Innovations are considered as key ingredient that can provide sustainable competitive advantage to the businesses (Nonaka and Takeuchi, 1995). Information technology tools and their usages have changed the way of innovation process (Quinn et al. 1997). Information technology and communication software's such as Enterprise Resource Planning (ERP), Decision Support System (DSS), Computer Aided Design (CAD), Customer Relation Management (CRM), socially interacted web-Resources, and other applications of IT have helped a lot in the management of innovation knowledge. With the availability and usages of

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information technology tools, the mangers now consider the use of IT as a competitive tool to make strategic planning (Dibrell & Miller 2002; Gibbons & O'Connor 2003).

In order to achieve favorable level of innovations, innovation process should be initiated with information technology support (Frishammar & Hörte 2005; Clay Dibrell et al .2008). Jon-Arild Johannessen, (1994), concluded that information technology can be an effective tool for innovation process, if IT utilized in effective way. He also described that, with the support of IT old things can be done in very better way and new things can be done according to the trend of market. Research of Bharadwaj (2000), shows that firms with heavy investment in IT have competitive edge on other firms who don't invest.

IMB conducted a global CEO survey that explains the perception of CEOs about innovations. In this survey CEOs explain that after some years there will be a significant changes in market forces due to the ever changing expectations of customers, intense competition, and technological changes. They feel that innovations are only the way to sustain and maintain businesses in this rapidly changing landscape.

Accordingly, the objective of this study is to explore and build understanding about relationship between IT support and innovations concepts. The remaining part of this paper contains background and hypothesis, methodology, results, and in last discussions, conclusion, future research directions and limitations are discussed.

2. Back ground and hypothesis

2.1 Information technology (IT) and Innovations

The core concept of information technology is defined as a system in which particular information is obtained from different sources; and then processed, stored, and presented to the managers when they need it. The concept of IT has evolved in recent years and become a crucial ingredient for effective working in operational and management areas. In this age of globalization, information technology has a key role to establish the basis of innovations so all organizations dealing with IT need to work on different combinations of models and methods so that they can differentiate themselves in global competition. According to Frishammar & Hörte (2005), when innovative ideas are implemented by IT initiatives it results in improvement of existing and new processes and products that promote customer loyalty, and stimulate demand for other products. Research of Himmet Karadal & Muhammet Saygın (2011) shows that there is a definite effect of IT support on new product development (i.e. innovation). He also summarized that organizations are making best use of information technology for creation of new product ideas and implement those ideas in production to produce the product convenient for their customers. Clay Dibrell et al... (2008) suggested that, in order to maximize the innovation activities, IT initiatives should be aligned with innovations.

The above discussed arguments and suggestions represent that information technology and innovations are complementary. An effective availability of information technology (IT) support

may enhance the ability of firms to create and implement different innovations concept within organization.

Thus we propose following hypothesis….

H1: Information Technology is positively related to Innovations Concepts.

3. Methodology

3.1 Sample

The textile sector was an investigating area of this research. In present study the targeted respondents were mangers of different textile firms. The convenience sampling technique was used to select ten operating textile firms in region of Faisalabad. As in this study we selected mangers as respondents because they were well aware about information technology and different concepts of innovations implemented in their respective firms.

3.2 Scales

3.2.1 Information Technology

In present study, Information Technology (IT) items are taken from the study of Gold et, al... (2001). This item scale access the IT support that allows the firm to monitor its competitor, collaboration with other person inside and outside the firm, search for new knowledge, retrieve and use of knowledge about products and process, learn from multiple locations from multiple resource, learn from multiple locations from single source. Items in this scale have been accessed on five-point Likert scale ranging from (1= strongly agree, 5 = Strongly Disagree).

3.2.2 Innovations

In present study, innovations items are taken from the study of Jenny Darroch, (2005), that used the concepts of Booz Allen Hamilton (1982) to develop the innovation items. Innovations items are measured through five Point-Likert scale ranging from 1= strongly agree, 2 = Agree, 3 = neither, 4 = Disagree, 5 = Strongly Disagree.

3.3 Data Collection Procedures

In this study overall 290 questionnaires were distributed among eleven operating textile firms in region of Faisalabad out of which 154 were completed. For the follow-up purpose phone calls and personal visits were conducted. The research topic, objectives of research and practical implications of this study were discussed with Human Resource (HR) manager of each firm. An assurance for confidentiality was provided to each respondent firm. Table 2 represents the characteristics of respondents.

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The descriptive statistic shows that mostly the respondents are males i.e. From 154 respondents 69.5% were males, 28.8% female and 3% were others. Of the 154 respondents 21.4% were age of less than 25 year and 27.9 % were 26-30 year, 13.0 % were 31-35 year, 13.0 % were 36-40 year, and 12.3% of respondents were age of above 40 years.

As concern to experience of respondents 33.1% of employees having the experience of less than 6 year, 32.8% had 6-10 year, 18.2 % had 11-15 year, 5.2 % had 16-20 year and only 9.1 % of respondents had experience above 20 years. In prior study mostly the respondents firm employed employees more than 2000. Table 1 represents the reliability for constructed variables. To assess the internal consistency of constructed items, values of Cronbach's Alpha are taken. Since the Cronbach Alpha coefficients are all greater than 0.5, so we can say that constructed items are reliable for data analysis.

3.4 Results and Discussion

The main purpose of this study is to explore the relationship between IT support and innovations. In this study we used linear regression statistical technique to examine the hypothesized relationship among variables. Table 3 represents the standardized statistical values for Beta and p-values for hypothesized relationship.

From the **3** table, it is clear that IT is positively related to all innovations concept. As in our study, we requested respondents to respond the support of IT, your organization provides to implement innovations ideas. From table the effects of IT support on innovations concepts can easily be observed and five findings can be drawn. First IT support is positively related with new product development (β= 0.16*, $p \leq 0.05$). With the effective utilization of IT support, a firm is in better condition to produce new product within textile industry. Second IT is positively related with introduction of new ranges of products (β = 0.25* $p \leq 0.01$). Third IT is positively related with addition of new products in existing ranges (β = 0.21* $p \leq 0.01$). Fourth effective use of IT allows a firm to improve existing products according to the demand of the customer (β =0.29* $p \leq 0.01$). Fifth relation between IT support and make changes in products to reduce cost is positively associated with each other (β =0.30*, $p \leq 0.01$). In real sense we can say that all innovations concepts have association with IT support.

Customers play a very important role in the development of new product. An information technology (IT) tool such as Customer Relationship Management Systems (CRMS) assist the companies to identify their customer's demands, and needs not currently fulfilled by substitute products (Nambisan 2002) . This provides opportunity for firm to create new ideas based on the unmet demand of the customers. IT tools also assist in design phase of product. IT applications provide help to the designer and engineer to identify most frequent uses parts and ordering those parts that should be used in the production of final product (Konicki 2002). According to Rothwell (1994), Computer Aided design (CAD) is a computerized system that helps and makes a bridge between design and manufacturing of the final product which reduces the chances of errors in interpretation of information. In this way the firm can minimize cost related to

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manufacturing and as well as improve production process flow which ultimately leads towards the production innovations.

4. Conclusions

The aim of this study is to explore and understand the relationship between IT support and innovations concepts in the context of textile sector Pakistan. Our study shows that IT support is positively related with innovations concepts. This study proves that effective utilization of IT tools leads a firm to effective implementation of innovations concept. A firm with modern IT tools is better in condition to innovate new products, make changes in existing products, add new products in existing products and change product to reduce cost. IT support allows a firm to monitor its competitor and quickly change her strategy according to the existing business situation. IT also provides support to trace customer demand and feedback that is very much important to develop new products according to customer taste.

Furthermore, in our study mostly the respondents respond that IT assists in changing its products or services to reduce costs. This study also highlights the importance of investment in area of information technology. The flexibility of firms to adopt changes in technology contributes to level the surface of innovations concepts within organization. In real sense our study sheds more light on the uses of IT applications to achieve favorable level of innovations concept within textile industry.

4.1 Research limitations and Future research directions

Our study represents a very small sample size of textile firms which is not enough for generalization of findings. Due to the time and financial constraints this study is based on cross-sectional research design which does not give real exposure of all firms. Convenience sampling technique is used to select different textile firms which may not reflect the reality of all textile firms in Faisalabad.

Above discussed limitations provides the direction for future research. A survey with sample size from multiple regions may be conducted for generalization of findings. Longitudinal research design will be also valuable for future research. In our study, we used one variable to predict the effects on innovations concepts, future research may be conducted by employing more variables such as different dimensions of organizational culture and more importantantly, knowledge management process as a mediator could be added to see the effects of IT on Innovations Concepts.

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Coefficient of Cronbach alpha

Variables coefficient	Items	Cronbach alpha
IT support	9	0.60
Innovations concepts	5	0.72

Table no: 1 Coefficient of Cronbach alpha

Descriptive Characteristics of Respondents

Age	**Frequency**	**Percentage (%)**	**Commutative Percentage**
Less than 25 year	33	21.4	21.4
26-30 year	43	27.9	49.4
31-35 year	39	25.3	74.7
36-40 year	20	13.0	87.7
Above 40 years	19	12.3	100.0
Gender			
Male	107	69.5	69.5
Female	44	28.6	98.1
Others	3	1.9	100.0
Work Experience			
Less than 6 year	51	33.1	33.3
6-10 year	52	33.8	67.7
11-15 year	28	18.2	85.6
16-20 year	8	5.2	90.8
More than 20 year	14	9.1	100.0
Number of Employees in organization			
Less than 500	11	7.1	7.1
500-1000	5	3.2	10.4
1000-1500	5	3.2	13.6
1500-2000	6	3.9	17.5
More than 2000	127	82.5	100

Notes: **Respondents n = 154**

Table no: 2 Descriptive Characteristics of Respondents

Regression Analysis summery

Regression Analysis between IT support and innovations concept - values	β	p
IT support and new product development that is first of its kind in Textile industry.	0.16*	p ≤ 0.05
IT support and introduction of new ranges of products/services not previously offered.	0.25*	p ≤ 0.01
IT support and addition of new products or services to its existing ranges.	0.21*	p ≤ 0.01
IT support and improving existing products or services.	0.29*	p ≤ 0.01
IT support and changes its products or services to reduce costs.	0.30*	p ≤ 0.01

Notes: n = 154 (two-tailed test)

Table 3: Regression Analysis summery

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