Environmental factors affecting on Creativity level of the Egyptian business organizations

Zizi Hassan Mohamed Zidan
College of international transport & logistics
Arab Academy for Science and Technology and Maritime Transport, Alexandria, Egypt.

Keywords
Creativity, business organizations, Environmental factors, Egypt

Abstract
The study aim to identify the effect of customer characteristics, the effect of supplier characteristics and the effect of firm specific features on creativity level of firms. As the dependent variable has binary values, whether the firm makes Creativity or not, the effects of independent variables on Creativity activities are analyzed by using binary logistic regression model. The researcher has the following results from the earlier analysis of the data. The firms’ motivation for Creativity is mainly affected by their customer’s and supplier’s characteristics.

Specifically, I found that if the spans of the customer and supplier increase, firms are more likely to innovate. Furthermore, if the turnover is generated by few companies, firms are less likely to make product Creativity. Likewise, if the firms have higher number of customers and suppliers, the creativeness levels of the organizations become higher.

Introduction
Many low and medium added value product producers have lost their competitive advantages in the markets recently. Some of the reasons for firms’ failure for losing their competitive advantage are globalization, access to cheap labor forces and rapid dissemination of know how through Internet and IT Technologies. It has been witnessed that economic growth and development in the developed and developing countries are mostly determined by Creativity level rather than efficiencies of the firms as Creativity enables companies to produce high added value products. Thus, innovations and ability to innovate become vital for firms in order to sustain their competitive advantage. Creativity strategy of a company is not only determined by company’s workforce, capital and technological ability but also by how environmental factors force R&D activities and Creativity level. Firms operating in the same sector have different Creativity levels. Thus, the effect of environmental factors on Creativity level and different Creativity strategies also become important for sustaining competitive advantage of the firms.

In recent studies, Creativity abilities of companies have been analyzed extensively through in organization factors or through customer and supplier relations of companies. However, the effects of external environmental factors on organizational innovation capability have not been thoroughly analyzed. The characteristics of suppliers and customers are the most vital factors affecting Creativity level of a company. The variety of customer demands lead companies to serve in a more competitive environment and this force firms to become more Creativity. The high numbers of competitive suppliers enable companies to learn new ideas from them, thus enable the possibility of accelerating Creativity trends in the company.

Definitions of Creativity
Creativity is a concept which we often come across in our everyday conversation. We hear of creative people, admire creative objects of art or read creative books. Yet despite our almost innate understanding of what it means to be creative there is much confusion about the nature of creativity. Kelly (2012) suggested that creative thinking involved breaking down and restructuring our knowledge about something in order to gain new insights into its nature.

Understanding our own cognitive model of reality may therefore be an important determinant of our ability to think creatively. Kelly (2012) supported this argument by maintaining that we can be creative by gaining an understanding of how we think about a subject. Creativity is
something which occurs when we are able to organize our thoughts in such a way that readily leads to a different and even better understanding of the subject or situation we are considering.

**Study Problem**

This paper focuses on two main questions:

1) How does customer characteristics affect organizations’ Creativity level?
2) How does supplier characteristic affect organizations’ Creativity level?

In order to answer these two questions, dataset from Egyptian Business Market Watch survey is analyzed. The dataset used in this study is more comprehensive; thus it will enable several original contributions to the literature and analyze how customers’ and suppliers’ competitiveness and their changes in market share affect organizations’ Creativity and Creativity level. Our findings reveal that the competitiveness of suppliers and customers greatly affect the Creativity level of the companies.

**A Brief Survey of Literature**

Relations with customers and suppliers are the most important factors affecting Creativity strategy of a company. The recent studies in the literature emphasize the effect of customers and suppliers on Creativity level of the organizations. The suppliers’ impact on new product management has been analyzed in terms of innovation by Hakanson et.al. (2009).

Creativity is marked by the ability to create, bring into existence, to invent into a new form, to produce through imaginative skill, to make to bring into existence something new. Creativity is not ability to create out of nothing (only God can do that), but the ability to generate new ideas by combining, changing, or reapplying existing ideas. Some creative ideas are astonishing and brilliant, while others are just simple, good practical ideas that no one seems to have thought of yet. Everyone has substantial creative ability including you the reader. So you should count yourself and believe it that you are a creative genius. All you need is to be reawakened and be highly committed to creativity. I want you to start thinking now, in the process something new will flow. Explore that something new today and you will be a different personality tomorrow.

Creativity is also an attitude, the ability to accept change and newness, a willingness to play with ideas and possibilities, a flexibility of outlook, the habit of enjoying the good, while looking for ways to improve it, we are socialized into accepting only a small number of permissible or normal things, like chocolate-covered strawberries, for example. The creative person realizes that there are other possibilities like peanut butter and banana sandwiches, or chocolate-covered prunes. Harris (2009). Creativity is also a process. Creative person work hard and continually to improve ideas and solutions, by making gradual alterations and refinements to their works. Contrary to the mythology surrounding creativity, very few of creative excellence are produced with a single stroke of brilliance or in a frenzy of rapid activity. Much closer to the real truth are the stories of companies which had to take the invention away from the inventor in order to market it because the inventor would have kept on tweaking it and fiddling with it, always trying to make it a little better, Harris (2009) A product is creative when it is “novel” and “appropriate”. A novel product is original, not predictable. The bigger the concept, and the more the product stimulates further work ideals, the more the product is creative (Stermering and Lubart). Creativity requires passion and commitment.

Whereas creativity has been conceived of as the generation of novel and useful ideas, innovation has generally been argued to be both the production of creative ideas as the first stage, and their implementation as the second stage. Although various definitions have been proposed, there remains a lack of general agreement between researchers over what constitutes precisely either creativity or innovation with different studies using rather different operationalization of each concept. More recent literature in the field suggests that the boundaries between both concepts are not that clear. On one hand, some the close relations with suppliers result cost reduction, quality increase and faster release of new product in the markets. The effect of customers on innovation level has been studied by Handfield Robert B., Ragatz Gary L., Petersen Kenneth J. ve Monczka.
Robert M (2004) and results have shown that the feedback from customers lead to unique Creativity. Johnsen et al. (2006) have analyzed the level of customer and suppliers’ effect on Creativity process. The results have shown that the customers affect the innovation in the early phases and the suppliers affect the Creativity in the later phases. Handfield Robert (2004) showed that customer orientation in Creativity projects has a positive influence on new product development success and the degree of product creativeness increases in due course.

Johnsen Thomas, Phillips Wendy, Caldwell Nigel & Lewis Michael (2006) argued that customer orientations support product Creativity. And analysed the customer orientation’s effect on products. have emphasized the IT abilities of customers and the fact that the process Creativity is led through organization’s performance. Also have supported the thesis that the factors affecting process and product innovation should be analyzed separately. Buzan, T. (2103) stated that the personal motivations have a certain effect on process Creativity, however has no considerable effect on product Creativity. They also emphasized the effective role of management approach on product Creativity on. The customers’ and suppliers’ effect does not show an impact on process Creativity however has affects product innovation. Handfield Robert (2004) studied the effect of customers on Creativity levels underlying the importance of suppliers’ relations in the same concept. Buzan, T. (2103) stated that innovation could not only be explained with sector specific structural features and the performance of organizations, but the in-organization factors should also be taken into account, which found the audience by Pellegrino, Piva et al. (2011). De Jong et al. (2010) analyze the innovation with a macro approach and support the national level of Creativity should be considered as well. Szajfarber et al. (2010) stated the effect of customer relations on innovation Alegreet al. (2008) studied the in-organization factors’ effect on product Creativity.

In today’s business world creativity has become one of the most important success Factors. The understanding of “organizational creativity as the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system is vital for the innovation process of a company and serves as a mainspring especially at the early beginning of an innovation.” Innovation as the practical application of created ideas in turn is a critical success factor for a company’s competitive advantage and long-term success.

Creativity has been studied across several disciplines including psychology, social sciences, economics, education and the arts. However, a homogenous definition and classification of the term creativity has often been, Moreover, creativity has been recognized as not manageable for a long time. Therefore, studies on creativity have looked at factors that “can manage for creativity” such as leader ship competencies or a working environment that positively influences and support or hampers creative processes in an organization. A further short coming of creativity research has been that it has traditionally distinguished between two generic types of creativity. The everyday creativity inherent in the average person and the creative genius, associated with famous talents in certain fields. Especially in the context of business and management literature, there is still need for further research to Demystify creativity as being a natural force without control, and to elaborate its role within the management of innovation. Hence, the question arises how this multifaceted and interdisciplinary topic of creativity can be included in innovation management, which is the focus of this Special Issue. Studies conducted in this area mainly focus on effect of customer and supplier relations on innovation of organizations. In this study, I analyzed the effect of customer and supplier features and the segmentation of customer and suppliers, whether they are competitive and the changes in the market share, on companies’ innovation level. Both product and process innovations are analyzed and various sectors are studied to get more valid and applicable results.

Thought of creativity as having two levels. He envisaged primary creativity as the source of new discovery, real novelty, or ideas which depart from what exists at a given point in time. He saw secondary creativity as a characteristic possessed by many scientists in their collective search for discovery achieved by working alongside other people, extending the work of previous researchers, and exercising prudence and caution in their claims about new insights or ideas. He envisaged
creativity as an aspect of human nature that was to be found universally in all human beings. In children he felt it to be an easily observable phenomenon but suggested that it seemed to become lost in adults, surfacing mainly in dreams with the relaxation of repressions and defences. It was a view that was echoed subsequently by Handfield Robert (2004), who argued that without such an assumption the techniques for stimulating creativity would have no application. Amabile T.M. (2005) defined creativity as:

The process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; identifying the difficulty; searching for solutions, making guesses or formulating hypotheses about the deficiencies; testing and retesting them; and finally communicating the results. They adopted a criterion-based approach, which suggests that any problem solving may be creative. Indeed argues that everyone can be creative. Creativity can be defined as the intentional introduction and application within a role, group, or organization, of ideas, processes, products, or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, or wider society. This definition is largely accepted among researchers in the field [Anderson, et al., 2004], as it captures the three most important characteristics of Creativity: (a) novelty, (b) an application component and (c) an intended benefit. In line with this definition, creativity in organizations is typically new services, new ways of working and/or new technologies. From the patient’s point of view, the intended benefits are either improved health or reduced suffering due to illness. The Advisory Committee on Measuring Innovation in the 21st Century Economy (2007) defines Creativity as the design, invention, development and implementation of new or altered products, services, processes, systems, organizational structures, or business models for the purpose of creating new value for customers and financial returns for the firm. Varkey, et al., 2008] define Creativity as the successful implementation of a novel idea in a way that creates compelling value for some or all of the stakeholders. Creativity can be categorized by its impact on stakeholders as nondestructive or disruptive. No disruptive Creativity, also referred to as incremental, or sustaining, improve on something that already exists but in a way that allows expanded opportunities to be met, or existing problems to be solved, propose a narrower focus of impacting a company: anything that creates new resources, processes, or values or improves a company's existing resources, processes, or values. What is important in defining innovation is the recognition that something new and hopefully better will emerge. Disruptive innovations, also called radical, revolutionary, refer to innovations that disorder old systems, create new players and new markets while marginalizing old ones, and deliver dramatic value to stakeholders who successfully implement and adapt to the innovation. With limited service diagnostic and treatment offerings in major retail outlets, is an example of a non-disruptive structural innovation. The clinics are easily accessible, efficient, and cost-effective and have generated significant interest in consumer markets across the United States. However, they have not replaced existing medical facilities.

Higgins, L.F. (2011) define organizational innovation as the intentional introduction and application (within a group or organization) of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization or wider society. There have been several attempts to classify innovation into categories. Innovation is the implementation of a new or significantly improved product (good or service), or process, new marketing method, or a new organizational method in business practices, workplace organization or external relations. Product innovation: introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. Process innovation: implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. The customer does not usually pay directly for process, but the process is required to deliver a product or service and to manage the relationship with the
various stakeholders. Marketing innovation: implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing. Organizational innovation: implementation of a new organizational method in the firm’s business practices, workplace organization or external relations. Innovations in health care are related to product, process, or structure [Varkey, et al., 2008]. The product is what the customer pays for and typically consists of goods or services (for example, clinical procedure innovations). Process innovation entails innovations in the production or delivery method. According to Varkey, et al., the customer does not usually pay directly for process, but process is required in order to deliver a product or service. A process Creativity, therefore, would be a novel change to the act of producing or delivering the product that allows for a significant increase in the value delivered to one or more stakeholders. Structural Creativity usually affects the internal and external infrastructure, and creates new business models.

In today’s globalized world innovation is the key of success and survival of all types of organizations. The economic growth of the world is amplified by Creativity by many ways like rapidly evolving technology, shorter product lifecycles and a higher rate of new product development. Organizations need to make sure that that their business strategies are innovative to build and sustain competitive advantage. However there are many challenges like changing customer test and needs, extensive competitive pressure and rapid technological change globally posed to make innovation as complex phenomenon. There are many more factors responsible for innovation in an organization; based on organizational competencies a specified approach can be adopted to enhance more Creativity.

Many studies are carried out to understand the complex innovation process in various organizations. Through this paper an attempt is made to develop a comprehensive theoretical model for Creativity enhancement in social organizations. To make this possible the extensive literature research of previously published work is done. The innovation enhancement system model is explained with all details of its elements in it. Here under this whole paper the term organization is referred for social enterprise.

**Study Hypothesis**

The Creativity level of companies lead to competitive organizations, as the competitive market is a driving force for innovation. As the firm’s market scope increases, the number and size of the rival companies will also increases. Thus, firm has to make more Creativity as the competition become fiercer.

Firms can sell products to mainly the same group of customers or firms’ customer base change frequently. If firms’ customer base remains mostly the same, it is relatively easier for firms to retain the customer as the switching cost of the customer is high. However, if firms’ customer base changes frequently, the bargaining power of the customer is much higher. Thus, firms force to make the innovation in order to keep and convince customers, The researcher also think that as the firms’ number of customer and type of customer increase, firms are more likely to force making innovation as there will be more and different type of request from customers.

As a recent trend, firms buy most of the goods and services from other firms rather than in house production. This makes firms more dependent to supplier for production of goods and services and the Creativity capability of supplier become more important for companies to make Creativity. The researcher think that international suppliers are more innovative than local supplier as they are in a more competitive environment. As these suppliers have more information and they can transfer these know how, The high numbers of competitive suppliers and different type of suppliers enable companies to learn new ideas, thus enable the accelerating Creativity trends in the company. As the companies get in contact with different suppliers, it is more likely that feedbacks from various suppliers lead to more Creativity.

**The researcher hypothesize the following**

H1: As the size of the companies increases, firms are more likely to make Creativity and innovation.
H2: As the firms’ customer changes frequently rather than firms having the same group of customers, firms are more likely to make Creativity and innovation.
H3: As the number of customer increases, firms are more likely to make Creativity and innovation.
H4: As the turnovers are generated mainly by few customers, firms are less likely to make Creativity and innovation.
H5: When firms have international suppliers rather than local suppliers, they are more likely to make Creativity and innovation.
H6: If the firms prefer to buy from varying suppliers rather than the same group of suppliers, then they are more likely to make Creativity and innovation.
H7: As the number of firm’s supplier increases, firms are more likely to make Creativity and innovation.
H8: As the firm prefers few suppliers, it is less likely to make Creativity and innovation.

Methodology

In this study, the researcher aim to identify the effect of customer characteristics, the effect of supplier characteristics and the effect of firm specific features on innovation level of firms. The Dataset consists of chemical rubber and plastic, steel and furniture sector with a total 2113 answers the researcher used two questions (Egyptian business Market)

’During the past 12 months, has your company launched any new or substantially improved PRODUCTS or SERVICES’?

’During the past 12 months, has your company introduced any new or significantly improved internal process , for example for producing or supplying goods or services’?

The first question represent whether the firm is making product innovation while the second one is the answer for process creativity and innovation. The answer to these questions takes two values: Yes or No. As these answers are in binary form, the researcher used binary logistic regression model to formalize and test the hypothesis given above.

\[ \log \left( \frac{p(\text{Creativity & Innovation})}{1-p(\text{Creativity & Innovation})} \right) = \beta_0 + \beta_1 \text{sales market} + \beta_2 \text{customer type} + \beta_3 \text{customer size} + \beta_4 \text{number of customer} + \beta_5 \text{supplier market} + \beta_6 \text{supplier type} + \beta_7 \text{supplier size} + \beta_8 \text{number of supplier} + \beta_9 \ln(\text{age}) + \beta_{10} \ln(\text{size}) + \beta_{11} \text{sector} + \varepsilon_i \]

The term Pr (Creativity &Innovation) express the probability that organization’s making creativity and innovation. As we have two types of creativity and innovation, we will evaluate the result of this model for both product and process creativity and innovation.As independent variables, I used the following survey questions. (Egyptian business Market)

Customer Related Questions
- Sales Market- “What is your company's most significant market? Is it mainly the regional market, the country market, or international markets which you consider your main sales area”?
- Customer Type- “What characterizes the relationship with your customers: Are you mainly selling to regular customers or rather to a changing customer base”?
- Number of Customers- “Has the number of customers in the past 12 months increased, decreased or stayed roughly the same”?
- Customer Size- “How large is the share of your turnover generated by your three largest customers? Is it less than 20%, 20 to 40%, up to 60%, up to 80% or more than 80% of your total turnover”?

Supplier Related Questions
- Supplier Market- “Do you procure primarily from suppliers in your region, in country or from an international supplier base”?
- Supplier Type- “What characterises the relationship with your suppliers: Are you mainly buying from regular suppliers or rather from a changing supplier base”?
- Number of Supplier- “Has the number of suppliers in the past 12 months increased, decreased or stayed roughly the same”?
Supplier Size—“How large is the share of supplies procured from your three largest suppliers? Is it less than 20%, 20 to 40%, up to 60%, up to 80% or more than 80% of your total procurement?”

As control variables, the size and the age of company will be used. We used natural logarithm of age and size as this transformation increases the explanatory power of the model. In order to incorporate sector specific and country specific differences, I also use the dummy variable for the sectors and countries firms operate in.

The regression outputs of Eq. (1) are given below. I also provide odds ratio of the variables. Odds ratio is calculated by ecoefficient where e is the base of natural logarithm. The odd ratio represents that if a variable increases by 1 unit, there will be ecoefficient times increase in the ratio of probability of innovation to probability of no-innovation. We also checked whether there is multicollinerarity in the data as well. I find that Variance Inflation Factor (VIF) score of the variables range from 1.03 to 2.17. As these statistics are less than 10, we conclude that there is no multicollinearity in our dataset.

<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>Product creativity</th>
<th>Process creativity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Market</td>
<td>0.3468 (0.0781)***</td>
<td>0.1838 (0.0768)***</td>
</tr>
<tr>
<td>Customer Type</td>
<td>0.0843 (0.0695)</td>
<td>0.0169 (0.0692)</td>
</tr>
<tr>
<td>Number of Customer</td>
<td>0.3436 (0.0836)***</td>
<td>0.3411 (0.0820)***</td>
</tr>
<tr>
<td>Customer Size</td>
<td>0.1416 (0.0471)</td>
<td>0.0070 (0.0454)</td>
</tr>
<tr>
<td>Supplier Market</td>
<td>0.2878 (0.0760)</td>
<td>0.1643 (0.0746)</td>
</tr>
<tr>
<td>Supplier Type</td>
<td>0.0809 (0.0945)</td>
<td>0.0588 (0.0943)</td>
</tr>
<tr>
<td>Number of Supplier</td>
<td>0.3808 (0.1039)***</td>
<td>0.3012 (0.1027)***</td>
</tr>
<tr>
<td>ln(Age)</td>
<td>- 0.0167 (0.0615)</td>
<td>- 0.0161 (0.0599)</td>
</tr>
<tr>
<td>ln(size)</td>
<td>0.1367 (0.0413)***</td>
<td>0.2405 (0.0420)</td>
</tr>
</tbody>
</table>

Table II: Odd Ratios of Independent Variables

<table>
<thead>
<tr>
<th></th>
<th>Product creativity</th>
<th>Process creativity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Market</td>
<td>1.4145</td>
<td>1.2018</td>
</tr>
<tr>
<td>Customer Type</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of Customer</td>
<td>1.4065</td>
<td>1.4100</td>
</tr>
<tr>
<td>Customer Size</td>
<td>0.8679</td>
<td>-</td>
</tr>
<tr>
<td>Supplier Market</td>
<td>1.3334</td>
<td>-</td>
</tr>
<tr>
<td>Supplier Number</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of Supplier</td>
<td>1.3515</td>
<td>1.4635</td>
</tr>
<tr>
<td>Supplier Size</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ln(Age)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ln(size)</td>
<td>1.1464</td>
<td>1.2719</td>
</tr>
</tbody>
</table>

The researcher support Hypotheses 1 and 5 as the empirical results also show that the coefficients of the sales market and supplier market are significant at the 1% level with a positive
The Business and Management Review, Volume 7 Number 1 November 2015

sign. Thus, if firm’s main customer market changes country market to regional market or international market to country market, the ratio of probability of product (process) innovation to no-product (process) innovation will increase by 1.4145 (1.2018) times. Similarly, if firm’s main supplier changes country supplier to regional supplier or international market to country market, the ratio of probability of product (process) Creativity to no product process Creativity will increase by 1.3334 (1.1786) times. Thus, as the scope of customer and supplier increases from regional towards international, firm is more likely to make innovation. The researcher also find that as the number of customer and supplier increases, firms are more likely to make Creativity. Specifically, as the firm’s number of supplier increases, the likelihood that firm make product process Creativity increases by 1.41 (1.4065) times whereas as the firm’s number of supplier increases, the likelihood that firm make product process innovation increases by 1.3334 (1.1786) times. Hence we can support Hypotheses 3 and 7.

The researcher also show that as the firms sell their product into mainly the same group of customer, they are less likely to make product innovation. Particularly, as the size of main customer increases by 20%, the ratio of probability of product Creativity to the probability of no product innovation decreases by 0.8679 times. However, firms' process Creativity activities are not affected from change in main customer size.

Thus, Hypothesis 4 is supported partially. Similarly, both product and process Creativity are no affected from main supplier size. For this reason, we could not support Hypothesis 6. The researcher also find that as the size of firm increases, they are more likely to engage in both product and process creativity activities.

Conclusion

In this paper, the researcher investigate how supplier and customer affect firm’s Creativity capabilities. The researcher found that if the spans of the customer and supplier increase, firm are more likely to create. Furthermore, if the turnover is generated by few companies, firms are less likely to make product innovate. Likewise, if the firm have higher number of customers and suppliers, the innovativeness level of the firm becomes higher. In general, our finding supports the idea that the role of competition is substantial for the creativity activities of the firms when external factors are considered.

As there are very detailed questions in the survey, this study can be extended in several ways. Since we have several countries involved in the questionnaire, cross cultural effect can be analyzed. The study can also investigate sector specific differences and the difference between product creativity and the process creativity in more detail. Furthermore, the effect of different question on Creativity can also be analyzed.

References


Biemans Wim G. Developing innovations within networks, Doctoral thesis, Faculty of Industrial Engineering and Management Science, Eindhoven University of Technology; (2014).


De Jong J., Kalvet T., Vanhaverbeke W. Exploring a theoretical framework to structure the public policy implications. Technology Analysis Strategy Management 22 (8), (2010), pp.877-896


Innovation and Goal – free Living -Stephen Shapiro. http"//www-24-27innovation orcle.htn


Lim S. J. (2008)” CRM Market in Malaysia and the Factors That Affect the Adoption of CRM by Malaysian Companies”.


