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PERSUASIVE MESSAGES AND EMOTIONAL RESPONSES IN SOCIAL MEDIA MARKETING

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Halit Keskin¹, Ali E. Akgun², Hayat Ayar³, Tuba Etlioglu⁴
¹Yildiz Technical University, Istanbul, Turkey. hkeskin@yildiz.edu.tr
²Yildiz Technical University, Istanbul, Turkey. aakgun@yidiz.edu.tr
³Gebze Technical University, Kocaeli, Turkey. h.ayar@gtu.edu.tr
⁴Yildiz Technical University, Istanbul, Turkey. tubaetlioglu@gmail.com

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ABSTRACT

Purpose- Persuasive message variables namely; argument quality, post popularity, and post attractiveness have rarely been theoretically analyzed in relation to consumers' attitudes in social media marketing (SMM) literature. Therefore, to enhance ELM theory in SMM, the aim of this study is to investigate the effect of using persuasive messages on users’ emotional responses, such as sympathy and empathy.
Methodology- We develop a conceptual model encapsulating interrelationships between persuasive message variables and users’ emotional responses. By using ELM theory, this paper investigates how persuasive messages can influence users’ emotional responses in SMM activities. This study also examines relationships between sympathy and empathy as emotional responses to social media posts.
Findings- We propose that (1) the persuasive message variables are positively related to sympathy and empathy responses, (2) sympathy response is positively associated with empathy response, (3) sympathy response mediates the relationship between persuasive message variables and empathy.
Conclusion- This research offers contribution to SMM literature by presenting a model of interrelationships among persuasive messages and emotional reactions.

Keywords: Elaboration likelihood model theory, emotional responses, persuasive messages, social media marketing.
JEL Codes: M30, M31, L82.

1. INTRODUCTION

Social media marketing (SMM) deals with interactions and collaborations among users through sharing user-generated contents and the timely exchange of news and information (Kim and Ko, 2016), focuses on the contents that attract users’ attention (Incekara, Şener and Hobikoglu, 2013), highlights social media applications and platforms such as blogs, social networking sites, wikis, consumer product or service ratings websites and forums to generate synergistic effects (Vries, Gensler and Leeflang, 2012).

In this study, we specifically focus on the “social networking sites” (SNSs) aspect of social media channels in the SMM context. The concept of SNSs, which is generally defined as web-based services to communicate informally with others, find people, and share similar interests (Dahnil et. al., 2014), has become enormously popular with millions of users on popular sites (e.g. 1.86 billion active users on Facebook). SNSs allow users to “(i) construct a public or semi-public profile within a bounded system, (ii) articulate a list of other users with whom they share a connection, and (iii) view and traverse their list
of connections and those made by others within the system” (Boyd and Ellison, 2008). Depending on these characteristic features and user base, there is a consensus on functions of SNSs, which social media marketers and researchers indicate as job-related contacts (e.g. LinkedIn), social interactions (e.g. Facebook), micro-blogging (e.g. Twitter), sharing of user-generated videos (e.g. Youtube) and photos (e.g. Instagram) (Ellison, Steinfield and Lampe, 2007; Lange, 2008). While no one denies the importance of these forms of SNSs, SMM studies to date have specifically emphasized that the automatic connections on SNSs easily spread messages (Teng et al., 2014). This means that when people face messages and interactions through social networks and have enough information regarding shares and posts, they make cognitive and emotional evaluations toward messages, and thus, they are persuaded to click to like and share messages. For example, Vries et al. (2012), in their brand fan pages and brand post popularity studies, indicated that vivid and interactive brand post characteristics enhance the number of likes.

Nevertheless, while most studies in the SMM literature have discussed or investigated the impact of marketing activities on SNSs at the firm level, such as brand reputation (Kim and Ko, 2010), popularity of brand posts (Vries et al., 2012), brand awareness and loyalty (Castronova, 2012), little is known about the impact of persuasive messages in SNSs on user’s emotional responses. In addition, although the Elaboration Likelihood Model (ELM) is the most popular and useful theory of persuasion researchers often use regarding behavioral changes among message receivers, ELM studies in social media context are still relatively new in the literature. For example, Teng et al. (2014) pointed out the importance of employing ELM in social media studies and theoretically provided a shortcut for researchers in conducting ELM studies in the social media context. Chang et al. (2015) used ELM theory to explore popularity cohesion, message diffusion, and persuasive messages in social networking groups and noted that persuasive messages have a positive influence on internet users to click like and share messages in the SMM context.

Here, we specifically chose ELM theory because (1) “it relates directly to influence processes and their impacts on individuals’ perceptions and behavior and (2) it also explains why a given influence process may lead to differential outcomes across different users in a given usage setting” (Bhattacherjee and Sanford, 2006). However, based on the above studies, we observe that SMM studies about ELM are mainly descriptive; they provide no theoretical foundation and do not theoretically examine how persuasive messages can influence users’ emotional responses in SMM activities. Therefore, to enhance ELM theory in SMM, the aim of this study is to investigate the effect of using persuasive messages on users’ emotional responses, such as sympathy and empathy.

2. THEORETICAL BACKGROUND

2.1. Social Networking Sites and Persuasive Messages

According to the Digital In 2017 Global Overview report, the number of internet users who are actively involved in the social networks is 2.80 billion in the world and 48 million in Turkey (http://wearesocial.com/blog/2017/01/digital-in-2017-global-overview). In this respect, social networking, a generic term for online platforms like Instagram and Facebook (Kim and Ko, 2012:1481), is a dynamic and growing digital marketing channel. Since the seminal study of Boyd and Ellison (2008) on “conceptual, historical, and scholarly development of SNSs”, in particular, the concept of SNSs has received considerable scientific attention in the SMM literature.

From the consumer behavior perspective, social networks of which individuals become members, independently of physical spaces, in order to satisfy their social, emotional, and cognitive development needs lead to significant changes in their behaviors, habits, and particularly, interactions with each other (De Vries, Gensler, Leeflang, 2012). Perhaps the greatest of such changes is the transfer of real life relationships to the virtual world, as emphasized by the social network theory. This, in particular, implies that generation Z, which refers to people born after 1995, is beginning to perceive social media as a reference group in the online consumer socialization process (Theng, Khong and Goh, 2014). In this sense, integrated consumer groups learning from each other arise and social media takes on the spirit of the “global village” as conceptualized by McLuhan (Savrul, Incékara and Şener, 2014). In the light of these developments, sociology and psychology studies focus on the impact of social media on users (Moreno and Whitehill, 2016), and marketing researchers attempt to investigate how organizations can benefit from social media. Research conducted within this framework emphasize that organizations can manipulate social media to interact with highly dispersed consumers, establish communities that communicate with their brands, and build brand credibility and reputation (Bianchi and Andrews, 2015). Furthermore, individual customers are able to add additional value to the organizations by entering into interaction with others as “brand advocates” in social media platforms and influencing the purchasing behavior of other customers through electronic word-of-mouth marketing (Kozinets et al., 2010).

Additionally, social media not only establishes interactions between brand and customers, but also changes business processes through having an impact on important marketing strategies of organizations concerned on communication costs, sales, branding, segmentation, and market research (Bianchi and Andrews, 2015). For example, SMM gives organizations the opportunity to reach customers on a real-time basis so that marketers seek to alter customer attitudes by...
way of transmitting persuasive messages in social media context (Teng, Khong and Goh, 2014). In this sense, the consumer research studies on ELM, which is considered as the most popular and useful model of persuasion in social psychology (Lien, 2001; Cook, Moore and Steel, 2004), is being extended within the context of social media. In fact, the findings from the research to date highlight that advertising messages created using ELM are relatively more persuasive in altering attitudes of social media users (Teng, Khong and Goh, 2014). ELM proposes central route and peripheral route to explain individual attitude change. Within central route, individuals make cognitive evaluations, interpret the arguments in the persuasive messages, and then arrive at a decision. Within the peripheral route, individuals are inclined to use positive or negative clues that they can associate with the persuasive message. From the perspective of this model, it can be argued that persuasive messages in social media must have three properties, which are the argument quality, post popularity, and post attractiveness. Argument quality refers to the persuasive power of arguments in the post content. Post popularity refers to the number of responses a post receives, that is, the number of likes, sharing (repost or retweet) and comments. Post attractiveness refers to the extent to which recipients perceive posts as admirable and appealing (Chang, Yu and Lu, 2015).

### Table 1: Persuasive Messages and ELM Theory

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#### 2.2. Emotional Responses: Sympathy and Empathy

The terms sympathy and empathy are commonly confused with each other since both of them are emotional resonances to others’ emotional states (Rogers, 1976). However, the difference between them is clarified by the definitions in the literature. In consumer research, whether or not sympathy is named, the emotional response is defined in such a way that an individual is aware of the others’ feelings but does not absorb them (Stern, 1974). This definition, indeed, is a classical definition of sympathy concept provided by Hume, with his study called A Treatise of Human Nature. In this respect, Hume’s study provides a logical basis for sympathy concept used in social sciences (Escalas and Stern, 2003). In their studies, Eisenberg and Miller (1987) highlight that sympathy is an emotional reaction to the emotional state of others, but without having identical feelings. That is, "sympathy is a heightened awareness of another person’s state of mind and his or her circumstances" (Escalas and Stern, 2003).

On the other hand, within the framework of consumer research, the concept of empathy which is translated from Greek word “emпатія” to English by Edward Bradford Titchener, means “an involuntary and unconscious merging with another’s feelings” (Escalas and Stern, 2003). There is a number of psychological and psychiatric studies on empathy but particularly, Carl Roger’s studies are the most interesting. Until Roger’s studies, empathy was considered only in its cognitive aspect and defined as taking the role and perspective of others. However, Roger (1976), adding emotional dimension to the concept of empathy, proposes that empathy is a process in which a person takes perspective of others by putting himself/herself in their place, fairly understands and feels the feelings and thoughts of the others (Rogers, 1976). Briefly, an empathy response is a person’s absorption in the feelings of another. Thus, a person’s capacity for feeling in the others’ feelings show the tendency of that person to have empathy (Espelage, Gutgsell and Gutgsell, 2004).

Clear definitions of sympathy and empathy reveal apparent differences between these two concepts. To sum up, while sympathy stems from the perspective of an observer who is conscious of another’s feelings, empathy stems from that of a participant who vicariously merges with another’s feelings. In other words, sympathy refers to “running parallel” to the feelings of others, rather than “being merged” in their feelings (Escalas and Stern, 2003). In their study, Eisenberg and Miller (1987) explain this difference by potential responses given to a person eating lemon. Sympathy involves thoughts of the observers about how the lemon eating person feels while empathy is engagement in his/her feelings in a way of unintentional grasping of the lips or watering of mouth.

### 3. CONCEPTUAL MODEL DEVELOPMENT

#### 3.1. Persuasive Messages and Sympathy Response

We argue that the argument quality which is related to the persuasive impact of elements embedded into the social media posts evokes sympathy response among the social network users by reinforcing or improving their extant beliefs (Bhațacherjee and Sanford, 2006). Petty and Cacioppo (1986) report that argument quality is a critical factor for central...
route messages and thus people produce more favorable responses regarding messages with strong arguments. According to central route of persuasion, users influenced by strong argument are likely to hold a strong, accessible attitude to the posts, and engage in thorough cognitive activity, assessing the post presented and thinking about the available information (Li, 2013). Such cognitive and thinking activities are viewed as primary components of sympathy, as Escalas and Stern (2003) noted. This means that users voluntarily develop sympathy to the messages referred in the post, through the informational social influence (Li, 2013:268).

In this sense, social media users develop sympathy about the post if the arguments of content are quality but they develop antipathy as opposite of sympathy if the content is ineffectual (Escalas and Stern, 2013). Therefore:

P1: There is a relationship between the argument quality and the sympathy response.

We argue that post popularity evokes sympathy response among the social network users because source credibility can be regarded as a peripheral cue (Chang, Yu and Lu, 2015). Users following the peripheral cues regard the post popularity as a reflection of the source credibility and, thus, higher levels of credibility source tend to elicit favorable thoughts than less credible sources, leading to more affective responses. This link is explained with the normative social effect of the post (Li, 2013:267). In addition, research on social identity theory highlight that social media users (i.e. celebrities), which can be characterized as a reference group, are significant actors in altering the ideas, beliefs, attitudes, and behaviors of their followers (Theng, Khong and Goh, 2014). In this sense, if social network users perceive that the celebrity is trustworthy, they tend to have more affections toward his/her posts (Li, 2013). Therefore:

P2: There is a relationship between the post popularity and the sympathy response.

We argue that post popularity evokes sympathy response among the social network users because it is related to how social media users perceive a post as attracting and appealing (Chang, Yu, and Lu, 2015). Photograph and video qualities together with the aesthetic appearance shaped by sounds, music, colors, and figures used in visuals impact post attractiveness. For example, music is perceived as a potential peripheral cue used to positively arouse the consumer’s emotional state (Morris and Boone, 1998). Alpert and Alpert (1990) and Macninis and Park (1991) provide empirical evidence that the harmony between the music and the post leads to positive emotional responses. Additionally, Freedberg and Gallase (2007) emphasize the influential effect of photographs on emotional reactions of individuals. For example, when people see a figure which shows people struggling to escape from a block of stone, they may feel a sense of fear and escape (Hsiao, Lu and Lan, 2012). Similarly, since social network posts consist of beautiful panoramas, attracting places, and happy moments, and SNSs provide post options for adding music, refreshing colors, and filtering, his/her posts have a sense of aesthetic that leads to sympathy. Therefore:

P3: There is a relationship between the post attractiveness and the sympathy response.

3.2. Sympathy and Empathy Responses

Based on the writings on the “emotional responses”, we argue that the sympathy response influences the empathy response. Mirror neurons in human brain have a critical role in triggering empathetic reactions by supporting the individuals’ ability to comprehend the visuals in the posts (Hsiao, Lu and Lan, 2012). Here, it should be noted that the imagination and observation commonly activate mirror neurons. In other words, according to simulation theory, in order to be in the participant position by merging with others’ feelings, it is necessary to first recognize the stimulant by observing it and become aware of its emotional state (Gordon, 1986). Indeed, Escalas and Stern (2003) state that an emotional merge is not possible without understanding the stimulant; the researchers thus propose a Hierarchical Ranking showing that sympathy will help to develop empathy but, on the other hand, antipathy will result in carelessness or disinterest. Therefore:

P4: There is a relationship between the sympathy and empathy responses.

3.3. Persuasive Messages and Empathy Response – Mediating Effect of Sympathy

We propose that sympathy mediates the persuasive message variables-empathy link, which empirically we know little about so far. Escalas and Stern (2003) assert the existence of a hierarchical ranking between sympathy and empathy responses. This means that empathy, which is a relatively high-involvement situation, is developed through sympathy, which is a relatively lower-involvement situation, and both of these emotional tendencies occur in sequential relationship (Escalas and Stern, 2003:569). Findings in the general emotion and advertising literature lend further support to the hierarchical concept. For instance, Stout and colleagues (Stout et al. 1990; Stout and Leckenby, 1986) have found that even though recognized emotions (sympathy) have a significant effect on positive attitudes to an ad, personally felt emotions (empathy) have an even greater influence. Mick’s subjective comprehension model (1992) also supports the processual ordering, because it describes a more cognitive surface-level objective comprehension of a message as necessary for more affective deeper-level subjective responses.
The empirical studies of emotional responses also have shown that there is a positive and direct relationship between persuasive messages and empathy (e.g. Akgün et. al., 2014). Also, as we argued in Proposition 1-3, the sympathy response is affected by those persuasive message variables. More specifically, the sympathy response is closely related to argument quality, post popularity and post attractiveness. Accordingly, a persuasive message, which derives from argument quality, post popularity and post attractiveness, is a strong motive for sympathy response, and that evoked sympathy positively impacts empathy response. Therefore:

P5: Sympathy mediates the relationship between persuasive message variables and empathy.

**Figure 1: Proposed Research Model**

![Proposed Research Model](image)

4. CONCLUDING REMARKS

This research offers contribution to SMM literature by presenting a model of interrelationships among persuasive messages and emotional reactions. By highlighting the role of argument quality, post popularity and post attractiveness in influencing sympathy and empathy responses, this study provides a framework for researchers and social media marketers to visualize and understand the relationship between persuasive messages and social network user’s emotional responses, thus enhancing ELM studies in the context of social media. This study, specifically, makes two contributions to the literature.

This study, first, theoretically showed the effects of argument quality, post popularity, and post attractiveness on users’ emotional responses, which is consistent with ELM studies in social media context. However, previous research on ELM focuses on consumer attitudes and intentions towards information and products (Bhattacherjee and Sanford, 2006; Kim et al., 2010), but seldom on the intentions to promote social media marketing. This research introduced ELM as a referent theory for SMM literature, and elaborated the effects of persuasive posts on users’ emotional responses. Here, it appears that if a post is 1) informative and helpful 2) believable and reliable, 3) attractive and aesthetically appealing, that post can evoke sympathy and empathy in social network users. Therefore, social media marketers should pay attention to argument quality, popularity and attractiveness of the posts to evoke positive emotions in users.

Second, this study theoretically demonstrated the importance of persuasive posts on empathy response through sympathy response, fulfilling the Escalas and Stern’s (2003) suggestion for future research. While previous studies argued the fragmented relationship between persuasive posts and users’ emotional responses (i.e. Chaudhuri and Buck, 2009), this study highlights the existence of a hierarchical ranking between sympathy and empathy responses. In this context, our study provides with research on emotional reactions a more extensive view.

Moreover, this study triggers the opportunity for future research. First, since SMM literature misses the empirical examination of the relationship between persuasive message variables and emotional responses in particular, the proposed theoretical model warrants an empirical investigation. Second, the presented model in this study does not capture the moderators which may possibly influence the relationship between persuasive message variables and emotional responses such as relative significance and user expertise, and thus future studies may be extended to include these possible moderating effects (Chang et. al., 2015). Three, future studies can incorporate alternative consequences to the model as the outcomes of persuasive message variables. The interrelationships between persuasive message variables, and cognitive responses or behavioral intentions -as a dependent variable- in addition to the emotional responses, can be empirically tested in order to develop a richer framework for the study. Indeed, ELM theory allows that SNSs are playing an important role in reaching out to customers and building customer relationships (Teng et. al., 2014). Further, future studies should focus on different contents shared on SNSs (e.g. cooking posts, travel posts etc.), or compare different types of pages. Next, future studies should explore several pages across different countries. Finally, this research mainly analyzes the impact of posts on users’ emotional responses. Branding positions and consumer equity should be part of future researches.
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RFID ADOPTION FOR AGILITY IN THE FASHION BUSINESS

Evrim Kabukcu
1 Manisa Celal Bayar University, evrimkabukcu@gmail.com

ABSTRACT

Purpose- The main aim of this paper is to argue the determined benefits of RFID technology by focusing on fashion industry.

Methodology- In order to create an agile supply chain proposal, a new model has been designed on the basis of the models developed by Martin Christopher, Robert Lowson & Helen Peck (2004) and Claudia Loebbecke & Jonathan Palmer (2006).

Findings- By this integrated applicable structure of this proposal, it is aimed to support the efforts focused on product and process improvement. In this way, it is intended to contribute to the sustainability of the fashion industry.

Conclusion- An agile supply chain model including the benefits of RFID in the fashion industry has been designed. RFID is a promising technology that helps organizations and minimizes problems in supply chain management, and also plays an important role in order to propose new solutions for a greener sustainable industrial world.

Keywords: Agility, fashion business, innovative supply chain technology, integrated model proposal, RFID technology.

JEL Codes: L67, L10, M10

1. INTRODUCTION

Fashion markets have long attracted the interest of researchers. Fashion is a broad term which comprises any product or market where there is a matter of style which is likely to be short-lived. Fashion markets can be defined as typically exhibiting characteristics like short life-cycles, high volatility, low predictability and high impulse purchasing. The focus of the most of the researches was the psychology and sociology of fashion product and process. Much of this earlier work was intended to create insights and produce tools to improve the demand forecasting of fashion products and to identify cycles in fashion. However, in reality it is now gradually accepted by those who work in this dynamic and uncertain industry and academicians that the demand for fashion products can not be forecasted. For this reason, fashion markets are needed to be recognized as complex open systems that frequently demonstrate high levels of ‘chaos’ during ‘turbulent times’. In such conditions, managerial efforts may be expended on devising strategies to ensure company’s success in turbulent times via creating innovative fashionable product designs, manufacturing and delivering on the basis of ‘real-time’ demand to spawn ‘agile supply chain’ and the ‘philosophy of quick response (QR)’.

2. AGILITY: QUICK RESPONSE IN FASHION BUSINESS

In recent years, there has been a growing interest in the design and implementation of agile supply chain strategies (Christopher, 2000). The idea of agility in the context of supply chain management focuses on ‘responsiveness’. Conventional supply chains have been lengthy with long lead-times and hence, of necessity, have been forecast-driven. By
contrast, agile supply chains are shorter and seek to be demand-driven. A further distinction is that because conventional supply chains are forecast-driven that implies that they are inventory-based. Agile supply chains are more likely to be information-based. There are four key dimensions to create an agile supply chain for organisations competing in fashion industries as seen below.

Figure 1: The Foundations for Agility in a Fashion Business

A state of responsiveness and flexibility in which an organisation seeks to provide a highly diverse range of products and services to a customer/consumer in the exact quantity, variety and quality, and at the right time, place and price as dictated by real-time customer/consumer demand. QR provides the ability to make demand-information driven decisions at the last possible moment time ensuring that diversity of offering is maximised and lead-times, expenditure, cost and inventory minimised. QR places an emphasis upon flexibility and product velocity in order to meet the changing requirements of a highly competitive, volatile and dynamic marketplace. QR encompasses an operations strategy, structure, culture and set of operational procedures aimed at integrating enterprises in a mutual network through rapid information transfer and profitable exchange of activity (Lowson, King and Hunter 1999).

For the retail industry, bar codes have long been an important technology for QR by helping the industry save production costs, hold inventories low, and prevent overstocking (Fiorito et al., 1998; Hill, 2004; Ko and Kincade, 1997; Sweeney, 1995). Increasing competition in the fashion industry put pressure on wholesale, retail prices and finally on margins. The number of fashion cycles grew from 4 to 16 per year. Fashion manufacturers and retailers reacted to the challenges by increasingly considering innovative supply chain technologies such as RFID “which is a wireless technology that uses radio signals to tag, recognize, track and trace the movement of an item automatically” (Loebbecke, Palmer and Huyskens 2006; Moon and Ngai 2008; Ngai et al., 2009). The origins of RFID technology lie in the 19th century when luminaries of that era made great scientific advances in electromagnetism. Of particular relevance to RFID are Michael Faraday’s discovery of electronic inductance, James Clerk Maxwell’s formulation of equations describing electromagnetism, and Heinrich Rudolf Hertz’s experiments validating Faraday and Maxwell’s predictions. Their discoveries laid the foundation for modern radio communications (Weis, 2007).

According to Ngai et al. (2008), the application of RFID technology is diverse and has been applied in at least 14 industries, such as retailing, library services and logistics and supply chain management (Ngai et al., 2009). As a hot topic, “technology
vendors have praised RFID (radio frequency identification technology) to improve tracking and replenishment in supply chain management (Vervest et al., 2004; Huyskens and Loebbecke 2007). On the other hand, “RFID might not only the ability to revolutionize the supply chain” (Kuzeljevich 2005; Loebbecke 2005; Ulrich et al. 2008) with a focus on logistics, operations and supply chain management (Strüker and Sackman 2004; Ulrich et al. 2008). First trials with RFID as a marketing technology enabled more customized services and shopping convenience and lead to higher customer satisfaction and loyalty (Berthiaume, 2004; Loebbecke, 2005). The RFID technology is being touted as a tool to revolutionize the way business gets done because of its broad impact on manufacturing, logistics, material handling, inventory tracking and management (Chen, 2004; TIBCO, 2005; Koh, Kim and Kim, 2006). RFID is a technology, whose impact on supply chain management has been rising steadily. Apparel companies have shown a particular high interest in the RFID- based tracking of their products to improve logistical operations (Loebbecke and Huyskens, 2007). Many companies have announced plans for quick RFID adoption. “Rogers and Shoemaker (1971) define adoption of innovations in general as the relative speed with which an innovation is adopted by members of a social system” (Huyskens and Loebbecke 2007). As garment manufacturing is a labor intensive industry, output quality and under/over production problems happen frequently. Manufacturers require real time information of the production line to have a better management of the operation and solve operational problems occured before it is too late. Garment manufacturing industry needs to enhance the efficiency and effectiveness of the production system so as to remain competitive in the market. RFID technology is a possible solution for it (Ngai et al., 2009).

Figure 2: Five Ps of RFID

The fashion industry has also been an early RFID-adopter. Several fashion makers like Swatch watch, Ecco shoes, Prada, and Benetton have all tagged clothing with RFID labels. These tags are typically for retail inventory control, since retail clothing stores often face a high level of ‘shrinkage’, as well a lot of legitimate movement of inventory by customers trying on clothing. RFID tags have also been used as a pedigree for high-fashion items or to enhance the consumer shopping experience. For example, Prada’s retail store in New York City offers an RFID-enhanced dressing room that displays product information and suggests matching apparel. Clothing is particularly suited for RFID, since it does not contain metals or liquids that interfere with some types of RFID systems. Retail stores also typically do not have sensitive electronics, like medical equipment, that some RFID operating frequencies may interfere with. Clothing’s relatively high per-unit value also justifies the use of RFID tags, which could be removed and recycled at purchase-time. The clothing industry was an early-adopter of simple EAS systems in the 1960s for these very reasons (Weis, 2007).

In order to realize the potential of RFID, companies must take into account several crucial aspects of RFID. There are five key categories, the five Ps, that need to be evaluated in a firm’s consideration of RFID: the Physics of transponder, the reader, and the data transfer; the Processes being changed and enhanced, the Prices for technical components and their installation, Privacy aspects of capturing and retaining customer data, and the Performance impacts, the business case contribution, of RFID implementations (Loebbecke and Palmer, 2006).

The fashion industry includes various prices, styles, packaging and shelf lifes that rely on multi-tier supply chain, which involves manufacturers, distributors, and retailers. “The initial euphoria about RFID’s potential has recently made way a more down-to-earth view of its benefits in the supply chain. Companies who consider using RFID usually conduct a conservative preliminary analysis of the financial impact of such an investment. These analyses typically focus on three types of benefit expected from RFID: The reduction of labour, capital and non-conformity costs such as costs caused by wrong deliveries. Labour and capital costs can be decreased by RFID- enabled process speedups, while non-conformity costs can be reduced by detecting mistakes made during the distribution process and taking appropriate action to prevent them” (Goebel, Tribowski and Günther 2009).
3. BENEFITS OF RFID TECHNOLOGY

Radio frequency identification (RFID) is a rapidly growing technology that has the potential to make great economic impacts on many industries. While RFID is a relatively old technology, more recent advancements in chip manufacturing technology are making RFID practical for new applications and settings, particularly consumer item level tagging. These advancements have the potential to revolutionize supply-chain management, inventory control, and logistics (Weis, 2007). Management needs to evaluate the cost and benefits of the adoption of RFID technology and how the change can align with the strategic direction. The cost/benefit evaluation is not only associated with financially. It also brings intangible benefits, which can enhance the business value by integration and efficiency.

RFID adoption yields many efficiency benefits. In this paper, by focusing on fashion industry, determined benefits of RFID technology has been argued. Four benefits of RFID in the fashion industry, are categorized as: (1) improved inventory management, (2) velocity of fashion cycle, (3) integrated fashion business model, and (4) efficiency of operations.

3.1. Improved Inventory Management

The challenge to any business in a fashion market is to be able to predict real demand. Real demand is what consumers are demanding day-by-day, and even hour-by-hour. But in reality, most supply chains are driven by orders that are determined by forecasts and inventory replenishment. In this way, real visibility of the market can’t be provided to the supply chain partners. As Figure 3 “suggests inventory hides demand. In other words, the fact that there will usually be multiple, independent decisions on re-ordering policies and inventory levels from the retail shelf back through wholesalers, to suppliers means that up-stream parties in the chain are unable to anticipate the changing needs of the customers other than through a forecast- based as much upon judgment and guess-work as it is upon actual consumer demand” (Christopher, Lowson and Peck, 2004).

![Figure 3: Inventory Hides Demand](Image)


The primary problem that confronts fashion companies is the time to source materials, transform them into products and move them into the market place is continually longer than the time the consumer is prepared to wait. In general, this lead time gap was filled with a forecast-based inventory.

3.2. Velocity of Fashion Cycle

Fashion markets are synonymous with rapid change and, as a result, commercial success or failure in those markets is largely determined by the organisation’s flexibility and responsiveness. Responsiveness is characterised by short time-to-market, the ability to scale up (or down) quickly and the rapid incorporation of consumer preferences into the design process (Christopher, Lowson and Peck, 2004).

3.3. Integrated Fashion Business Model

Fashion markets are volatile and difficult to predict. (Christopher, Lowson and Peck, 2004). Hence the need for agile information-based supply chain emerges. Harrison, Christopher and van Heck (1999) suggested that an agile supply chain has a number of characteristics:

- Market sensitive – it is closely connected to end-user trends.
- Virtual – it relies on shared information across all supply chain partners.
One of the most substantial developments in recent business management is *extraversion*. The performance of the company depends on a series of alliances and relationships with other companies in the fashion environment as the most effective and efficient way to concern with constantly changing market conditions. Strategy in fashion business is at a network level comprehending numerous external connections throughout the supply chain. “Apart from the strategic implications, QR also requires a number of operational building blocks that have to be integrated and aligned for efficient and effective reaction to ‘real’-time demand” (Lowson, King, Hunter, 1999).

**Figure 4: The RFID in the Supply Chain**

![Figure 4: The RFID in the Supply Chain](image)

Source: Meyerson, 2007

### 3.4. Efficiency of Operations

QR is recognised as an operations strategy (Lowson, 2002). The ability to cope with the complexity of fashion supply chain and to develop methods to combat the cruel rivalry in the fast fashion industry are the causes to make this strategy efficient. Like all fast moving industries, demand is now more fragmented in fashion industry and customers are more conscious about the products’ cost and quality because of the existence of numerous kinds of brands and products.

All operations within a fashion company can be paced to accurate demand thanks to monitor customer behaviour. Products and services are designed, produced and delivered in the desired variety and amount that match the demand of the customer.

**Figure 5: Nine Potential Uses of RFID to Improve Inter-Organizational Process**

![Figure 5: Nine Potential Uses of RFID to Improve Inter-Organizational Process](image)

Source: Robeck, 2005; Loebbecke and Palmer, 2006
One of the most important QR principles is the capability to press time in the supply system. The pipeline can be condensed, so the design of the products can be improved in accordance with the expectations and demands of the customers; the demand for fashion products can be assessed faster and more accurate. Timely and accurate data-information flows activate fast and accurate responses without waste and unnecessary cost. Fast and accurate adaptation to volatile fashion market is the most significant element of the QR.

4. A NEW MODEL DESIGN FOR FASHION INDUSTRY

The fashion industry provides an appropriate environment for studying on RFID due to its wide product assortment and its integrated units. The industry handles a variety of products, prices, packaging, shelf life, and integrated supply chain required to configure which becomes necessary to establish (production, distribution and retail).

Particularly, fast fashion requires a quick response – not only in terms of fashion trends, but also in terms of producing and marketing purposes. RFID technology is significant in fashion industry due to the characteristics of the industry such as short-life cycles, high seasonality, wide variety of products, high volatility, impulsive purchasing, complicated production, distribution and logistics. RFID adoption also allows fashion companies to manage the stock levels more efficiently. In addition, thanks to adopting RFID, close monitoring of product circulation provides integrated production, marketing and logistics. For these reasons, there is high investment in the development and improvement of RFID systems because of the substantial advantages that the fashion companies can gain by utilising it.

In the scope of this work, a new model, focused on RFID technology and its benefits in the fashion industry, has been designed as it is shown below:

Figure 6: Agile and Sustainable Fashion Supply Chain with RFID Benefits
5. CONCLUSION

The dynamic environment of fashion generates many ambiguities. This volatile structure of fashion forces companies to adopt new technologies in order to create an agile supply chain. RFID technology generally improves tracking and replenishment in supply chain management. Within this study, an agile supply chain model including the benefits of RFID in the fashion industry has been designed. RFID is a promising technology that helps organizations and minimizes problems in supply chain management, and also plays an important role in order to propose new solutions for a greener sustainable industrial world.

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RELATIONSHIP AMONG BIG FIVE PERSONALITY TRAITS, COMPULSIVE BUYING AND VARIETY SEEKING

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Aysel Ercis¹, Musa Unalan²
¹Ataturk University, Erzurum, Turkey. ayselercis@atauni.edu.tr
²Ataturk University, Erzurum, Turkey. musa.unalan@atauni.edu.tr

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ABSTRACT

Purpose- This study examined associations among the Big Five personality dimensions and compulsive buying tendency and variety seeking tendency in Erzurum.

Methodology- Participants (n=389) completed a survey that included measures of personality, compulsive buying and variety seeking.

Findings- The results revealed that four personality traits (extraversion, agreeableness, conscientiousness, and openness to experience) were positively correlated with variety seeking tendency. Extraversion was positively related with compulsive buying tendency, and conscientiousness was negatively related with CBT. Finally, compulsive buying tendency was positively related with variety seeking tendency.

Conclusion- Six of eleven hypotheses are accepted in our model. Our study shows that the perception levels of participants in the way of variables, the highest-valued personality factors are agreeableness and conscientiousness, while the lowest-valued personality trait is emotional stability. The perception level of compulsive buying tendency is very low. However, the perception level of variety seeking is high.

Keywords: Big five personality, compulsive buying, variety seeking.
JEL Codes: M31, M10, M50

1. INTRODUCTION

Consumers make decisions after buying some products. Evaluation is essential for next buying decision. Therefore, consumer decisions systems’ work is important for brands. The system depends on many variables such as types of consumer, personality, timing, place, memories etc. Behaviors a person depend on its personality. Personality is a key element to learn daily events. Psychological factors effect to consumer behavior. One of the negative consumption behavior is compulsive buying. Compulsive buyers do not control easily their behaviors. Some people try to seek new experiences in their daily life. These people can be called as variety seekers. Variety seeking has relations with variables which can be listes as personality, types of behaviors or buying-decisions process.

Previous research has explored some factors which are interested personality and variety seeking. It can be given the studies such as consumption motivations (Mak et al. 2017), impulsive buying (Olsen et al. 2016), entreprenueiral intentions (Murugesan and Dominic 2013), internet addictions (Celik et al. 2012), mood states (Chien-Huang and Hung-Chou 2012), materialism and money spending (Troisi et al. 2006). Our study, we examined the relations among state Big Five personality dimensions, compulsive buying and variety seeking. Specifically, Fayez and Labib (2016) investigated that big five
personality dimensions on compulsive buying in a sample of Egyptian consumers. However, this paper tries to contribute to filling a gap in the variety seeking literature and to provide a useful insight into personality management in the buying-decision process. This study was carried out in the Turkey context. In Turkey literature, there are very few studies about these relations. Therefore, this paper would be imperative for company managers for understanding consumers’ behavior in order to many product categories.

Hence, the rest of this study as follows: First, this study provides a review of the literature about compulsive buying tendency, variety seeking tendency and personality. Second, within this research boundary, this study explores the relations among these variables. Third, with research methodology, this study gives findings after analyzed based on a survey 389 respondents in Erzurum. Afterwards, this study concludes with main results for future research.

2. LITERATURE REVIEW AND HYPOTHESES

In the present study, we specifically attempt to understand the relationships among consumers’ variety-seeking behaviour, personality dimensions and compulsive buying tendency.

2.1. Compulsive Buying Tendency (CBT)

Compulsive buying has been of interest to consumer researchers for almost four decades (Ridgway et al. 2011, 2008; O’Guinn and Faber 1989; Desarbo and Edwards 1995). There are some definitions of compulsive buying. Compulsive buying is defined as “a response to an uncontrollable drive or desire to obtain, use, or experience a feeling, substance, or activity that leads an individual to repetitively engage in a behavior that will ultimately cause harm to the individual and/or to others” (O’Guinn and Faber 1989, 148). Palan et al. (2011, 83) defined compulsive buying as “an episodic urge to buy”. Müller et al. (2015) defined that compulsive buying behavior is shopping addiction or a mental health condition characterized by uncontrollable purchase of products.

Compulsive buying can be a problem such as social, familial, and financial (O’Guinn and Faber 1989) for some consumers. Therefore, shame and guilt feelings appear on the compulsive buying behaviors (Thege et al. 2015). A compulsive buyer has intend to experience more negative affect states than non-compulsive buyers (Miltenberger et al. 2003). The many studies of compulsive buying show that higher levels of compulsive buying correlate with low self-esteem (Roberts 1998) or high anxiety (Norum 2008). The strongest motivating characteristics associated with compulsive buying appear to be materialistic tendencies (Dittmar 2005) and lack of impulse control (Desarbo and Edwards 1995; Billieux et al. 2008).

2.2. Variety Seeking Tendency (VST)

The last seven decades, variety seeking behavior is in academic literature (Olsen et al. 2015). The marketing researchers have studied this topic because of a large number of choices for consumers with many areas (Olsen et al. 2015). Variety seeking is “the tendency of individuals to seek diversity in their choices of services and goods” (Kahn 1995, 139). Literature also defines variety seeking based on its antecedents such as internal personal motivations and external, or derived, driving forces based on external situations (Kahn 1995). Ratner and Kahn (2002, 246) pointed out that “consumers often choose considerable amounts of variety when allowed to select more than one item from a choice set, even when they are given the option of repeating consumption of favored items”. This study defines variety seeking as an individual’s (internal) tendency to seek variety in daily routines and activities (Olsen et al. 2016).

Variety seeking can be motivated by impression management (Ratner and Kahn 2002), a need for stimulation (Kahn and Isen 1993), a desire to relieve boredom (Fishbach et al. 2011), and a preference for stability (Liberman et al. 1999). When consumers want to buy a product, they try to look different brands because change feels good (Van Trijp et al. 1996). The reasons of some things such as boredom with choice task, relief of attribute satiation, variety seeking behavior is positively valued by consumers (Van Trijp et al. 1996). Schwartz (2004) point out that too many choices lead to less satisfaction with the decision. Knox and Walker (2001) point out that high sensation of variety seekers are pruchasers with low brand commitment. In the study of Helm and Landschulze (2009), variety seekers interested familiar brands instead of new brand alternatives. Møller Jensen and Hansen (2006) found that situational factors such as alternative brands influence to variety seeking tendency positively. Van Trijp et al. (1996) proved that variety seeking intensity differs across the categories of product.

2.3. Personality

Personality is a small set of stable characteristics (Dant et al. 2013). Depend on personality, every individual acts differently in situations. The intersection of emotional, interpersonal and attitudinal processes is personality (Tommasel et al. 2015). In order to measuring personality traits, the most widely used approach in last years is the “Big Five” (Tommasel et al. 2015; Quintelier 2014). The Big-Five framework is a hierarchical model of personality traits with five broad factors, which
represent personality at the broadest level of abstraction (Gosling et al. 2003). The “Big Five” personality factors are; extraversion, agreeableness, conscientiousness, emotional stability, openness to experience (Wolff and Kim 2012).

Chudzikowski et al. (2011) defined Openness to Experience as being intellectually curious, having creative and imaginative cognition styles, and open to new ideas. The definition of Conscientiousness from Bozionelos (2004) is the tendency to be productive, achievement oriented, obedient and disciplined. According to Wolff and Kim (2012), extraversion refers to the general tendency of an individual to approach social situations. Chudzikowski et al. (2011) identified Agreeableness as an individual’s concern for social harmony and cooperation with others. Chudzikowski et al. (2011) proved that Emotional stability is excessive worry that leads to mental distress, inability to deal with daily life activities, and emotional suffering.

2.4. Research Model and Hypotheses

Figure 1: Research Model

Summary of hypotheses:

- H1a. Extraversion is positively related to CBT.
- H1b. Extraversion is positively related to VST.
- H2a. Agreeableness is positively related to CBT.
- H2b. Agreeableness is positively related to VST.
- H3a. Conscientiousness is negatively related to CBT.
- H3b. Conscientiousness is negatively related to VST.
- H4a. Emotional stability is positively related to CBT.
- H4b. Emotional stability is negatively related to VST.
- H5a. Openness to experience is positively related to CBT.
- H5b. Openness to experience is positively related to VST.
- H6. Compulsive buying tendency is positively related to VST.

3. RESEARCH METHODOLOGY

Our method of research consists of three major parts which can be listed as research goal, participants and measures.

Research Goal - In this survey we aim to examine to relation between compulsive buying and variety seeking on the perspective based on personality. To test the propositions, a field survey using questionnaires was conducted.

Participants - The survey of this study is conducted on 389 participants during August-September 2016 in Erzurum in Turkey. Questionnaires obtained from 17 participants are eliminated. Data obtained from those 389 questionnaires were analyzed through the SPSS statistical packet program and the hypotheses were tested through correlation analyses.

Measures

Big Five Personality- Personality scale is adapted from Gosling et al. (2003), which uses 10 items to measure five dimensions (extraversion, agreeableness, conscientiousness, emotional stability, openness to experience) of personality. All
items were measured with a 7-point Likert scale at 1 (strongly disagree) and 7 (strongly agree). Five items of the TIPI were reversed scored.

**Compulsive Buying**—To measure compulsive buying tendency, 6 item-scale of Ridgway et al. (2008) is used. Responses were measured on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). Composite scores of Compulsive buying ($\alpha = 0.76$) was calculated by averaging the appropriate items.

**Variety Seeking**—In order to measure variety seeking tendency, this study used five reflective items selected from the Change Seeking Index Scale developed by Steenkamp and Baumgartner (1995) and frequently used to assess variety seeking tendency (Sharma et al. 2010). Composite scores of Variety seeking ($\alpha = 0.74$) was calculated by averaging the appropriate items.

4. **DATA ANALYSIS**

A total of 389 valid responses were analyzed to study the relations among big five personality, compulsive buying and variety seeking. Participants completed questions requesting information about their gender, age, education, and monthly income. The demographic profile of the respondents can be seen in Table 1.

Table 1: Demographic Information

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<th>Total (N = 389)</th>
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<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Males</td>
<td>213</td>
<td>45.2</td>
<td>176</td>
<td>45.2</td>
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<tr>
<td>Females</td>
<td>176</td>
<td>54.8</td>
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<td><strong>Education Level</strong></td>
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<tr>
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<td>Less than 1000</td>
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<td>1001-2000</td>
<td>156</td>
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We recruited 389 participants (54.8% female) from university settings and public places in Erzurum, Turkey. Participants ranged in age from 17 to 50 years and over years (49.1% aged between 25 and 34; 45.2% aged between 17 and 24). Regarding educational qualification, 34 participants had a high school diploma, 14 had a college degree, 216 had a bachelor’s degree, and 125 had a master’s and doctorate degree. Most of the respondents (about 40.1 percent) were in the monthly income group of less than 1000 TL. Participation was voluntary.

Table 2: Correlations between the Big Five personality Traits, VST and CBT

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>SD</th>
<th>CBT</th>
<th>VST</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>4.64</td>
<td>1.39</td>
<td>.230**</td>
<td>.291**</td>
</tr>
<tr>
<td>A</td>
<td>5.53</td>
<td>1.21</td>
<td>.022</td>
<td>.115*</td>
</tr>
<tr>
<td>C</td>
<td>5.47</td>
<td>1.16</td>
<td>-.130**</td>
<td>.184**</td>
</tr>
<tr>
<td>ES</td>
<td>3.94</td>
<td>1.31</td>
<td>-.085</td>
<td>.042</td>
</tr>
<tr>
<td>CBT</td>
<td>2.89</td>
<td>1.32</td>
<td>1</td>
<td>.229**</td>
</tr>
<tr>
<td>VST</td>
<td>5.07</td>
<td>1.09</td>
<td>.229**</td>
<td>1</td>
</tr>
</tbody>
</table>

**Notes:** $N=389$, E = extraversion, A = agreeableness, C = conscientiousness, ET = emotional stability, OE = openness to experience, $M$ = mean, SD = standard deviation (*$p < 0.05$, **$p < 0.01$.)
The means, standard deviations and correlation matrix are shown in Table 2. Correlation analyses indicated a number of significant relationships (see Table 2). Specifically, consistent with our predictions, extraversion was positively related with compulsive buying tendency and variety seeking tendency, agreeableness was positively related with variety seeking tendency, and conscientiousness were negatively related to compulsive buying tendency. Finally, compulsive buying tendency was positively related with variety seeking tendency. It is interesting that four personality traits (extraversion, agreeableness, conscientiousness, and openness to experience) were positively correlated with VST.

Table 3: Testing of Hypotheses

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a</td>
<td>.230** Accepted</td>
</tr>
<tr>
<td>H1b</td>
<td>.291** Accepted</td>
</tr>
<tr>
<td>H2a</td>
<td>.022 Rejected</td>
</tr>
<tr>
<td>H2b</td>
<td>.115* Accepted</td>
</tr>
<tr>
<td>H3a</td>
<td>-.130** Accepted</td>
</tr>
<tr>
<td>H3b</td>
<td>.184** Rejected</td>
</tr>
<tr>
<td>H4a</td>
<td>-.085 Rejected</td>
</tr>
<tr>
<td>H4b</td>
<td>.042 Rejected</td>
</tr>
<tr>
<td>H5a</td>
<td>.020 Rejected</td>
</tr>
<tr>
<td>H5b</td>
<td>.285** Accepted</td>
</tr>
<tr>
<td>H6</td>
<td>.229** Accepted</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05, **p < 0.01.

5. CONCLUSION

The present study investigated relationship among Big Five personality factors, compulsive buying tendency, and variety seeking tendency in Erzurum in Turkey. Six of eleven hypotheses are accepted in our model (see Table 3).

Our study shows that the perception levels of participants in the way of variables, the highest-valued personality factors are agreeableness and conscientiousness, while the lowest-valued personality trait is emotional stability. The perception level of compulsive buying tendency is very low. However, the perception level of variety seeking is high.

The results of this study suggest that the most important personality factors characterizing compulsive buyers are high extraversion and and low conscientiousness. On the other side, the most considerable personality traits identifying variety seekers are high openness to new experience and extraversion.

The present research reveal that compulsive buying tendency and variety seeking are positively correlated at 1% level of signifance. Emotional stability does not significantly predict either compulsive buying and variety seeking.

6. LIMITATIONS AND FUTURE RESEARCH

This research has several limitations that should be acknowledged. Due to time and money constraint only Erzurum in Turkey was selected. In the future, studies may be carried out expanding the areas and also increasing the number of respondents.
REFERENCES


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INNOVATIVE PROCUREMENT IN A SMALL/MIDDLE SIZED COMPANY

Mustafa Ozturk¹
¹Turkcell İletişim Hizmetleri A.Ş., Istanbul, Turkey. mustafa.ozturk@turkcell.com.tr

ABSTRACT

Purpose: This study benchmarks the procurement practice of a small/medium sized company in Turkey with the procurement practice of a world-class company. First it is analyzed from beginning to end how the small/medium sized company operates its procurement function. The figures and tables are all real and obtained from sources of the company.

Methodology: The results are analysed and compared with a world-class international company. The procurement functions of the company studied under the scope of supply chain management are Demand Planning, Inventory Challenge, Supplier Approval, Supplier Performance, Supplier Relationship Management (SRM), Negotiation, Payment, Cost, Market Follow-up, Process Analyses of the Purchasing Activity, E-Auction and Kraljic Analyses (risk analyses).

Findings: We have recommended some structural changes to the company especially with the procurement process analyses. Some concepts and practices are new for the company as E-auction and Kraljic analyses. A contemporary understanding of procurement and its practice is a crucial progress and strategic vision for a small/middle size company to have competitive advantage in the market.

Conclusion: All the findings and recommendations for the company within this study which can be called as case study are related to concept of innovation as referring to changing processes or creating more effective processes, products and ideas.

Keywords: Innovation in procurement, supply chain management, demand planning, purchasing process, supplier relationship management.

JEL Codes: F14, F68, M31

1. INTRODUCTION

We analyzed, by this study, the structure and operation mechanism of Procurement Department of a small/middle sized company (called SME) in Turkey with the criterias of contemporary Supply Chain Management. The procurement function of the SME is benchmarked with procurement function of a big international company; from now on we will call this company as World-Class Company (WCC). If we define the concept of innovation as referring to changing processes or creating more effective processes, products and ideas all the proposals and the applications here in this study are all innovation for the SME in Turkey or for the companies which do not apply them to their bodies all over the world. Innovation can be a catalyst for the growth and success of a business, and help to adapt and grow in the marketplace.

Being innovative does not only mean inventing. Innovation can mean changing your business model and adapting to changes in your environment to deliver better products or services.

Dr. Makarand “Chips” Chipalkatti, Osram Sylvanias defines innovation as “a process to bring new ideas, new methods or new products to an organization”. Jonathan Rowe, Gene Express Inc. defines it as “an innovation is an idea that has been
transformed into practical reality. For a business, this is a product, process, or business concept, or combinations that have been activated in the marketplace and produce new profits and growth for the organization. Therefore, something is an innovation not simply because it is new to that company, but because it is simply new.”

Main parts of the study consist of 3 important areas which are Demand Planning, Supplier Relations Management and Purchasing Process. Finally we finish the analysis with some strategic and holistic recommendations which are integral parts of World-Class Company (WCC) profiles.

To have an excellent performances of a Procurement Department aligned with the objectives of the Company, all the functions of the company (Finance, Research&Development, Planning, Logistics, Quality, Budget, Accounting, Production, Sales, Human Resources and Marketing) should be in permanent coordination with the Procurement Department. In other words the Procurement Department should be in strict coordination with other functional departments of the company. This study provides the framework for delivering a supply chain strategy based upon recognised best practice focusing especially on the functions of Procurement. The companies are aiming to produce their goods with the cheapest cost to be one step ahead of their rivals in the market. If the Sales department of a company is an earning body of the company, the Procurement department or Supply Chain Management (SCM) in broader terms is the spending/paying organ of the company. Basically to sell your products in the market with the best price for both the company and the consumers you must produce your products with the best cost. If the Procurement department or Supply Chain Management (SCM) is well organised and uses all the innovative applications when it is compared to its rivals then the best price with the best quality can be presented to the consumers and customers by the company.

You will see in this study some applications of the SME and World-Class Company (WCC) comparatively when they operate their Procurement functions.

2. FIRST COMPONENT OF SUPPLY CHAIN MANAGEMENT AND/OR PROCUREMENT

2.1. Demand Planning

Demand Planning is critical: A company must forecast accurately to meet changing market conditions. The dilemma is that as the business grows, the reaction time available to adjust to changing market conditions diminishes dramatically. Your organization needs to get the product or service to its customers in the right time frame and at a competitive market price. Keeping pace with changing marketplace conditions is the only way that organizations can continue to maintain their competitive positions. If your organization is unable to fulfill your customers’ needs, you can be assured that another organization will. Accordingly, procurement strategy, also dynamically linked to changes in the market, requires continual reassessment.

The first step is Demand Planning for a procurement process. It is the boss of Procurement and the Sale forecast is the source of Demand Planning. The information of “consumer” demand flows as below;

Figure 1: Flow of Consumer Demand

When it is looked at WCC you can see the above “absolute equilibrium”. There are some concepts which affects the key performance indicators of Procurement function and above equality:

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2.1.1 Sales Projections, is it parallel to actual?

The reason of 25% of extra Planning demand is possibly wrong sales forecast or may be procurement limitations such as Economic Order Quantity (EOQ).

Table 1: An illustration for Sales Projections Forecast and Real Requirement Difference

<table>
<thead>
<tr>
<th>Material X (Units)</th>
<th>SME Facility A</th>
<th>SME Facility B</th>
<th>SME Facility C</th>
<th>SME Facility D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Opens</td>
<td>5.000</td>
<td>2.500</td>
<td>3.000</td>
<td>2.000</td>
<td>12.500</td>
</tr>
<tr>
<td>Real Requirement/ Market Demand</td>
<td>4.000</td>
<td>2.000</td>
<td>3.000</td>
<td>1.000</td>
<td>10.000</td>
</tr>
<tr>
<td>Difference</td>
<td>+1.000</td>
<td>+500</td>
<td>0</td>
<td>+1.000</td>
<td>+2.500</td>
</tr>
</tbody>
</table>

2.1.2. How is Economic Order Quantity (EOQ) determined?

SME decides EOQ with the limits of “minimum printing quantity for the packaging materials” and “minimum economic transportation quantity ”. “Minimum printing quantity” for the packaging materials can decrease the unite price but increase the material stocks (slow stock cycle level) and also “minimum economic transportation quantity “ can decrease the logistics price but again increase the material stocks (slow stock cycle level).

The solution:

The suppliers can print the economic and/or lot quantity in advance but not transport it to the SME by one print lot. On the other hand, if suppliers can be informed periodically about the monthly projections of possible order quantities then they can arrange themselves for “the most economic print quantity” and store them at their warehouses. The most important point here is that the gap between projections and actual production quantities should not be big.

Table 2: Stock Cycle Levels of SME

<table>
<thead>
<tr>
<th>Company Stock Levels of SME</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2014-2016 % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Materials Stock Cycle Level (day)</td>
<td>11,08</td>
<td>12,61</td>
<td>12,31</td>
<td>11%</td>
</tr>
<tr>
<td>Packaging Materials Stock Cycle Level (day)</td>
<td>41,54</td>
<td>39,55</td>
<td>42,05</td>
<td>1%</td>
</tr>
<tr>
<td>Total Stock Cycle Level (day)</td>
<td>15,65</td>
<td>16,95</td>
<td>17,06</td>
<td>9%</td>
</tr>
<tr>
<td>Total Stock in Value for 12 Months (Mio TL)</td>
<td>43,5</td>
<td>47,7</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Mio TL/Month</td>
<td>3.628.800</td>
<td>3.976.758</td>
<td>1.091.192</td>
<td></td>
</tr>
<tr>
<td>TL/Year Cost</td>
<td>579.156</td>
<td>634.691</td>
<td>174.154</td>
<td></td>
</tr>
<tr>
<td>TL/Year Cost</td>
<td>495.172</td>
<td>530.095</td>
<td>145.649</td>
<td></td>
</tr>
<tr>
<td>Saving TL/Year by Reducing %40</td>
<td>198.069</td>
<td>212.038</td>
<td>58.259</td>
<td></td>
</tr>
</tbody>
</table>
2.1.3 What are the stock-cycle levels?

The stock cycle level is high in SME, nearly 70% when it is compared to WCC’s. Procurement works closely with the Planning and Inventory Control groups to develop accurate forecasts to optimize inventory levels. The stock cycle levels should be calculated daily instead of monthly as it gives the exact results.

The big 2 questions: Who is responsible for “stock cycle levels” and how many days should the levels be?

The answer is that Planning Department is responsible for the minimum stock levels and they should be near to zero. “Minimum stock-Maximum stock” levels should be checked, determined and up-to-date periodically by Planning and Procurement departments jointly. The concept of “Maximum stock level” is not used and applied in SME. The system should alert when minimum and maximum stock levels are passed.

Table 3: Stock Cycle Levels of Company WCC A, B and C

<table>
<thead>
<tr>
<th>Day</th>
<th>Company WCC “A”</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Materials</td>
<td></td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Packaging Materials</td>
<td></td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

2.1.4 What is the frequency of demand and patterns of demand (downward trend or upward trend, seasonalities)?

If the customer demand is forecasted well the frequency of demand is low (Daily, weekly, monthly production plan). The suppliers should be informed about the patterns of demand as they source their raw materials before upward or downward trends. SME should inform its projections to the suppliers monthly basis not quarterly.

2.1.5 Sales & Operations Planning (S&OP)

There should be “Sales & Operations Planning (S&OP)” meetings between Procurement, Sales, Marketing, Finance, Demand and Supply Planning departments (monthly-quarterly)

Aim is:

Step 1. From S&OP principles to improved forecast.

Step 2. From improved forecast to improved reconciliation of demand and supply.

Step 3. From improved reconciliation of demand and supply to improved customer service.

Figure 2: Different Planning Horizons
SME is not making this kind of meetings periodically and Procurement as a sourcing side should be an inseparable part of these meetings.
In micro level:
- Sales Planning,
- Production Planning and
- Procurement
should make the meetings periodically to have improved reconciliation of demand and supply.

“Weekly Sales Planning Meeting” (SPM) and “Quarterly Business Review Meeting” (QBR) is highly recommended.

2.2. Inventory Challenge

2.2.1 Who is responsible from Inventory Management?
In SME case the responsible department is not certain as there is no regulation to follow. Inventory is high and out of stock is low.

Where is EQUILIBRIUM?

Figure 3: The Inventory Challenge

2.2.2. How can we reduce inventory?

I. 1. Reduce lead-time, use VMI and CI, try to reach “zero stock”.
II. 2. Reduce supplier uncertainty.
III. 3. Reduce forecast error.
IV. 4. Reduce delivery sequence.

Vendor Managed Inventory (VMI): It means of optimizing Supply Chain performance in which the supplier (manufacturer) is responsible for maintaining the buyer’s inventory levels. The supplier has access to the buyer’s inventory data and is responsible for generating purchase orders.

Consignment Inventory (CI): The supplier places inventory at a buyer’s location and retains ownership of the inventory. Invoicing is not made until the item is actually consumed.

A VMI relationship may or may not involve consignment inventory.

Big suppliers can be adapted to VMI & CI to reduce the stocks in SME case.

Inventory decisions include what cycle or safety stocks should be held, where and in what quantities.

SME Case: “Quarterly safety stock level revising meeting” is recommended held between Planning and Procurement Departments; Planning is responsible for the meeting.

Production vs projection deviation in SME is shown below.

Table 4: Demand/Projection Accuracy
Less production vs projections will increase the raw material stocks. Production and projection should be equal to real demand in ideal case.

2.2.3 Budget Control

All buyings (including investment and technical parts, promotions, marketing outsource) are budgeted before the calendar year in SME. Question: does budget department follows the limits, what happens when a material is bought out of budget limits? There is no limit control in SME and it should be controlled and not allowed to buy out of budget by the ERP system to minimise the extra stocks.

3. SUPPLIER APPROVAL AND PERFORMANCE

How does SME approve new suppliers? Is there any formal process/system of alternative suppliers approving, is it via paper or IT program? What are the functions of RD and Quality Departments in approving?

Current application in SME: Raw/Packaging Materials Trial Form (Hammadde/Ambalaj Deneme Formu) for Sample Approving and Supplier Introduction Form (Tedarikçi Tanıtım formu) for Alternative Suppliers Approving are in practise (paper based). Supplier Portal (Oracle based) and Sample Approving System which is Integrated approval system between Procurement, Quality, R&D can be implemented (EBA based).

The Benefits of web based system
-Both will be electronic based.
-There will be no paper, wet signature and physical archive.
-Save time.
-Accelerate the processes.
-Create institutional memory.
-easy to reach information.
-avoid duplication (no need to approve a new supplier or a product if it is already in the system).
-common platforms with the other departments, standardisation.

The 3 criteria for supplier performance in SME are Delivery On Time (OT), Delivery In Full (IF) and Quality. The points of Supplier Performance are scored as below:

Table 5: Suppliers Performance Points for SME (2011-2016)

<table>
<thead>
<tr>
<th></th>
<th>100/100</th>
<th>Total</th>
<th>Quality</th>
<th>Delivery In Full (IF)</th>
<th>Delivery On Time (OT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers of Packaging Materials</td>
<td>76</td>
<td>97</td>
<td>89</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Suppliers of Raw Materials</td>
<td>75</td>
<td>94</td>
<td>83</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

The shortcomings of Measuring Supplier Performance System in SME: “Corrective and Preventive Activity” (CPA) are not recorded in SAP by Quality Department. So the quality points are calculated higher than actual.
Table 6: Number of CPA in SME (2016)

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>CPA 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>SME Facility A</td>
<td>47</td>
</tr>
<tr>
<td>SME Facility B</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
</tr>
</tbody>
</table>

SAP is producing the report of Supplier Performance taking the data between 2011 and up-to-date (for 5 years) not for requested period of time. It should be taken monthly and yearly terms for evaluating the Suppliers’ Performances to see the performance trends. This will enable SME to determine and follow some strategies for each suppliers.

Reduction is not applied in SME in case of Conditional Acceptance. According to quality unsuitabilities and deficiencies regarding the materials during the acceptance processes in warehouses, some ratio of discount (%1, 2, 3 etc.) should be applied. This will prevent the possible abuses of some suppliers and more importantly increase the quality performances of suppliers. But the final goal is to abolish Conditional Acceptances Application and switch to Zero Defect system in quality acceptance. Zero Defect is actually the process that can be started within the scope of the main projects of establishment of quality chain from the supplier to the consumer. Evaluating meetings are not held periodically between Procurement and Quality Departments regarding the reports of Suppliers’ Performances. Supplier Performance Reports are not shared with related suppliers. The feedback and action meetings should be organised with the suppliers to increase their performances and to maximise the service levels. Reports should be shared with suppliers each month. Production cut and change of production planning caused by Supplier Based Problems should also affect the performance points of suppliers.

Innovation Criteria in this section is measuring supplier’s performance as providing innovations or total cost improvement recommendations by the Suppliers.

4. SUPPLIER RELATIONSHIP MANAGEMENT (SRM)

The Owners of a Company: There are four different stakeholders/partners who own a company.
1-Shareholders
2-Consumers
3-Workers and Officers
4-Suppliers

So the suppliers are one of the owners of a company.

Some benefits of good supplier relations include:
- Breaking down functional barriers and functional mindsets.
- Promoting innovation and joint thinking for “doing things better”.
- Improving supply chain visibility for buyer and supplier.
- Sharing assets across supply chain, removing duplications.

Relationship types between a supplier and a company are two and shown below:

Figure 4: Simple and Interdependent Relationship Approach to SRM

A-Simple Relationship Approach

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B- Interdependent Relationship Approach

SME is between the Basic Relationship Approach (BRA) and Interdependent Relationship Approach (IRA) but more nearer to IRA. IRA is recommended for the SME.

An example for Interdependent Relationship Approach (IRA): The supplier’s Research and Development (R&D) team work with the SME Marketing Team. This way, the supplier R&D team know what the SME wants to do in terms of marketing strategy and SME Marketing Team know the timescales and constraints of the supplier’s R&D.

A Supplier Summit should be organised to understand the demands of suppliers and ensuring coordination to reach the long term strategies of SME. Another recommendation is to make a Supplier Satisfaction Survey and become a “preferred” customer for key suppliers.

Payment in time to the suppliers is very crucial for SRM. The SME’s payment performance to its suppliers is not in time. What are the payment terms to the suppliers?

There is no report showing the actual payment performance of the SME but in general payment terms are 90 days but actual payments are about 140 days for raw & packaging materials. What are the days of debtor and creditor and ratio between them? The ratio is 140/70 days. Regular and in time payment will affect the performances of suppliers both in service level and price in a positive way. The suppliers will surely decrease the unit prices when paid in time.

6. PROCUREMENT SKILLS

6.1. Negotiation Skills

This is both an analytical & psychological process. This analytical & psychological process is seen in the 3 requirements: The first 2 are analytical and the last one is psychological.

1. The Most Important Factor in Purchasing Negotiation is Preparation.

2. Who are the Suppliers you Must Negotiate with? Make ABC Analysis.

Approaches to Purchasing Negotiation with Suppliers: This is where the psychological process comes in that you need to use persuasion, communication, verbal & non verbal skills. Early involvement by the procurement group is one of the fundamental keys to employing successful negotiation strategies. The later the involvement of the Procurement Department in sourcing decisions, the less leverage will be available for negotiating. There are many bodies other than Procurement Department within the SME which makes purchasing for their needs. That means they are not performing their business. Purchasing is negotiation and all purchasing activities should be done by purchasing professionals within the SME.

6.2. Cost Understanding

The concept called Total Cost of Ownership (TCO) is important for buyers as it considers selecting the lowest cost of supply, not the lowest price. For instance, when a packaging material is purchased the total cost has to include the wastage calculation as well. Cost of transportation undertaken by the buyer should also be checked by the Procurement Department in consolidation with Logistics Departments of SME. The SME sometimes buys its needs out of the rules of TCO principles.
6.3. Market Follow-up

Follow your suppliers' suppliers market, follow the raw material market of your suppliers. There is no systematic follow-up of commodity and material markets in SME Procurement Department. Market follow-up should be methodical and acted according to a fixed plan or system.

Figure 5: Simple and Extended Supply Chain

6.4. E-Auction

E-Auctions should be arranged for some technical, raw and packaging materials including investment, logistics and all other service buyings.

2015 e-auction figures of World Class Company (WCC) and SME:

Table 7: E-Auction in WCC and SME

<table>
<thead>
<tr>
<th>E-AUCTION NO ARRANGED</th>
<th>E-Auction Unit</th>
<th>The Best Quotation Total (Euro)</th>
<th>Saving Total (Euro)</th>
<th>Saving Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCC Real</td>
<td>372</td>
<td>109,286.190</td>
<td>8,852.181</td>
<td>8,10%</td>
</tr>
<tr>
<td>SME Real</td>
<td>1</td>
<td>728,000</td>
<td>53,144</td>
<td>7,30%</td>
</tr>
<tr>
<td>SME Potential</td>
<td>100</td>
<td>50,000,000</td>
<td>4,000,000</td>
<td>8,10%</td>
</tr>
</tbody>
</table>

The Benefits of E-Auction
- web-based negotiations enable buyers to have multiple revised offers for business.
- speeding up the negotiation process.
- promoting competitive behaviour amongst the suppliers.

6.5. Kraljic Analyses (Risk Analyses)

SME should make Kraljic analyses for the materials and services sourced for its functions. Kraljic classifies the needs of a company as below:

I. Leverage materials
II. Strategic materials
III. Routin materials
IV. Bottle neck materials
Table 8: Kraljic Analyses Policies for the SME

<table>
<thead>
<tr>
<th>High Profit Impact</th>
<th>Leverage (Exploit Purchasing Power)</th>
<th>Strategic (Ensure Supply, Diversify)</th>
</tr>
</thead>
</table>
| Raw Material A, Raw Material D, Raw Material E etc. | -long term contracts if suitable (6-18 months)  
- Economy of scale and consolidation  
- Procurement timing as per seasonality  
- Pricing strategy  
- Procurement Manager | Raw Material B, Raw Material C etc.  
- Long term contracts (6-12 months)  
- Strategic partnership with suppliers  
- Forecast accuracy  
- Relationship management  
- Risk assessment and risk management  
- Creating alternative suppliers and material equivalents  
- General Manager |

<table>
<thead>
<tr>
<th>Low Profit Impact</th>
<th>Routine (Efficient Processing)</th>
<th>Bottleneck (Ensure Volume)</th>
</tr>
</thead>
</table>
| Ingredients, labels, Toppings etc.       | -short term contracts (3-6 months rolling contracts)  
- Product standardisation  
- Optimum scale and inventory  
- Decision level: Manager  
- E-tender if suitable | Raw Material Z, Packagings etc.  
- Long term contracts (6-12 months rolling contracts)  
- Creating alternative suppliers  
- Long term demand forecast accuracy  
- Detailed market and suppliers information  
- Decision level: Director, Manager  
- E-tender if suitable |

Start by classifying all of the commodities, components, products, and services that you buy according to the supply risk and potential profit impact of each. This matrix helps SME to gain an insight into the working methods of the purchasing department and how they spend their time on various products.

7. PROCESS ANALYSES OF THE PURCHASING ACTIVITY

There is no formal Process Flowchart in SME when purchasing a material. Figure 6 is the comparison between “the flowcharts of Target (WCC) and SME” which have been produced for this study: SME should adjust its system to WCC’s. Appendix is added at the end of the study as “Figure 6 Process Analyses of the Purchasing Activity”.

8. ACTIVITY ANALYSES OF "RAW, PACKAGING AND TECHNICAL" MATERIALS BUYERS

17.3% of working hours of the procurement officials are recorded as unnecessary work which is wasted time and no added value to the function. These are coming from mainly following by the procurement staff the delayed payments to the suppliers which are not their responsibilities.
Table 9: Activity Dictionary in SME

<table>
<thead>
<tr>
<th>Employee</th>
<th>Total Working Hour / Year</th>
<th>Definition of Activity</th>
<th>Hour</th>
<th>Definition of “to be Corrected Activity”</th>
<th>% in Employee</th>
<th>% in Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee A</td>
<td>2.456</td>
<td>Refusals of the Materials</td>
<td>375</td>
<td>More Than Needed Work</td>
<td>15,27%</td>
<td>3,95%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Payment Follow-up</td>
<td>500</td>
<td>Unnecessary Work</td>
<td>20,36%</td>
<td>5,26%</td>
</tr>
<tr>
<td>Employee B</td>
<td>2.339</td>
<td>Payment Follow-up</td>
<td>200</td>
<td>Unnecessary Work</td>
<td>8,55%</td>
<td>2,11%</td>
</tr>
<tr>
<td>Employee C</td>
<td>2.249</td>
<td>Payment Follow-up</td>
<td>200</td>
<td>Unnecessary Work</td>
<td>0,00%</td>
<td>2,10%</td>
</tr>
<tr>
<td>Employee D</td>
<td>2.500</td>
<td>Payment Follow-up</td>
<td>350</td>
<td>Unnecessary Work</td>
<td>14,00%</td>
<td>3,68%</td>
</tr>
<tr>
<td>Total</td>
<td>9.544</td>
<td></td>
<td>1.625</td>
<td></td>
<td></td>
<td>17,03%</td>
</tr>
<tr>
<td>Medium</td>
<td>2.386</td>
<td>Inefficient Hours Equal to Employee</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. KEY PERFORMANCE INDICATORS

Key Performance Indicators should be measured periodically and according to these KPI’s new achievable targets should be given to the Procurement Department of SME to improve the related performances.

Table 10: No of KPI’s measured and/or not measured by SME

<table>
<thead>
<tr>
<th>Within This Study:</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of KPI’s asked</td>
<td>69</td>
</tr>
<tr>
<td>No of KPI’s which are not measured</td>
<td>33</td>
</tr>
<tr>
<td>No of KPI’s which are measured and reported periodically</td>
<td>5</td>
</tr>
<tr>
<td>No of KPI’s which not measured but can be measured and reported periodically</td>
<td>31</td>
</tr>
</tbody>
</table>

New KPI’s for the SME:

- Saving amount targeted yearly.
- Reducing Production Stop hours which comes from supply problems.
- Creating new alternative suppliers.
- Reducing one supplier materials ratio.
- Spend ratio under the control of the Department of Procurement.

10. CONCLUSION

We recommend below strategic subjects to the company as a short list to do. Strategic understanding of procurement is a key element to be a first class company in the market.
The CME should organise “Sales & Operations Planning (S&OP) Meetings” for demand accuracy. It can be understood as a concept of “Integrated Business Planning”. Procurement / Sales Planning and Production Planning Meetings and follow-ups will reduce the stocks.

The CME should create Long term and strategic Supplier Relationship Management (SRM). Increasing the performance of suppliers by focusing on the key suppliers and payment in time by the CME are the first and undisputable steps for SRM. Purchasing equals to “Negotiation”. The CME should use E-auctions as a negotiation skill and use Procurement Professionals for all buying activities and follow the market in-deep.

The CME should follow the steps of SAP and use the systems (paperless workflow) to make process and work flow control.

A.T. Kearney’s recent Assessment of Excellence in Procurement (AEP) study determined that among the companies identified as leaders, 73 % of their procurement activities were strategic in nature, the remainder tactical. In the follower organizations only 49 % of their procurement activities were described as strategic. In the AEP study, 83 % of leaders procurement organizations have medium to high involvement in company strategic planning, compared to only 50 % of the followers.

The SME should evolve its process of procurement from tactical to strategic as to switch its category from small/middle sized company to big sized company within its market. The findings within this study help the SME to sail into future world of first class companies.

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APPENDIX

Fig. 6 Process Analyses of the Purchasing Activity

TARGET (WCC) FLOW CHART

1-

BUDGET

2-

DEMAND FOR PURCHASE (SAT)

SAP (MRP)

Who Calculate?

Approve by Controller

YES

REQUEST FOR PROPOSAL

YES

Record on SAP

SME FLOW CHART

= BUDGET

DEMAND FOR PURCHASE (SAT)

EXCEL BY HAND

NO

REQUEST FOR PROPOSAL

NO
4. NEgotiation With SupplieRs

5. Proposal Evaluation & Selection

Record on SAP

Price Approve Form signed

NOT NEEDED

6. Price Analyses

On SAP

Purchase Order

OR

If No Request for Proposal

On SAP

Purchase Order

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7. CONTRACT
   YES
   |
   v
   DELIVERY

8. DELIVERY
   =
   DELIVERY

9. PAYMENT
   PROCUREMENT FOLLOWS
   NO
   |
   v
   PAYMENT

10. PERFORMANCE INDICATORS
    YES
    |
    v
    PERFORMANCE INDICATORS

   NO
   |
   v
   CONTRACT

   YES
   |
   v
   PAYMENT

   NOT ENOUGH
ABSTRACT

Purpose: With the continuous growth of global environment, the pressure in organizations has also increased in order to make their operational and strategic processes as effective as it can be. Information System (IS) is a set of components that can enhance this effectiveness and help in gathering information that can affect decision-making. Therefore, lots of companies have decided to implement Information Systems in order to increase the performance of their company.

Methodology: However, one must keep in mind that neglecting while implementing can bring problems with it. One of the biggest companies in Kosovo that have implemented Information Systems is Kosovo Energy Corporation (KEK). The purpose of this thesis is to show some basic concepts about Management Information Systems (MIS) and information technologies, especially about hardware, software, data processing, telecommunication and networks.

Findings: Moreover, this thesis will include how Information Systems have been implemented in KEK, an introduction about history of KEK, and what kind of information technologies are used there, particularly about hardware and software that are used in KEK for data storage and maintenance as well describing software applications like computerized accounting system. We'll talk about how are communication achieved and what kind of network's infrastructure is used by the company in question.

Conclusion: Furthermore, the last chapters will discuss database systems, with main focus on explanation of what is SQL SERVER of Microsoft and how can it help us - a software that is used in most of KEK's databases. Some databases of this corporation will also be described, including their design, database diagram, data types, indexes, as well as how we can make reports of particular databases by reporting services like SSRS, thus helping in data analysis.

Keywords: Management, information systems, software, database, data analysis.

JEL Codes: L63, L86, C88
2. HISTORY OF KOSOVO ENERGY CORPORATION (KEK)

Kosovo has a considerable energetic potential in coal (lignite). Coal reserves are located in two coal basins in Kosovo, but currently only the Prishtina coal Basin is exploited, on surface mines in Southwest Sibovc and Mirash (Sitnica). Mines lie in an open area and the rate of coal extraction efficiency is very high. Reserves of coal (lignite) in Kosovo are mainly used for electricity production in two plants (about 85%). Extraction of coal from underground basins in Hade village began in 1922. With the onset of change and commissioning of the first power plant Kosovo A, coal extraction started through unveiling coal by remove dirt (wasteland), thus being a surface mine. KEK mines lie near the city of Kastriot - former Obilic. Today KEK has two power plants: "Kosova A" with 5 blocks from which the A3, A4 and A5 are available for production and "Kosova B" with two blocks sustaining production. Power plants are put into operation between 1960 and 1984, initially the A1 block (the first in 1960s) up until 1984 when power plant "Kosova B" was put into operation. Power plants are located near the coal mines, about 10 to 15 kilometers away from Pristina. Kosovo Energy Corporation is a public company owned by the state, which deals mainly with coal production for the needs of generating electricity, but also in small quantities for open market needs. Currently the annual output of coal is 8.2 tons, while the capacity for generating electricity are approximately 900 to 950 MWh or roughly 6 million MWh per year (TCA 3x150 MWh whereas TCB 2x250 MWh). KEK currently has about 4,800 workers. The electricity distribution division was separated from KEK in 2006, for which a KoSt was established as a state enterprise (System, Distribution and Market Operator, JSC). KEDS has the exclusivity for distribution services of electricity in Kosovo. KEDS was established in 2009, and started its operation on May 8, 2013, when it is eventually split from KEK JSC. It is a privately owned consortium of Turkish companies Çalik Holding and Limak.

3. INFORMATION TECHNOLOGY AT KEK

Large rooms filled with files, papers and mailing documents are disappearing rather quickly. Now, a large number of companies store digital versions of documents on servers and storage devices. In this way, these documents can at any time and by any employee be accessed safely and immediately within the company provided they have the appropriate authorizations, regardless of its geographical location. Companies are able to preserve and maintain large amounts of historical data with an acceptable economic cost, thus benefiting from the time saved by the quick access from the workers to the documents they need. Virtualized server or storage environments allow more efficient use of computer resources by sharing hardware resources. The new ‘farm’ IT infrastructure implemented at KEK server in the datacenter is done through the virtualization server using Microsoft Hyper-V platform 2012 R2 and IBM Storage Storwize V7000. The old infrastructure contained some older HP servers (SAN and NAS Storage), where the main IT services were installed (Active Directory, MS Exchange, MS SQL, File Server and KEK’s special purpose applications). All these services are moved to the new infrastructure and are virtualized. Data Storage is only one of the benefits if these data are used effectively. Modern companies use these data as part of the strategic planning process and tactical execution of this strategy. Information management system allows companies to review the records of sales, costs and productivity levels. This information can be used to track profitability, increase return on investment and identify the areas where improvements can be made. Business managers can monitor and react immediately, overnight, to increase productivity or to reduce the price of goods. Networking and VoIP Cisco call manager are implemented in the virtualization infrastructure based on VMware ESXi hosts.

3.1. Hardware Installation

Hardware is installed in KEK’s existing cabinets and shelves. Find below pictures regarding how this hardware looks like, and also how they are linked through SAN Switches.

![Figure 1: Front and Back View of Hardware](image-url)
3.2. Server installation, Virtualization and Backup

For 10 IBM X3690 servers, during this project 6 are installed, 4 for virtual infrastructure HYPER-V, one for Cisco Call Manager (VMware ESX) and another one for backup (Tivoli). By using HYPER-V Cluster, IT services will attain high availability and can be moved from one server to the other without downtime. The figure below explains how this is possible.

In order to protect this datacenter, KEK has implemented the IBM software Tivoli Storage Manager. This software is a platform for data protection allowing the enterprise (KEK) a unified control and administration for backup and recovery.

3.3. KEK Applications

As one of the largest corporations in Kosovo, KEK uses different applications for certain jobs. A fraction of modules are developed in Microsoft Access Applications, while the data (databases) are stored in MS SQL Server, which relate to the Corporation Accounting system with a very distributed environment. Computerized Accounting System – CAS represents a centralized and fully integrated application system, capable of managing data throughout various business areas of the corporation. The system provides:

- Applicative software system, which allows efficiency in business
- Long-term and stable system with high degree of reliability and accuracy
- Dimensioned system with sufficient capacity and opportunities for future development
- A user-friendly Operating System and Software
Computerized accounting system - CAS is an integral system of information technology management, in accordance with IAS while respecting the laws, regulations and local procedures, in the process of financial information flows, in order to create the environment for making the right decisions at the right time. Business fields supported by the CAS are:

- **Personnel records** – human resources
- **Main Accounting Book**
- **Cash register**
- **Accounts receivable** – Customer Accounting
- **Accounts payable** – Suppliers’ Accounting
- **Assets**
- **Storage Management**
- **Salaries**

Main Accounting Book module is one of the modules of the system, which enables the management of financial data from the enterprises activities. This module impromptu creates all major enterprise reports: income statement, balance sheet and cash flow, the accounts’ status, gross balances and a host of labor and managerial reports with a high level of accuracy, enabling financial management an updated view of firm’s enterprise. The Main Accounting Book fulfills its functions through two processes. First, it allows users to edit - setting and correction of the data; and second, it allows user to approach and present at data in the form of analyses and reports.

3.4. Communication and networks at KEK

In KEK, e-mail is the principal mean of official communication between KEK workers, various economic operators and consumers. Yet over the years, there have been investments in other communication tools, enabling staff to communicate through chat systems, communicators, VOIP phones, smartphones etc. A particular challenge during this uninterrupted communication is also maintaining the system and network security in general by external and internal attacks. By enabling Internet connection only through proxy server, which has Web Gateway installed, reduction to a minimum surfing the web sites that are not related to the business of KEK was managed. This is achieved by blocking certain categories of web sites and URLs such as: making or viewing of audiovisual media (streaming media), social networks, chat, etc. thus improving the performance of business applications.

4. SQL DATABASE AT KEK

There may be many arguments regarding which platform should be used for databases. Considering the entire applications count that KEK uses, the solution was clear. Applications developed in C# as well as the widespread use of the Microsoft platform has culminated in logical use of Microsoft SQL Server as a back-end system for database management. Database for Main Accounting Book module as part of the computer system of accounting known as CAS - GL (Computerized Accounting System - General Ledger), which is perhaps the largest database, is no exception with regard to the use of Microsoft SQL Server. This is the database to be reviewed in this paper. Main tables of the Main Accounting Book module (CAS - GL) are:

- **Accounting Plan**
- **Organizational Chart**
- **Partners**
- **Personnel table**
- **Funds and donors table**
- **Projects**
- **Table of orders**
- **Transaction table or archive**

Database diagram allows for the visualization of the structure of said database for further analysis, by displaying tables (entities), columns (attributes), primary and foreign keys as well as connections between tables.

5. CONCLUSION

Describing and analyzing how information system have been managed by Kosovo Energy Corporation was the main objective of this paper. Appliance of information systems affects in improving the quality and speed of decision-making, as
well as in monitoring of financial and functional processes. These systems enable standardization of information, raise employees’ responsibilities and create better work environments. Overall, appliance of these systems in KEK fulfil interaction, mobility, security and easy use challenges. To better illustrate that these challenges have been fulfilled, in this thesis is described how data are stored in KEK, beginning from use of some of the newest and best servers from IBM, server virtualization achieved from Microsoft Hyper V and disaster recovery backup from a software called Tivoli. For illustration of applications that are used, it is described the module of General Ledger, which is implemented through Microsoft Access Applications. Databases are also created through a Microsoft platform called SQL Server As a conclusion, systems used to manage information in Kosovo Energy Corporation have been applied successfully, with some of the best hardware in market, high security / easy-to-use software products and applications, and in general a great compatibility between all systems, which has been possible from almost always use of variety platforms and products provided from Microsoft Corporation.

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ABSTRACT

Purpose- Industry 4.0 involves a paradigm shift in marketing management as well as operations management. The recent literature identifies a transformation from mass customization to mass personalization. The purpose of this study is to explore the transformation addressing the Industry 4.0 concepts and recent progress in the automotive industry.

Methodology- This study is an exploratory research utilizing case study method. Interviews were carried out with one of the leading automotive brands. Data were analyzed through descriptive analysis.

Findings- The case study identifies the product decisions with a focus on customization and personalization themes. Customers’ involvement in design process is emphasized as well as customer data for a more customer-oriented strategy. The findings suggest that disruptive technologies provide a basis for mass-personalization strategy.

Conclusion- Our case study demonstrates that automotive industry is one of the leading industries that prioritize customer preferences. The customization is achieved through numerous options supported by generic architectures. Nevertheless, personalization represents a higher degree of one-to-one marketing vision. Industry 4.0 contributes to such vision with emerging technologies that facilitate collection and analysis of customer and provide more personalized experience.

Keywords: Industry 4.0, customization, personalization, automotive industry.

JEL Codes: L62, M11, M31

1. INTRODUCTION

New market conditions and recent developments of information and Internet technologies have had transforming effects on the business environment. Technological advancements, especially introduction of cyber-physical systems (CPS) and the internet of things (IoT) into the manufacturing environment has ushered in a new industrial vision, Industry 4.0 (Weyer et al., 2015). CPS includes intelligent machines, storage systems, and production facilities enabling to exchange information with autonomy, trigger actions and control each other independently (Posada et al., 2015). Such technologies provide a basis to create new forms of interaction among the customers and firms. With the technologies that provide a basis for Industry 4.0 concept, a business environment integrating physical objects, machines, information, and human is configured. Brettel et al. (2014) underlined that manufacturing systems support reconfiguration in today’s smart factories, where configuration rules can derive distinct topologies.
Industry 4.0 is a comprehensive approach affecting all business processes, as distinct from all previous industrial revolutions that have focused on production processes and had significant effects on shop floor level (Schuh et al., 2014). It allows incorporation of individual, customer-specific criteria into the design, configuration, ordering, planning, manufacturing and operation phases. It has the potential to meet individual customer needs that even one-off items can be manufactured profitably (Kagermann, Wahlster, and Helbig, 2013).

Industry 4.0 that promises to transform the existing business models with its enabling technologies, also leads new opportunities in marketing strategy. Customer preferences have become more prominent in product configuration due to mass customization. In the past few decades, manufacturing paradigm has evolved to respond to the market. In the next section, a summary of progress in manufacturing along with mass customization will be summarized, and the differences between mass customization and personalization will be argued.

2. LITERATURE REVIEW

Industry 4.0 will potentially enable smaller lot sizes in production, providing a more customer oriented approach in product design. Ideally, one-lot size production is expected to be feasible soon in many manufacturing environments. In this part, the importance of modular architecture and configuration is explained at first. Subsequently, the transformation from mass customization through personalization is discussed.

2.1. Modular Architecture and Configuration

In the last few decades, rapidly globalizing market forced manufacturers to differentiate their products by focusing more on customer needs and shift their manufacturing paradigm from mass production to mass customization (Sabin & Weigel, 1998). Thus, the primary objective in mass customization can be summarized as to achieve flexibility as well as efficiency in manufacturing. For such purpose, the key solution was in modular, generic product architecture.

Dahmus et al. (2001) defined the product architecture as a key activity in industrial product development activity. It has been claimed that successful product architecture facilitates addressing the variance from customer to customer or segment to segment. Besides, the study attaches importance on the product architecture with swappable parts on standard interfaces, since such designs enable new product offerings to product owners even after the purchase. To respond to the variety of customer requirements, such an approach in product design enables customization with alternative components with compatible interfaces. In this perspective, the configuration is described as a task that includes selecting a combination of parts to find a valid and complete product structure within the alternatives of generic architecture (Sabin & Weigel, 1998).

Within a generic architecture, product configuration is about the selection of parts to meet the requirements defined by customer demand. In this aspect, Aldanondo and Vareilles (2008) described the configuration term as a task that includes finding at least one set of components that satisfies customer requirements as well as constraints. From this perspective, product configuration is both important for requirement configuration in marketing management and process configuration in manufacturing management.

Gershenson et al. (1999) described redesign as a challenging and costly operation since it requires engineering analysis; on the other hand, reconfiguration is characterized as a cost-effective activity that increases the relative modularity. Dahmus et al. (2001) expressed that the leading automobile manufacturers such as Volkswagen and Ford take advantage of platform and component commonality, and effectively differentiate their products based on the customer needs.

2.2. Mass Customization vs. Personalization

Mass customization can be briefly defined as a strategy based on the ability to provide customized products/services through flexible processes to differentiate in highly competitive markets (Da Silveira et al., 2001). In terms of manufacturing management, it relates to flexible manufacturing and product architectures. Product architecture design along with product configuration is an essential approach that enables more options to customers and helps to differentiate on the market. Furthermore, mass customization is also related to the market orientation as well as manufacturing.

A more customer-oriented implication of mass customization leads to increasing count of products along with various options that successfully capture the needs and tastes of customers. Personalization and customization have a significant role for this purpose. Although it can be claimed that both approaches point to an identical goal in a manufacturing perspective, they can be differentiated in the origin of customer requirements. Customization is mostly described as an arrangement of product with options required by the customer. On the other hand, personalization refers to the adaptation of products and services by the producer based on the customer information deduced from consumer's behavior (Montgomery and Smith, 2009).

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Gilmore and Pine (1997) identified four approaches (collaborative, adaptive, cosmetic and transparent) for customization that respond to customer needs. Among the cost-effective models identified, they pointed out that mass customization is mostly associated with the ‘collaborative approach’. In the collaborative approach, the customer needs are articulated by firms and products are designed with appropriate options in accordance. On the other hand, the ‘transparent approach’ in customization requires the customer to observe customer behaviors over time, looking for predictable preferences (Gilmore and Pine, 1997).

Arora et al. (2008) distinguished personalization and customization regarding the party that initiates the process: personalization is firm initiated whereas customization is customer initiated. In such a perspective, customization can be attributed to an action initiated by the customer, namely customer choice. A customer might review the alternative products and options provided and ask for customization to select a product of his/her preferences. Personalization, on the other hand, is mostly achieved through information technology to collect and analyze customer data. Moreover, personalization is about achieving each customer satisfaction individually, whereas the customers are classified into different market segments, and customers within the same segment receive parameter-based customized products in customization (Tseng et al., 2010).

Kumar (2007) argued that there is a strategic transformation from mass customization to mass personalization; however, the degree of the transformation varies across industries. According to this perspective, the factors that facilitate mass personalization are defined as in Figure 1.

![Figure 1. The Factors that Facilitate the Transformation from Mass Customization to Mass Personalization](source)

**3. DATA AND METHODOLOGY**

The purpose of this study is to reveal the transformation towards product configuration in today’s automotive industry, and explore the conformance of product strategies and demonstrate the personalization activities of BMW brand within a case study. Case study as a research method allows understanding events in-depth (Fidel, 1984) and involves exploring the conceptual structure of events by focusing on a particular topic (Yin, 2011).

In the present study, case study covers the practices of BMW, which is one of the leading automotive brand in premium car segment, adopting Industry 4.0 operations. The research questions are as follows:

- What are the developments in automotive industry within Industry 4.0?
- How will the automobiles be personalized?
- How will be the personalization offers of BMW in the future?
- How will the Industry 4.0 contribute to product configuration of BMWs?

To collect data, many interviews were carried out with the general manager and senior executive of Ozgorkey Automotive, which is the authorized agent of Borusan Otomotiv İthalat and Borusan Otomotiv Pazarlama. Furthermore, secondary data sources consisting of the documents and reports obtained from the case study firm were examined. Structured interview technique was used for identifying and exploring the product configuration and personalization activities. Among the purposive sampling techniques, “typical case sampling” method was used for the study. To reveal a new application, typical case sampling method requires the examination of one or more typical samples (Yıldırım and Şimşek, 2008).

Interviews lasted 45 to 60 minutes. In this paper, the participants’ statements are given as quotations to make them clear to readers. To increase the validity of the study, the data obtained from the interviews were explained and reported in
detail. To increase its reliability, the interview notes were reviewed by Ozgorkey executives, who made appropriate corrections through their reviews.

The data were analyzed through descriptive analysis method. First, the themes under which the data would be evaluated were determined based on the conceptual framework, and the interview notes were organized under the themes determined. Then such data were supported by direct quotations. A coding sheet was created. The coding sheet involved various key codes such as “product configuration” and “personalization”. Lastly, all the interview notes were read, and the statements concerning each view were coded on the coding sheet prepared for the interview.

4. FINDINGS AND DISCUSSIONS

The industrial production of high-tech products such as automobiles has to be leveraged between the satisfaction of various customer needs through personalization and the realization of scale effects. This dilemma between the economies of scale and personalized needs can be addressed by the concept of Mass Customization (Fogliatto, da Silveira, and Borenstein, 2012). The increased importance of mass customization leads to important changes in the product configuration (Brettel et al., 2014).

Customization & Personalization in Automotive Industry: Current Situation vs. Future Perspective

According to the McKinsey (2016) diverse mobility, autonomous driving, electrification, and connectivity are projected to be the primary forces that cause disruptive changes in the automotive industry. In addition, the report credits the predictions on consumers’ new habit of using tailored solutions in the near future and emphasizes the change in consumer preferences along with technological breakthroughs. It can be argued that last industry revolution, namely Industry 4.0, will reinforce the convergence of connectivity, electrification, and changing customer needs.

For 100 years, the industry has relied on vehicles that are stand-alone, mechanically controlled and petroleum-fueled. However, with the new revolution, interconnected, electronically controlled and automobiles fueled by a range of energy sources will dominate the industry (World Economic Forum, 2016). The developments mentioned fortifies the McKinsey report, which stresses the transformative aspect of technology. The statements of a senior executive of Ozgorkey on this matter are given below (Executive Committee Member, Ozgorkey):

“When the Kyoto Protocol comes into effect, the automobiles running on fossil fuels will begin to decline all over the globe. All new cars in Germany and Denmark will be emissions-free at 2030, both governments are taking steps to forbid the fossil fuels. They expressed that non-pure hybrid automobiles will be on the way…”

“... let me reveal some of the examples that will show up with Industry 4.0: Haval, a Chinese-Australian joint-venture will make drone cars. An integrated drone attached to the cars will help shopping: drones will be able to buy and retrieve the products; for instance, those in your last shopping list; then mount onto the car at the end....”

“.... There is a company with American and Italian partners: ‘Next’. They predict that automobiles such as electric wagons will become widespread in the future. Imagine such wagons with advanced rechargeable battery technology. You might ask the car through your mobile phone to drive somewhere, either with other people to socialize, or alone for tranquility. The wagon mounts to other wagons to save energy and dismounts whenever needed, helping to reduce traffic by 75% and drop fuel consumption by 35%....”

According to statements above, there is a disruptive and transforming progress en route in the automotive industry. However, the demand in the market is far beyond the promising innovations of mechanics, and the manufacturing technology is challenged by the customer expectations that diversify more than ever. Hu (2013) pointed out that in today’s flexible and reconfigurable manufacturing systems, high variety in the final assembly is created through the combinational assembly to achieve the economies of scale; and argued that the consumer has a limited role when choosing the module combinations instead of obtaining exactly product he/she desires. However, with the emerging technological disruptions, consumers’ willingness to be involved in product design becomes the key driver of emerging manufacturing paradigm, which is called customization (Hu, 2013).

Arora et al. (2008) claimed that customization is applied in a variety of industries including the automotive industry; moreover, the strategic advantage offered by customization is greater where product differentiation is hard but crucial. In this perspective, it is lucid that auto industry equips car models with numerous customization options. Specifically, the emergence of 3D printing contributes the personalization as a promising strategy to achieve the market-of-one vision (Yao and Lin, 2015). In our case study, the importance of 3D printing technology and prototypes are also mentioned by the firm executives as well. The future trends of personalization are summarized as follows (Executive Committee Member, Ozgorkey, Ozgorkey):
“... 3D, 4D, even 5D models of the automobiles will be used to achieve a higher degree of customization. The design of the car can be obtained from the customer, the customer also can choose the engine, and then a prototype can be built. Ordering the parts required for the prototype is the next step to be carried out...”

It is reasonable to conclude that the statement complies with customization at first glance since it implies that the customer has the initiative in customization. Arora et al. (2008) emphasized that the party who initiates the process is decisive to distinguish customization and personalization. On the other hand, the statement also complies with the definition of personalization by Montgomery and Smith (2009). Customers are actively involved in the design process; thus, the role of the customer is more than “an arrangement of options” offered to him/her. Moreover, it can be argued that the role of the customer is being extended as a co-designer, beyond an ordinary customer.

**Customization & Personalization in BMW: Current Situation vs. Future Perspective**

In the light of the developments mentioned, BMW, one of the leading premium car manufacturers, customizes the cars with various options to respond to the customer expectations. According to the statements made in the interviews, the customer data collected by the CRM system is obtained from two primary sources: service records and data recorded on BMW’s “KeyReader” devices. Service records involve customer opinions, such as complaints or requests. Such information sometimes provides useful user feedback on product configuration. Furthermore, KeyReader device, introduced by BMW, autonomously keeps track of the timing of service visits and maintenance requirements. The quality of the fuel consumed is also monitored by the system. As the representative verbalized, fuel quality is mostly analyzed by mass-premium automotive producers. The engines offered across the regions often vary regarding the European Emission Standards. In the interviews, it was also mentioned that the analysis of the fuel quality is decisive on the variety of engines provided for a country.

The device also automatically analyzes the usage statistics of the driver and logs the patterns matched by the analysis. The general manager expressed that the KeyReader technology can record data about the driving dynamics captured from the actions of the customer. For example, the system can calculate the count and the duration of brakes. In service visits, the statistical data logged by KeyReader device is transmitted to a global database in the global HQ. As the participant remarked, the database is analyzed by the engineers when the parts of the car are designed. Besides, geographic data is also taken into consideration in the analysis. In this regard, it is clear that the technical data collected from existing customers are analyzed in product development. Moreover, the geographical analysis is useful when customizing the product line across countries.

Another important customization tool remarked in the interview is the “ConnectedDrive” technology. This technology is integrated into the car by a platform enables a wider range of features. A timesaving feature helps the owner when a target location and time is shared with the car. In particular, the navigation system built within ConnectedDrive can calculate when to set out and notify the owner. Moreover, the navigation system remembers the address when the driver gets into the car. Integrated services provided by the software assists the owner outside the car as well. The ConnectedDrive software also can learn the owner’s frequent routine destinations. When there is an accident or a traffic jam on the daily route, the owner is notified to help saving time.

Revisiting the debate on the customization and the personalization, the cases explained demonstrate a case where a mere definition of “customization” or “personalization” is inadequate. As mentioned earlier; personalization is mostly associated with situations including analysis based on customer data (Arora et al, 200). Additionally, the personalization is used for one-to-one targeting rather than targeting the segments as in customization. The KeyReader technology logs data about the drivers’ regular usage, including a potential for insight on a more personal level. However, the products developed including numerous customizations are targeted through the masses. Within the context of new industrial revolution, disruptive developments are expected for the personalization of BMWs. The statements of a senior executive of Ozgorkey on this matter are given below (Executive Committee Member, Ozgorkey)

“... In BMW’s plans, Vison Next 100 represents the future of BMW cars.... The car is totally custom-tailored and equipped accordingly. Today, using the smart key technology, a customer can park his/her car remotely; the smart key tells the customer where the car is parked. In 7-series and 6-series, the system works as this way. The next versions are powered by Apple’s software; the voice control feature works seamlessly, for instance I might tell the software to order and deliver a 13-carat diamond for my wife.... I will also be able to use the car as a well-equipped office. The car will help me to order from a grocery store, help me in hotel transfers and so on. Autonomous driving will get prevalent after 2020, the system will handle driving and you will have the opportunity to rest.... It takes up to 4 months in total to make a completely custom-tailored car, transport from Germany and deliver to the owner...”
The design of Vison Next 100 accommodates innovative technologies such as autonomous driving, augmented reality. The vision car will provide dynamic and regenerating features that even help to adjust the car for the best driver experience on every drive. The smart features mentioned can be qualified as a high-level personalized car. According to the statements in the interviews, BMW offers virtually unlimited individualization for custom orders. The mobile application ‘BMW Individual’ helps to explore various options for paint finishes, interior trim, and equipment. The customization options offer numerous color and style options for interior and exterior of the car. Furthermore, textures used in wood and leather decorations can be customized. It is even possible to include owner’s signature in the interior design of the car. Essentially, premium brands mostly offer such customization options in different ways for a long time. However, it can be argued that BMW individual vision respects BMW customers as a co-designer through the mobile applications powered by augmented reality technology. To summarize, it has been noticed that smart and innovative customization practices in BMW represent the characteristics of personalization theme; particularly those enabled through data analysis and customer-driven design.

5. CONCLUSION

In the study, the Industry 4.0 phenomenon is discussed with a focus on the themes of customization and personalization. Technological developments have transforming effects on manufacturing and marketing vision in the automotive industry. Mass customization reflects the alignment of manufacturing environment into a more customer-oriented stance in the last decades. The manufacturers offer more and more options for customization; however, the rapid transformation along with Industry 4.0 pushes today’s automotive industry to a more personalized level of product development. With an emphasis on the distinction of customization and personalization, the primary objective was to reveal the importance of product configuration and to explore the conformance of product strategies in the automotive industry. From this point of view, we carried out interviews with BMW, one of the leading automotive brands in premium car segment.

The findings from the literature review and interviews have been conducted to reveal the trends in one-to-one level marketing efforts. The statements provided by BMW executives suggest that the variety of options supplied to the market are booming along with technological progress. Within the context of Industry 4.0 transformation, the innovative progress has been discussed along with major developments in technology attributed with Industry 4.0. One of the major findings of the study is that automotive industry has put an emphasis on mass customization towards a more personalized marketing vision in the previous decades. Moreover, the interviews revealed the fact that automotive industry is heavily influenced by recent technological progress, such as mobile technology, data mining, 3D printing, and sensors. However, the distinction between mass customization and mass personalization discussed in related literature was not directly addressed in the statements provided by firm executives. Therefore, to provide a basis for further argument, with the terms addressed in mass customization and mass personalization discrimination; the statements were evaluated and discussed regarding the important concepts and discussions in the literature review.

The product policies related to customization can be expressed by the variety of the vehicles and the options provided by manufacturers. The options include different aspects of the product including the technological and cosmetic variations. Moreover, technical variations of automobiles including various engine technologies are offered to the market. As the research suggests, the mass customization strategy is applied to achieve both cost reduction and customer satisfaction. However, as discussed in the literature review, the mass personalization strategy promises a higher level to achieve one-to-one marketing while taking advantage of the economies of scale. For this reason, the statements that imply the efforts relating to personalization concept were also emphasized in the discussion. The findings on this issue are mostly related to product design. In particular, customer data collected through KeyReader technology are collected and mined to provide more personalized offers to customers. Moreover, data primarily intended for maintenance is also analyzed to improve product design process in the automotive industry. From this point of view, it can be concluded that customer data involving locations visited, active hours provide more opportunities for personalization. Moreover, the mobile technologies integrated into automobiles, Apple Car in particular in BMW, offers numerous applications that consume such data and help to create a more personalized experience. The findings of the study also suggest that the role of customers is converging to a step that was defined as “co-designer.” Moreover, our case complies with Hu’s (2013) assertion that emphasizes consumer participation as a crucial element in the emerging manufacturing paradigm. Prototypes powered by 3D printing technology and virtual reality are critical to enable such level of personalization.

In conclusion, the findings of the case study suggest that automotive industry effectively employs mass customization. However, personalization represents a higher degree of one-to-one marketing vision. In particular, the firm examined in our case prioritizes personalization activities to create more customer value and develop a more customer-oriented product design approach. Besides, the disruptive progress along with Industry 4.0 comes up with various opportunities to facilitate the mass-personalization strategy. It can be concluded that the new Industry Revolution both requires and provides the personalization movement in the automotive industry.

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CONSUMER PRIVACY IN INTERNET OF THINGS

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Mehmet Marangoz1, Ali Emre Aydin2
1Muğla Sıtkı Koçman University, Mugla, Turkey. mehmetmarangoz@mu.edu.tr
2Muğla Sıtkı Koçman University, Mugla, Turkey. aliemreydin@mu.edu.tr

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ABSTRACT
Purpose- This study aims to examine privacy from a consumer point of view and in relation to the Internet of Things.
Methodology- The concepts of Internet of Things and consumer privacy are covered in this study. These two phenomena are conceptually evaluated, and the relation between them are analyzed through applications and examples.
Findings- The monitoring of people's daily activities and recording of data about these activities cause concerns about the privacy of personal data. Consumers are concerned about how and for what purpose the data collected about them is being used.
Conclusion- Privacy concern can be an obstacle to consumers' adaptation to IoT technologies. Moreover, it also affects consumers' attitudes towards a particular product, brand or business. For this reason, all actors responsible for the development of the IoT must be aware of the importance of consumer privacy. These actors should show sensitivity to the protection of personal data and consumer privacy as well.

Keywords: Consumer, privacy, internet of things, personal data, concern.
JEL Codes: M20, M30, M31

1. INTRODUCTION

Internet of Things (IoT) is changing the decision-making and business processes of enterprises, governments and consumers. How they interact with the world is differentiated by these objects. Over the next five years, companies are expected to spend about 5 trillion dollars for IoT. The proliferation of IoT linked devices and the accompanying increase in the amount of data are indicators of an analytical revolution (Newman, 2017).

The process of producing, obtaining, communicating, and interpreting data is central to the design and implementation of IoT. This data relates specifically to consumers. Data such as date of birth, income, clicks on websites, social media comments, and similar information are already being obtained and used by businesses. IoT related objects have information about the behavior and the environment they are connected to. This corresponds to a totally different set of data. Blood composition, purchased and consumed food and beverages and eating habits are example of such personal data (Weinberg et al., 2015: 620).

Communication happening anywhere and at any time between people and objects will soon reach to unprecedented levels. For this reason, management of emerging data becomes crucial. The dynamic environment of IoT offers unique chances for
communication which transform the perception of computing and networking. However, such a revolution should also take into account secrecy and security issues. Thus, the protection of personal data and the privacy of users are now a fundamental problem in IoT (Kumar ve Patel, 2014: 25).

In this context, the development of IoT services requires privacy and security considerations. There is still a lack of vision to address the security and confidentiality requirements of IoT-related environments, including different technologies and communication standards. This is why, all relevant stakeholders should take responsibility for designing appropriate solutions (Sicari et al., 2015: 160).

This study aims to examine consumer privacy in relation to the IoT. The structure of the study is as follows. In the first part, IoT is discussed as a phenomenon and its importance is emphasized. Examples of related technologies are given and problems that may arise due to widespread use of IoT technologies are pointed out. The second part focuses on consumer privacy as one of the important problems that may arise with the proliferation of IoT technologies. This part deals with possible behavioral consequences of consumers who are concerned about the use of their personal data. The extent of consumer privacy is also discussed within this section. Thereinafter, consumer privacy is discussed in the context of IoT. The relationship between the two phenomenon is examined. Suggestions for protecting the consumer’s privacy are evaluated. In the final section, conclusions and suggestions are presented.

2. INTERNET OF THINGS

IoT is a phenomenon which deals with everyday devices that can be connected to the internet through small sensors and computers (Accenture, 2014). IoT is concerned with the ability to send and receive data from daily objects connected to the internet. Systems that allow you to send photos instantly, applications that run your home heating system when you leave your office or smart wristbands which follow and share your cycling performance data are examples of these objects (FTC, 2015). Roman et al. (2013: 2266), summarize this approach in a single sentence: “A worldwide network of interconnected entities”. These things (human beings and computers, food and appliances, cars and books etc.) have a locatable, addressable and readable counterpart on the internet. They can create a communication channel with another entity by providing and taking services at any time, anywhere and in any form. Tools and technologies such as wireless sensor networks (WSNs), RFID, cloud services, machine-to-machine interfaces (M2M) are key elements of this new paradigm. This paradigm has many applications in the field. Automotive, healthcare, logistics and environmental monitoring are some of the sectors where this new paradigm becomes more and more prevalent.

From a conceptual point of view, IoT can be associated with three skills of smart objects. These are the ability to identify itself, the ability to communicate and the ability to interact. These processes can be accomplished either among the devices themselves or between them and the interconnected objects, end users or other entities on the network. Achieving full access to these talents and this vision can be seen as a major challenge (Miorandi et al., 2012: 1498). Still, the process is moving fast. Today, many objects around us are somehow connected to a network. Radio frequency identification (RFID) and sensor network technologies will further enhance the presence of these objects in which information and communication systems are embedded. This will produce very large amounts of data to be recorded, stored, processed and interpreted easily (Gubbi et al., 2013: 1645).

This phenomenon is now becoming even more widespread with numerous research and studies on IOT. On the other hand, information on the objects and technologies being examined and evaluated under the IOT is still limited. For this reason the following table gives an idea of both past and future use of IoT objects.

Table 1: Classifying IoT Devices by Application

<table>
<thead>
<tr>
<th>Wearables</th>
<th>Health Care</th>
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</thead>
<tbody>
<tr>
<td>- Entertainment</td>
<td>- Remote monitoring</td>
</tr>
<tr>
<td>- Fitness</td>
<td>- Ambulance telemetry</td>
</tr>
<tr>
<td>- Smart watch</td>
<td>- Drug tracking</td>
</tr>
<tr>
<td>- Location and tracking</td>
<td>- Hospital asset tracking</td>
</tr>
<tr>
<td></td>
<td>- Access control</td>
</tr>
<tr>
<td></td>
<td>- Predictive maintenance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building and Home Automation</th>
<th>Smart Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Access control</td>
<td>- Flow optimization</td>
</tr>
<tr>
<td>- Light and temperature control</td>
<td>- Real-time inventory</td>
</tr>
<tr>
<td>- Energy optimization</td>
<td>- Asset tracking</td>
</tr>
<tr>
<td>- Predictive maintenance</td>
<td>- Employee safety</td>
</tr>
<tr>
<td>- Connected appliances</td>
<td>- Predictive maintenance</td>
</tr>
<tr>
<td></td>
<td>- Firmware updates</td>
</tr>
</tbody>
</table>
As IoT related technologies and objects become more widespread in daily life, they inevitably create important consequences in the economy and society. Especially automation, integration and servitization are three main areas that need to be emphasized in this regard. These effects can be explained as follows (Lucero, 2016: 5):

- **Automation**: Making machines and sensors connected to computer systems rapidly accelerate the automation of process. In addition, it allows automation facilities to work with very large sets of data. Data flow monitoring, the use of these data to generate solutions in case of problems, and the possibility of minimizing maintenance services arise.

- **Integration**: The IoT expresses more than just interconnected machines or automation of processes. Integrating data from one device, object or machine, from other sources, such as data from ERP (Enterprise Resource Planning) systems, open government databases and social media feeds, greatly enhances the acquisition and value.

- **Servitization**: Automation and integration helps businesses move from product-oriented business models to service-oriented business models. In this way, it is possible to develop a service-oriented relationship with the customer and to capture the revenue opportunities that arise.

Apart from the above mentioned effects, the most important characteristic of the IoT idea is the strong role that it plays in everyday life, and its high impact on users' behavior. From the point of view of a private user, IoT effect will be experienced both at work and at home. Home automation, assisted living, electronic health and advanced learning are the likely future applications of this new paradigm (Atzori et al., 2010: 2787).

Although it is an emerging technology, it is estimated that it will grow at a great pace in the coming years. In the sectors such as automotive, energy, consumer electronics and white appliances, there are objects already working with computers and sensors. It will be easier and cheaper to integrate this technology with physical objects along with developing tools. In this regard, this technology will become widespread and adopted (Accenture, 2014). Columbus (2016), compiles some fundamental estimates for the IoT sector. As indicated in his article, by 2020 the annual revenues could surpass $470B for the IoT vendors selling the hardware, software and comprehensive solutions. Moreover, the total IoT market size in 2015 was up to $900M, and forecasted that it will grow to $3.7B in 2020 attaining a 32.6 CAGR (Compound Annual Growth Rate). Notwithstanding these, according to the estimates, IoT market will grow from an installed base of 15.4 billion devices in 2015 to 30.7 billion devices in 2020 and 75.4 billion in 2025.

In spite of this rapid development, transformational processes will also pose several challenges to be overcome. In the context of IoT, these challenges include both technical and social issues.

<table>
<thead>
<tr>
<th>Technical Issues</th>
<th>Social Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Solution</td>
<td>User Acceptance</td>
</tr>
<tr>
<td>Communication</td>
<td>Privacy and Ethics</td>
</tr>
<tr>
<td>Energy</td>
<td>Education &amp; Training</td>
</tr>
<tr>
<td>Interoperability</td>
<td>Governance</td>
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<tr>
<td>Security</td>
<td>Management Support</td>
</tr>
<tr>
<td>Device Management</td>
<td>Business Dynamics</td>
</tr>
<tr>
<td>Data Analytics</td>
<td>Stakeholder Management</td>
</tr>
<tr>
<td>E-Waste &amp; Recycling Management</td>
<td>Partner Collaboration</td>
</tr>
<tr>
<td>Teaming</td>
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</table>

Source: Cicibaş and Demir, 2016: 110.

Issues such as the solution of technical problems, the functioning of communication processes, the energy consumption of objects and mutual working are important technical issues to be considered for IoT. On the other side, issues such as the
internalization of these technologies by consumers, the training of users and the management of these technologies are social issues to be dealt within the framework of the IoT.

One of the most important topics which needs to be examined in this regard is privacy. When the benefits and losses are left aside, the data obtained through IoT is quite valuable. Thanks to the possibilities offered by IoT technologies, it is possible to obtain personalized data in a wide variety of quantities. The intended use of this data and the sharing of it with others may cause consumer concern. This, of course, results in more serious consequences. Consumer privacy is therefore an important issue to be addressed.

3. CONSUMER PRIVACY

Consumer privacy is an issue that arise in any interaction process between profit-oriented or non-profit businesses and the consumer. This interaction can be accomplished through credit card or cash sales, online consumer behavior and marketing research, but not limited to these. Behaviors that may be examined here may include all processes from purchase preferences to use and finally to dispose of products within the context of buying decision models (Goodwin, 1991: 150).

Dolgun (2015: 265-266) emphasizes that businesses try to understand consumer and consumption patterns in the best way possible to create a consumer society that is loyal to the brand and product in a competitive environment. According to the author, creating this consumer society is about focusing on personalized services. However, personalization efforts, when evaluated in the context of surveillance, cause question marks to appear on topics such as the confidentiality of consumer information in the internet, whether the consumer's consent is received during the process of obtaining the information and whether the information can be considered in the privacy field or not.

Groopman and Etlinger’s report about consumer privacy indicates some key findings (2015: 2):

- Consumers don’t know who is seeing their data. Therefore most of consumers are highly concerned about whom and for what purpose their information is shared.

- At least half of the consumers state that they are overly disturbed about the use and sale of their personal data.

- Consumers want to have more information and involvement in privacy.

- Consumers demand a value in exchange for their data. This value is mainly monetary. Yet, it can also be in the form of time, energy and convenience.

- Technology is a very important indicator for notifications, service, communication and confidence-related expectations. Awareness on technology is shaping consumer expectations.

The model developed by Phelps et al. (2000: 31) regarding the scope of consumer privacy clearly demonstrates the dimensions of the issue. Type of personal information requested from the consumers, the possibility of control over the consumers’ personal information, the possible consequences in terms of the businesses and the characteristics of the consumers, constitute the input factors for consumer privacy. Consumers’ perceptions of the use practices of personal data and the general level of concern regarding the ways in which such information is used are represented as the results. Taking these factors into consideration, the expected behavioral tendencies of consumers are considered as future outcomes.

This model also reveals the importance of consumer privacy as well as its scope. Businesses’ decisions and strategies on this subject have important consequences in both short and long term. In particular, the widespread use of information and communication technologies has made the issue even more prominent. As computers, the Internet and mobile devices are used more and more, the amount of personal data shared through these systems has also increased. Just like these technologies and devices, IoT will also increase the amount and variety of personal data which is shared and used.

According to FTC report, the amount of data that a few devices can produce is quite striking. Report says that less than 10,000 households using the IoT home automation product generate 150 million discrete data points per day, or about one data point in every six seconds per household (FTC, 2015). Since the data is extremely important, concerns about the privacy of individuals and their ability to control their own personal information also become prominent. Monitoring daily activities and generating informational outputs will increase the level of profiling and targeting. This leads further concerns regarding the privacy of personal data (Andersen and Rainie, 2014).

Peppet (2014: 98) examines the IoT technologies currently available to consumer. Health and fitness sensors, black boxes in automobiles, home monitors and smart grid sensors, devices designed for employee monitoring, and software applications that use sensors in smartphones give the general outlook of the IoT technologies. Sicari et al. (2015: 151) indicates that, in addition to these, IoT offers a wide range of applications in areas such as remote monitoring of patients, control of energy consumption, traffic control, smart parking systems, inventory management, production chain, personalization of the...
shopping and civil protection. In such an environment it becomes extremely important to protect personal information related to users' behavior, habits, and their interaction with other people.

4. THE RELATION BETWEEN IoT AND CONSUMER PRIVACY

Consumer privacy, especially with the widespread use of information and communication technologies, has also been the subject of academic work. The first studies on the subject contributed to the evolution of privacy from the consumers' point of view (Goodwin, 1991; Jones, 1991). These have been followed by studies investigating the behavioral consequences of privacy concerns (Sheehan and Hoy, 1999; Phelps et al., 2001; Cho et al., 2009; Blakesley and Yallop, 2015), online consumer privacy (Miyazaki and Fernandez, 2001; Sheehan, 2002; Brown and Muchira, 2004; Moscardelli and Divine, 2007; Kansal, 2014) and strategies to protect personal information (Lwin et al., 2007; Wirtz et al., 2007).

Recently, with the spread of IoT technologies, the number of studies emphasizing the importance of consumer privacy in the context of IoT has increased. Initial work on the issue by Weber (2010) examined the privacy and security problems that may arise with IoT from a legal perspective. Subsequent studies focus more on security and privacy issues that may arise with the widespread use of IoT technologies and objects that have been conducted (Roman et al., 2013; Kumar and Patel, 2014; Lee and Lee, 2015; Sicari et al., 2015; Weinberg et al., 2015). In addition to these, the Peppet emphasizes the importance of consumer consent in the context of IoT-related regulations. Weinberg et al. (2015) discussed the threats that the IoT presents to consumer privacy along with the benefits it provides. The subject also attracts attention from private sector and practitioners. Reports on the relationship between consumer privacy and IoT confirm this (Accenture, 2014; Groopman and Etlinger, 2015; FTC, 2015; Lucero, 2016).

As these studies and the focus of academic interest indicates the issue of privacy becomes substantial, especially in the consumer adaptation process of IoT. The functionality of the IoT technology for consumers is related to the interaction between the consumer and the devices. One of the most important part of this interaction is the personal information that the consumer share. Personal information is meaningful for the customization and improvement of the services offered. On the other hand, consumer's perceptions of the use of personal information also influences the acceptance of IoT technologies. These reveal the challenges to deal with.

One major obstacle standing in front of the proliferation of IoT objects in the real world is the security of the internet. There are billions of objects associated with the IoT. IoT developers are supposed to deal with the interaction of these objects with each other and also with other entities such as humans or virtual entities. It is crucial that all these interactions take place in a safe manner, and that actor's information is protected and the service provision is maintained. It is necessary to limit the number of incidents that IoT can affect on this account (Roman et al., 2013: 2270). Security risks trigger privacy risks mediated by IoT technologies for users. These risks include direct compilation of sensitive personal information such as geographical location, financial records or health information already existing due to traditional internet and mobile commerce. Nonetheless, information such as habits, places and physical conditions that are not collected directly but are generated over time through other sensitive information pose a risk. With regard to IoT, risks that are perceived by consumers and likely to cause harm are: Unauthorized access and misuse of personal information, attacks on other systems and risks to personal safety (FTC, 2015).

But the risks about consumer privacy is not limited to these. Internet, mobile devices and information technologies have created a very complicated environment. When this complex environment is combined with IoT systems, the interaction of people, machines and robots via internet can raise the level of security-related threats even higher. Moreover, the structure of existing security systems and applications does not conform to IoT technology. Also, as the number of connected devices increases, it will be also difficult to deal with these problems. The full acceptance of IoT applications by the user depends on the creation of security and privacy models (Sicari et al., 2015: 146).

According to a blog article, a company that sells smart teddy bears leaked 800,000 user accounts. After hackers stole this information, they demanded a ransom. These smart bears are internet-connected objects that allow children and far-away parents to send messages to each other. Through these objects, more than 800,000 customers' credentials as well as e-mail addresses and passwords and two million messages were recorded. A parent who heard about this incident expressed that his biggest concern was the possibility of someone using this information to send inappropriate messages to his 6 year old girl (www.motherboard.com). This incident which takes place through a very innocent object, is a good example of how these objects are threatening the privacy of personal information. IoT technology might also lead to unintended consequences. In order to avoid these consequences, both the designers of this technology and the users have to get responsibility.

Kumar and Patel (2014: 24-25) discuss some dimensions the issue of privacy might arise. At the dimension which named "privacy in device", they explain getting sensitive information through software or hardware without permission. A device can be used to manipulate personal data in this way. In addition, personal data may change hands as the communication...
takes place. It is possible to get involved in communication processes through various technologies in order to steal information. Authors examine this problem under the hading of "privacy during communication". Saving data for storage may also cause privacy problems. For this reason, the amount of personal data they will be stored should be as limited as possible and this data should be shared only when necessary. These are about "privacy in storage". Lastly, they discuss the problem of what they call "privacy at processing". Here, the problem is mainly of two folds. First of all, personal data must be treated with the intended purpose. Secondy, without explicit consent and knowledge of user, personal data should not be disclosed or retained to third parties. Roman et al. (2013: 2271), indicate that the information created by billions of entities poses a great risk to privacy. It is important that the users are equipped with tools that will help them to maintain their privacy in such a world. With these tools and policies, the perception that IoT controls our lives silently should be avoided. This is only possible by ensuring trasparency, taking the users' consent and implementing policies that protect the user.

When considering consumer privacy in IoT from the businesses point of view, strategies that can be implemented and the precautions that can be taken are listed below (FTC, 2015):

- Companies should meet the security requirements for devices at the beginnig of the process, not later. It is important to conduct an assessment of privacy or security risks, to minimize the collection of data and to test the security measures of the products.
- Privacy and security should be issues that concern all employees of the company of appropriate level of responsibility.
- Companies should work with service providers who can provide reasonable security system.
- When a significant risk is identified in company systems, a defense approach should be implemented that can enforce security measures at various levels.
- Companies should consider control measures to limit the ability of an unauthorized person to access the device, personal data or network of the consumer.

Finally, companies must continue to monitor products throughout the life cycle and correct security vulnerabilities.

5. CONCLUSION

Scholars are in search of answers to important questions regarding consumer privacy in IoT: What kinds of information are gathered by the devices and using what kind of tools? Where are the collected data stored? Is it in the memory of the device or in the cloud services that the manufacturer uses? Is that information encrypted and how? Does the manufacturer have the ability to redefine the information? Does the user have the authority to see, change or delete the information contained in the vendor's server? According to the manufacturer, who is the true owner of the data? With whom the producers will share users' data? Does the user have the authority to say something about sharing the data? These are basic questions that IoT consumers seek answers for. (Peppet, 2014: 161). IoT related stakeholders should be aware that these questions need to be addressed in order to make them widespread and adapt the consumers to these technologies. Lee and Lee (2015: 439), similarly addressed that while the IoT continues to gain momentum through smart home systems and wearable devices, confidence in and acceptance of the IoT will depend on the protection of users' privacy.

Trust is also a very important factor for this adaptation process. The IoT system encompasses a variety of devices. These should operate in accordance with users' needs and rights (Sicari et al, 2015: 147). Otherwise, consumers will have difficulty in adopting IoT technologies and applications. Moreover, it might also lead to of moving away from brands and products besides the system. It can also affect the image of existing products and services. Hereat, behavioral consequences can arise such as abandoning a brand, giving false personal data, refusing downloading applications, giving up visiting a website, complaining about brand and resorting to legal means against a company. It is extremely important for businesses to be aware of these behavioral consequences and to address the of privacy adequately.

Businesses that have to manage processes properly or consumers who need to be careful when using these technologies are not the sole responsible for IoT related issues. There are many stakeholders on the subject. These stakeholders should analyze the risks as well as the benefits of the IoT. Agencies, legislators and relevant institutions that mediate the transfer or personal data are some of these stakeholders. For this reason, the correct operation of the ecosystem which coexist with IoT, depends on the awareness of the responsibilities of such institutions and organizations and their willingness to overcome potential problems.

Along with these, some practices may be useful to deal with privacy related problems over IoT. Firstly, trainings can be organized on the management of personal data in order to increase the acceptance of technology by consumers. Further, studies can be conducted to improve the knowledge and awareness of consumers about privacy. These studies, which can
be evaluated in the context of consumer empowerment, can be realized by both academicians and practitioners. Additionally, messages and campaigns about the importance of personal data and ways of protecting it can be delivered using the internet and mass media.

As a conclusion, Justin Reich, one of the experts on Internet and Society, said, “IoT will have widespread beneficial effects, along with widespread negative effects. There will be conveniences and privacy violations. There will be new ways for people to connect, as well as new pathways towards isolation, misanthropy, and depression. I’m not sure that moving computers from people’s pockets (smartphones) to people’s hands or face will have the same level of impact that the smartphone has had, but things will trend in the similar direction. Everything that you love and hate about smartphones will be more so.” (Andersen and Rainie, 2014).

Future studies on the subject can focus on the adaptation of users to IoT technologies. Moreover, in this context, quantitative and qualitative methods can be used to investigate consumers’ privacy concerns and possible behavioral consequences. Demographic and cultural differences can help achieve meaningful conclusions about both privacy concern and adaptation to IoT technologies.

REFERENCES


EFFECTIVENESS OF DIGITAL PUBLIC RELATIONS TOOLS ON VARIOUS CUSTOMER SEGMENTS

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Necmiye Irem Gulerman¹, Fahri Apaydin²
¹Omeraga Dist. Tekel Str. Kocaeli, Turkey. iremgulerman@hotmail.com
²Yalova University, Yalova, Turkey. fapaydin1@yahoo.com

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ABSTRACT
Purpose- This study aims at measuring effectiveness of digital public relations tools on various customer segments. Digital public relations, an important component of digital marketing, is gaining more and more importance in the e-commerce market, so this research is significant as it is related with this developing realm.
Methodology- Digital public relations tools, social media, company forum page, e-mails, company websites, blogs, are used by most of the e-businesses to manage the organizations’ reputation in the virtual life. Structured questionnaire using Likert Scale is developed by the authors to gather data. Customers of a well-known leading telecommunication company in Turkey are chosen as the universe of the research and we got responses from 213 participants. The data is analyzed using SPSS statistical program and ANOVA tests and frequency tables are used to make analyses.
Findings- We wanted to analyze how effective the company is using such digital public relation tools. The results reveal that various tools might have different effects on specific customer segments.
Conclusion- It is found out that various customer segments are affected differently from various digital public relations tools. Thus, it is necessary for the organizations to be aware of how these tools affect various customer segments and develop digital marketing strategies accordingly to increase their marketing performance. Moreover, as traditional public relations tools keep their importance, organizations need to adapt them with the digital ones.
Keywords: Digital marketing, digital public relations, digital public relations tools, e-marketing.
JEL Codes: M30, M31, M37

1. INTRODUCTION
Digitalization has changed so many things in the world including the customer behaviors, the way businesses make trade, the way organizations serve to their customers, etc. Thus, most of the marketing concepts which have been searched by the academicians so far need to be searched in the digital context, which will help us understand the changes in customer behaviors as well. Public relations, a significant component of marketing communication mix, is used by the businessmen to manage their organizations’ reputation, image and the crises organizations face to contribute to the communications with the public and protect the rights of the organizations. As many people prefer online shopping and engage in activities online for communication with others, organizations should spend special and precise effort on online communications. Digital public relations which is in its infancy has an important potential to realize the functions of public relations mentioned above more efficiently and effectively. With a “click” sometimes even without “a click” organizations might reach millions of
people real time at the same moment. Digital public relations’ this ability makes it a vital marketing communication medium and it has some alternative tools that marketers benefit from very often. Most popular ones are mainly: social media, blogs, forums, organization’s website, and e-mails sent to customers by the organization. In this study, we explore the effectiveness of each of them and this makes this paper original and it is believed that it contributes the literature. In this exploratory research data is gathered with a survey done with the customers of a leading telecommunication company in Turkey.

2. LITERATURE REVIEW

Digital public relations is in its infancy, and breathtaking developments are being experienced in the marketing realm. To capture the concept of digital public relations, we believe that it is necessary to dwell on and define digital marketing first. According to Chaffey & Ellis-Chadwick (2012), digital marketing is “Achieving marketing objectives through applying digital technologies.” and they add “These digital technologies include the desktop, mobile, tablet and other digital platforms”. Scott (2011) defines digital marketing as “Digital marketing is selling, promoting and marketing your product or service online”. Brown (2013) by saying “digital PR is dead because all PR is digital” urges that digitalization has become so comprehensive in the business life that it is impossible to do public relations activities without integrating digital tools.

Smith and Zook (2011) define public relations very briefly as “the development of and maintenance of good relationships with different publics”. Publics mainly consists numerous groups such as clients, media, consumers, and regulators (government bodies) (Vardeman-Winter and Place, 2015). Among these, the most important is the customers who deserve more attention of the organizations as they are the main target to serve. Another definition done by Newsom and Scott (1985) is “PR is responsibility and responsiveness in policy and information to the best interests of the institution and its publics” and this definition mentions the main function of public relations which is to protect the interests of the organizations. To distribute information, interact with key publics, deal with crises, and manage issues are the main functions of public relations (Hallahan, 2004). In order to realize these functions marketers who are responsible from public relations in an organization need to research, manage, and frame issues (Kent, 2008), and all of these activities can be done more effectively and efficiently using digital tools.

Organizations are endeavoring to find out more efficient ways and tools to achieve these functions and contribute positively to their reputation and brand image. Internet and digitalization in a broader sense is changing the nature of public relations like other functions of organizations. Public relations function in organizations is undergoing a huge change in terms of the tools it is using. Thanks to Internet, professionals of public relations do not depend on traditional media to communicate with the interest groups (Jo and Jung, 2005). Annual reports and news releases, common tools of printed media, are replaced with digital tools such as websites and e-mails. Some academicians put forward that new tools such as social media have high potential to contribute to brand awareness, the reputation of the organizations, and customer service. The new tools also enable organizations do public relations activities more efficiently and effectively by increasing interaction with the customers and thus develop long-lasting relationships (Allagui and Breslow, 2016). These tools also provide more creative public relations activities that might increase customer engagements with the organizations’ activities (Green, 2010). Digitalization has changed the nature of the public relations and provided some more tools to exploit for the organizations while making it easier to realize its functions, and it also increased the complexity of this communication mix (Richardson and Laville, 2010; Lahav and Zimand-Sheiner, 2016). Thanks to internet, they also mention that for organizations “conversation, interaction, collaboration and more between organizations and their stakeholders” is faster and efficient, and developing healthier and long lasting relations with customers is possible.

Although digitalization is providing innovative and new opportunities to the marketers to carry out public relations functions, more studies need to be done to explore the effectiveness, power, and utilization of social media and other tools internet presents for public relations (Taylor and Kent, 2010). In this study, social media, forums, blogs, company website, and e-mails sent to customers by the organizations are considered as digital public relations tools and their effectiveness among various customer groups are explored.

3. DATA AND METHODOLOGY

Our research questions are as follows:

1. Which of the digital public relations tools are more effective on various customer segments?
2. Which digital tools are used by the customers most to communicate with the organization?

Data is gathered with structured questionnaire done online. Customers of a well-known leading telecommunication company in Turkey are chosen as the universe of the research to see how efficient the organization is using the digital public relations tools. Some statements are given to the respondents and they are asked to a what extent they agree with the statements on Likert scale 1 being strongly disagree and 5 being strongly agree.
We got responses from 213 participants. Demographic features of the respondents are shown in Table 1. 134 of the respondents are female and they constitute 62.9% of the sample and 79 of them are male constituting 37.1% of the sample.

Table 1: Demographic Features

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>134</td>
<td>62.9</td>
</tr>
<tr>
<td>Male</td>
<td>79</td>
<td>37.1</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 20</td>
<td>15</td>
<td>0.07</td>
</tr>
<tr>
<td>20-30</td>
<td>87</td>
<td>40.8</td>
</tr>
<tr>
<td>31-40</td>
<td>49</td>
<td>27.1</td>
</tr>
<tr>
<td>41-50</td>
<td>33</td>
<td>15.5</td>
</tr>
<tr>
<td>50+</td>
<td>29</td>
<td>13.6</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary School</td>
<td>13</td>
<td>6.1</td>
</tr>
<tr>
<td>High School</td>
<td>59</td>
<td>27.7</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>40</td>
<td>18.8</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>81</td>
<td>38</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>20</td>
<td>9.4</td>
</tr>
<tr>
<td>Monthly income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 2500-2500 TL</td>
<td>118</td>
<td>55.4</td>
</tr>
<tr>
<td>2501-4000 TL</td>
<td>56</td>
<td>26.3</td>
</tr>
<tr>
<td>4001-5500 TL</td>
<td>19</td>
<td>8.9</td>
</tr>
<tr>
<td>Above 5500TL</td>
<td>20</td>
<td>9.4</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Servant</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Private Sector Employee</td>
<td>65</td>
<td>30.5</td>
</tr>
<tr>
<td>Owner of a Business/Self-Employed</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Manager</td>
<td>7</td>
<td>3.3</td>
</tr>
<tr>
<td>Educator (Teacher/Academician)</td>
<td>9</td>
<td>4.2</td>
</tr>
<tr>
<td>Engineer</td>
<td>16</td>
<td>7.5</td>
</tr>
<tr>
<td>Accountant</td>
<td>11</td>
<td>5.2</td>
</tr>
<tr>
<td>Health Sector Employee</td>
<td>6</td>
<td>2.8</td>
</tr>
<tr>
<td>Student</td>
<td>23</td>
<td>10.8</td>
</tr>
<tr>
<td>Housewife</td>
<td>23</td>
<td>10.8</td>
</tr>
<tr>
<td>Retired</td>
<td>16</td>
<td>7.5</td>
</tr>
<tr>
<td>Others</td>
<td>7</td>
<td>3.3</td>
</tr>
</tbody>
</table>

The participants of the survey are from a wide range of age groups. 15 (about 7%) of the participants were under 20 years old, 87 (40.8%) of the participants are at the age of between 20 and 30. 49 (23%) of the participants are at the age of between 31 and 40, 33 (15.5%) of the participants are between 41 and 50, and 29 (13.6%) of the participants were at the age of 50 or older. The participants are from a wide range of various educational groups. Participant’s educational background is as follows: 6.1% of the participants have elementary school degree, 27.7% of the participants have high school degree, 18.8% of the participants have associate degree, 38% of the participants have undergraduate degree, and 9.4% of the participants have postgraduate degree.

Participant’s monthly income is as follows: 55.4% of the participants have a monthly income of less than 2500 TL. 26.3% of the participants have monthly income between 2501 and 4000 TL. 8.9% of the participants’ monthly income ranges between 4001 – 5000 TL, and 9.4% of participants’ income is 5501 TL and more. Participant’s professions are: 15 (7%) of the participants are civil servants, 65 (30.5%) of the participants are private sector employees, 15 (7%) of the participants are self-employed, 7 (3.3%) of the participants are managers, 9 (4.2%) of the participants are in the education business, 16 (7.55%) of the participants are engineers, 11 (5.2%) of the participants are accountants, 6 (2.8%) of the participants are in the health sector, 23 (10.8%) of the participants are students, 23 (10.8%) of the participants are housewives, 16 (7.5%) of the participants are retired and 7 (3.3%) of the participants are from other occupations.

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4. FINDINGS AND DISCUSSIONS

Demographics is used as a consumer segmentation criteria by organizations, and they develop different strategies and marketing activities when targeting various consumer segments, so in this study we analyze responses of consumers from various age, education and income groups to digital public relations activities done with digital public relations tools such as social media, forums, blogs, company website, and e-mails. First of all, we explore from which digital public relations tool customers first time learn about any news about the organization to see which of them are more effective to deliver news about the organizations to the consumers. Respondents are divided into various age groups and the descriptive statistics about their responses are given in Table 2. In the table, the numbers in the rows represent the statements about the digital public relations tool and 6. and 7. statements represent more traditional tools to see the difference (1: social media, 2: blogs, 3: forums, 4: company website, 5: e-mails, 6: SMS, 7: print media). The next step was to test whether the differences among the groups are statistically meaningful at the level of 0.05. ANOVA analysis is done and the results are seen in Table 3. Except for the SMS and printed media, it is found out that there are significant differences among the various groups’ responses. Thus, it can be inferred that consumers at various age groups are affected at different levels from various digital public relations tools.

Table 2: Descriptive Statistics of Responses of Various Age Group

<table>
<thead>
<tr>
<th>Age gr.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 20</td>
<td>Mean</td>
<td>3,87</td>
<td>3</td>
<td>2,53</td>
<td>4</td>
<td>3,2</td>
<td>4,4</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,3</td>
<td>1,69</td>
<td>1,46</td>
<td>1,13</td>
<td>1,42</td>
<td>0,99</td>
</tr>
<tr>
<td>20-30</td>
<td>Mean</td>
<td>4,05</td>
<td>3,03</td>
<td>2,9</td>
<td>3,82</td>
<td>3,47</td>
<td>4,06</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,19</td>
<td>1,32</td>
<td>1,29</td>
<td>1,2</td>
<td>1,24</td>
<td>1,07</td>
</tr>
<tr>
<td>31-40</td>
<td>Mean</td>
<td>3,55</td>
<td>2,53</td>
<td>2,33</td>
<td>3,69</td>
<td>3,06</td>
<td>3,84</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,1</td>
<td>1,24</td>
<td>1,23</td>
<td>1,25</td>
<td>1,28</td>
<td>1,21</td>
</tr>
<tr>
<td>41-50</td>
<td>Mean</td>
<td>3,24</td>
<td>2,21</td>
<td>2,09</td>
<td>3,36</td>
<td>3,12</td>
<td>3,7</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,25</td>
<td>1,49</td>
<td>1,33</td>
<td>1,5</td>
<td>1,32</td>
<td>1,19</td>
</tr>
<tr>
<td>50+</td>
<td>Mean</td>
<td>3,17</td>
<td>1,83</td>
<td>1,83</td>
<td>2,72</td>
<td>2,52</td>
<td>3,76</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,42</td>
<td>1</td>
<td>1</td>
<td>1,03</td>
<td>1,18</td>
<td>1,18</td>
</tr>
<tr>
<td>Total</td>
<td>Mean</td>
<td>3,68</td>
<td>2,62</td>
<td>2,47</td>
<td>3,58</td>
<td>3,17</td>
<td>3,93</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,26</td>
<td>1,38</td>
<td>1,31</td>
<td>1,28</td>
<td>1,29</td>
<td>1,14</td>
</tr>
</tbody>
</table>

Table 3: ANOVA Tests of Responses of Various Age Groups

<table>
<thead>
<tr>
<th>Statements</th>
<th>Sum of Sq.</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>26,78</td>
<td>4</td>
<td>6,69</td>
<td>4,49</td>
<td>0</td>
</tr>
<tr>
<td>Within Groups</td>
<td>309,87</td>
<td>208</td>
<td>1,49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>336,65</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>41,2</td>
<td>4</td>
<td>10,3</td>
<td>5,91</td>
<td>0</td>
</tr>
<tr>
<td>Within Groups</td>
<td>362,75</td>
<td>208</td>
<td>1,74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>403,95</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>33,61</td>
<td>4</td>
<td>8,4</td>
<td>5,3</td>
<td>0</td>
</tr>
<tr>
<td>Within Groups</td>
<td>329,44</td>
<td>208</td>
<td>1,58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>363,05</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>30,92</td>
<td>4</td>
<td>7,73</td>
<td>5,07</td>
<td>0</td>
</tr>
<tr>
<td>Within Groups</td>
<td>316,9</td>
<td>208</td>
<td>1,52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>347,81</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
We explore from which digital public relations tool customers first time learn about any news about the organization to see which of them are more effective to deliver news about the organizations to the consumers having various education background. Respondents are divided into various groups in terms of education and the descriptive statistics about their responses are given in Table 4. In the table, the numbers in the rows represent the statements about the digital public relations tool and 6. and 7. statements represent more traditional tools to see the difference (1:social media, 2:blogs, 3:forums, 4:company website, 5:e-mails, 6:SMS, 7:print media).

Table 4: Descriptive Statistics of Responses of Groups having Various Education Background

<table>
<thead>
<tr>
<th>education</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>elementary school</td>
<td>Mean</td>
<td>3.54</td>
<td>2.15</td>
<td>2</td>
<td>3.31</td>
<td>3.38</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1.33</td>
<td>1.28</td>
<td>1.35</td>
<td>1.18</td>
<td>1.19</td>
<td>1.29</td>
</tr>
<tr>
<td>high school</td>
<td>Mean</td>
<td>3.37</td>
<td>2.32</td>
<td>2.44</td>
<td>3.02</td>
<td>2.95</td>
<td>3.86</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1.34</td>
<td>1.36</td>
<td>1.43</td>
<td>1.41</td>
<td>1.37</td>
<td>1.2</td>
</tr>
<tr>
<td>associate degree</td>
<td>Mean</td>
<td>3.68</td>
<td>2.65</td>
<td>2.5</td>
<td>3.7</td>
<td>2.93</td>
<td>3.83</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1.29</td>
<td>1.51</td>
<td>1.36</td>
<td>1.29</td>
<td>1.42</td>
<td>1.38</td>
</tr>
<tr>
<td>under graduate</td>
<td>Mean</td>
<td>3.9</td>
<td>2.86</td>
<td>2.56</td>
<td>3.91</td>
<td>3.36</td>
<td>3.99</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1.18</td>
<td>1.34</td>
<td>1.21</td>
<td>1.04</td>
<td>1.22</td>
<td>1.04</td>
</tr>
<tr>
<td>post graduate</td>
<td>Mean</td>
<td>3.75</td>
<td>2.8</td>
<td>2.45</td>
<td>3.85</td>
<td>3.45</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1.16</td>
<td>1.28</td>
<td>1.23</td>
<td>1.35</td>
<td>1.05</td>
<td>0.72</td>
</tr>
<tr>
<td>Total</td>
<td>Mean</td>
<td>3.68</td>
<td>2.62</td>
<td>2.47</td>
<td>3.58</td>
<td>3.17</td>
<td>3.93</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1.26</td>
<td>1.38</td>
<td>1.31</td>
<td>1.28</td>
<td>1.29</td>
<td>1.14</td>
</tr>
</tbody>
</table>

To see whether there are differences among the groups having various education background are statistically meaningful at the level of 0.05, ANOVA analysis is done, and the results are seen in Table 5. Except for the company websites, there are no significant differences among the various groups’ responses. Thus, it is seen that consumers at various groups having various education background are affected at different levels from company websites.

We analyze from which digital public relations tools customers first time learn about any news about the organization to see which of them are more effective to deliver news about the organizations to the consumers from various income levels. Respondents are divided into various groups in terms of income and the descriptive statistics about their responses are shown in Table 6. In the table, the numbers in the rows represent the statements about the digital public relations tool and 6. and 7. statements represent more traditional tools to see the difference (1:social media, 2:blogs, 3:forums, 4:company website, 5:e-mails, 6:SMS, 7:print media).
Table 5: ANOVA Tests of Responses of Groups from Various Education Background

<table>
<thead>
<tr>
<th>Statements</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Between Groups</td>
<td>9,89</td>
<td>4</td>
<td>2,47</td>
<td>1,57</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>326,76</td>
<td>208</td>
<td>1,57</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>336,65</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Groups</td>
<td>13,57</td>
<td>4</td>
<td>3,39</td>
<td>1,81</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>390,38</td>
<td>208</td>
<td>1,88</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>403,95</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Groups</td>
<td>3,56</td>
<td>4</td>
<td>0,89</td>
<td>0,51</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>359,49</td>
<td>208</td>
<td>1,73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>363,05</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Groups</td>
<td>30,71</td>
<td>4</td>
<td>7,68</td>
<td>5,04</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>317,1</td>
<td>208</td>
<td>1,52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>347,81</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Groups</td>
<td>10,31</td>
<td>4</td>
<td>2,58</td>
<td>1,56</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>344,27</td>
<td>208</td>
<td>1,66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>354,57</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Groups</td>
<td>1,6</td>
<td>4</td>
<td>0,4</td>
<td>0,3</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>273,48</td>
<td>208</td>
<td>1,31</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>275,08</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Groups</td>
<td>9,63</td>
<td>4</td>
<td>2,41</td>
<td>2,23</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>225,02</td>
<td>208</td>
<td>1,08</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>234,65</td>
<td>212</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ANOVA analysis is done to see whether there are differences among the income groups and the results are seen in Table 7. There is significant difference among the various income groups’ responses in terms of SMS at the level of 0.05. Thus, it is observed that consumers at different groups having various education level are affected at different levels from SMSs.

Table 6: Descriptive Statistics of Responses of Various Income Groups

<table>
<thead>
<tr>
<th>income</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 2500-2500 TL</td>
<td>Mean</td>
<td>3,67</td>
<td>2,58</td>
<td>2,44</td>
<td>3,46</td>
<td>3,13</td>
<td>3,92</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,33</td>
<td>1,35</td>
<td>1,33</td>
<td>1,31</td>
<td>1,32</td>
<td>1,21</td>
</tr>
<tr>
<td>2501-4000 TL</td>
<td>Mean</td>
<td>3,8</td>
<td>2,73</td>
<td>2,61</td>
<td>3,84</td>
<td>3,36</td>
<td>3,93</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,26</td>
<td>1,39</td>
<td>1,33</td>
<td>1,35</td>
<td>1,38</td>
<td>1,11</td>
</tr>
<tr>
<td>4001-5500 TL</td>
<td>Mean</td>
<td>3,58</td>
<td>2,79</td>
<td>2,32</td>
<td>3,58</td>
<td>3,05</td>
<td>3,89</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,17</td>
<td>1,51</td>
<td>1,16</td>
<td>1,26</td>
<td>1,22</td>
<td>1,15</td>
</tr>
<tr>
<td>5501-above 5500 TL</td>
<td>Mean</td>
<td>3,45</td>
<td>2,45</td>
<td>2,4</td>
<td>3,6</td>
<td>3,05</td>
<td>4,05</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>0,89</td>
<td>1,47</td>
<td>1,31</td>
<td>0,82</td>
<td>0,89</td>
<td>0,76</td>
</tr>
<tr>
<td>Total</td>
<td>Mean</td>
<td>3,68</td>
<td>2,62</td>
<td>2,47</td>
<td>3,58</td>
<td>3,17</td>
<td>3,93</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,26</td>
<td>1,38</td>
<td>1,31</td>
<td>1,28</td>
<td>1,29</td>
<td>1,14</td>
</tr>
</tbody>
</table>

ANOVA analysis is done to see whether there are differences among the income groups and the results are seen in Table 7. There is significant difference among the various income groups’ responses in terms of SMS at the level of 0.05. Thus, it is observed that consumers at different groups having various education level are affected at different levels from SMSs.
Table 7: ANOVA Tests of Responses of Various Income Groups

<table>
<thead>
<tr>
<th>Statements</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Between Groups</td>
<td>2,12</td>
<td>3</td>
<td>0,71</td>
<td>0,44</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>334,53</td>
<td>209</td>
<td>1,6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>336,65</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Between Groups</td>
<td>2,05</td>
<td>3</td>
<td>0,68</td>
<td>0,36</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>401,9</td>
<td>209</td>
<td>1,92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>403,95</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Between Groups</td>
<td>1,7</td>
<td>3</td>
<td>0,57</td>
<td>0,33</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>361,35</td>
<td>209</td>
<td>1,73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>363,05</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Between Groups</td>
<td>5,54</td>
<td>3</td>
<td>1,85</td>
<td>1,13</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>342,27</td>
<td>209</td>
<td>1,64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>347,81</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Between Groups</td>
<td>2,73</td>
<td>3</td>
<td>0,91</td>
<td>0,54</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>351,85</td>
<td>209</td>
<td>1,68</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>354,57</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Between Groups</td>
<td>0,31</td>
<td>3</td>
<td>0,1</td>
<td>0,08</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>274,77</td>
<td>209</td>
<td>1,31</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>275,08</td>
<td>212</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Between Groups</td>
<td>13,41</td>
<td>3</td>
<td>4,47</td>
<td>4,22</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>221,23</td>
<td>209</td>
<td>1,06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>234,65</td>
<td>212</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We analyze from which digital public relations tools customers are affected positively after negative news about the company is spread in the market place. As discussed in the literature part, one of the functions of public relations is crises management. We want to see which digital public relations tool is more effective to achieve this function. Respondents are divided into various age groups and the descriptive statistics of their responses are shown in Table 8. In the table, the numbers in the rows represent the statements about the digital public relations tools and 7. statement represent more traditional tool which is customer service (1:social media, 2:blogs, 3:forum page of the company, 4:e-mails, 5:company website, 6:SMS, 7:customer service).

Table 8: Descriptive Statistics of Responses of Various Age Groups

<table>
<thead>
<tr>
<th>age</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 20</td>
<td>Mean</td>
<td>3,73</td>
<td>3,13</td>
<td>3,47</td>
<td>3,93</td>
<td>4,6</td>
<td>4,2</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,58</td>
<td>1,68</td>
<td>1,46</td>
<td>1,39</td>
<td>0,83</td>
<td>1,21</td>
</tr>
<tr>
<td>20-30</td>
<td>Mean</td>
<td>3,85</td>
<td>2,91</td>
<td>3,49</td>
<td>3,55</td>
<td>4,13</td>
<td>3,95</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,36</td>
<td>1,35</td>
<td>1,18</td>
<td>1,03</td>
<td>1,23</td>
<td>1,16</td>
</tr>
<tr>
<td>31-40</td>
<td>Mean</td>
<td>3,29</td>
<td>2,41</td>
<td>2,96</td>
<td>3,16</td>
<td>3,92</td>
<td>3,49</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,44</td>
<td>1,4</td>
<td>1,34</td>
<td>1,3</td>
<td>1,26</td>
<td>1,26</td>
</tr>
<tr>
<td>41-50</td>
<td>Mean</td>
<td>2,82</td>
<td>2,3</td>
<td>2,45</td>
<td>3</td>
<td>3,48</td>
<td>3,76</td>
</tr>
<tr>
<td></td>
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<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>1,42</td>
<td>1,36</td>
<td>1,39</td>
<td>1,39</td>
<td>1,44</td>
<td>1,35</td>
</tr>
<tr>
<td>50+</td>
<td>Mean</td>
<td>3,07</td>
<td>1,83</td>
<td>2,41</td>
<td>2,79</td>
<td>3,21</td>
<td>4,31</td>
</tr>
</tbody>
</table>

DOI: 10.17261/Pressacademia.2017.488 265
ANOVA analysis is done to see whether there are differences among various age groups in terms of their responses to the company's crisis management activity done using different digital public relations tools, and the results are seen in Table 9. Except for the sales service activities, there are significant differences among various age groups' responses at the level of 0.05. Thus, it is put forward that consumers at different age react differently to the company's digital public relations activities done with different public relations tools.

Table 9: ANOVA Analysis of Reactions of Various Age Groups

<table>
<thead>
<tr>
<th></th>
<th>Sum of Sq.</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>33,87</td>
<td>4</td>
<td>8,47</td>
<td>4,19</td>
<td>0</td>
</tr>
<tr>
<td>Within</td>
<td>420,76</td>
<td>208</td>
<td>2,02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>454,63</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To see which digital public relations tools are more effective when doing public relations activities on customers having various education background, we did some analyses. In Table 10 descriptive statistics are shown. In the table, the numbers in the rows represent the statements about the digital public relations tools, and 7. statement represents more traditional tool which is customer service (1: social media, 2: blogs, 3: forum page of the company, 4: e-mails, 5: company website, 6: SMS, 7: customer service).

Table 10: Descriptive Statistics of Responses of Various Education Groups

<table>
<thead>
<tr>
<th>education</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>elementary</td>
<td>Mean</td>
<td>3,23</td>
<td>2,69</td>
<td>2,77</td>
<td>3,08</td>
<td>4,23</td>
<td>3,77</td>
</tr>
<tr>
<td>N</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1,79</td>
<td>1,22</td>
<td>1,55</td>
<td>1,48</td>
<td>1,38</td>
<td>1,09</td>
<td>1,48</td>
</tr>
<tr>
<td>high school</td>
<td>Mean</td>
<td>3,25</td>
<td>2,54</td>
<td>2,8</td>
<td>2,97</td>
<td>3,53</td>
<td>3,78</td>
</tr>
<tr>
<td>N</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1,54</td>
<td>1,42</td>
<td>1,51</td>
<td>1,36</td>
<td>1,41</td>
<td>1,31</td>
<td>1,09</td>
</tr>
</tbody>
</table>
To compare the customer groups from various education background, ANOVA analyses are done in terms of their reactions to the company’s crisis management activity done using different digital public relations tools. It is possible to see the results in Table 11. E-mails sent by the company and the company website reveal significant difference in the reactions of the customers at the level of 0.05. Thus, it is put forward that company e-mails and company website are effective digital public relations tools at the times of crises.

Table 11: ANOVA Analysis of Reactions of Customers of Groups from Various Education Background

<table>
<thead>
<tr>
<th></th>
<th>Sum of Sq.</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Between Groups</td>
<td>4.28</td>
<td>4</td>
<td>1.07</td>
<td>0.49</td>
</tr>
<tr>
<td>2</td>
<td>Between Groups</td>
<td>9.16</td>
<td>4</td>
<td>2.29</td>
<td>1.21</td>
</tr>
<tr>
<td>3</td>
<td>Between Groups</td>
<td>11.27</td>
<td>4</td>
<td>2.82</td>
<td>1.52</td>
</tr>
<tr>
<td>4</td>
<td>Between Groups</td>
<td>18.28</td>
<td>4</td>
<td>4.57</td>
<td>3.08</td>
</tr>
<tr>
<td>5</td>
<td>Between Groups</td>
<td>25.7</td>
<td>4</td>
<td>6.43</td>
<td>4.06</td>
</tr>
<tr>
<td>6</td>
<td>Between Groups</td>
<td>4.64</td>
<td>4</td>
<td>1.16</td>
<td>0.8</td>
</tr>
<tr>
<td>7</td>
<td>Between Groups</td>
<td>6.31</td>
<td>4</td>
<td>1.58</td>
<td>1.3</td>
</tr>
</tbody>
</table>

To analyze whether income is an important determinant in customers’ reactions to the digital public relations activities of the company done with different digital public relations tools at the time of crises, we do some analyses. The descriptive statistics is shown in Table 12. In the table, the numbers in the rows represent the statements about the digital public
relations tools, and 7. statement represents more traditional tool which is customer service (1:social media, 2:blogs, 3:forum page of the company, 4:e-mails, 5:company website, 6:SMS, 7:customer service). We do ANOVA analysis to see whether there are differences among various income groups in terms of their responses to the company’s crisis management activity done using various digital public relations tools, and the results are seen in Table 13. Except for the customer service, there are no significant differences among groups at the level of 0.05. Thus, it might be inferred that customer service keeps its importance in influencing customers’ reactions to the company’s public relations activities during the times of crisis.

Table 12: Descriptive Statistics of Responses of Various Income Groups

<table>
<thead>
<tr>
<th>income</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 2500 TL</td>
<td>Mean</td>
<td>3.53</td>
<td>2.69</td>
<td>3.14</td>
<td>3.36</td>
<td>3.85</td>
<td>3.98</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>118</td>
<td>118</td>
<td>118</td>
<td>118</td>
<td>118</td>
<td>118</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.47</td>
<td>1.42</td>
<td>1.38</td>
<td>1.26</td>
<td>1.24</td>
<td>1.18</td>
<td>1.13</td>
</tr>
<tr>
<td>2501-4000 TL</td>
<td>Mean</td>
<td>3.54</td>
<td>2.36</td>
<td>2.95</td>
<td>3.32</td>
<td>4.02</td>
<td>3.73</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.51</td>
<td>1.21</td>
<td>1.33</td>
<td>1.24</td>
<td>1.46</td>
<td>1.17</td>
<td>1.04</td>
</tr>
<tr>
<td>4001-5500 TL</td>
<td>Mean</td>
<td>3.21</td>
<td>2.79</td>
<td>3.26</td>
<td>3.21</td>
<td>3.74</td>
<td>3.74</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.27</td>
<td>1.55</td>
<td>1.28</td>
<td>1.03</td>
<td>1.19</td>
<td>1.45</td>
<td>1.23</td>
</tr>
<tr>
<td>above 5500 TL</td>
<td>Mean</td>
<td>2.9</td>
<td>2.2</td>
<td>2.75</td>
<td>3</td>
<td>3.9</td>
<td>3.85</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.45</td>
<td>1.32</td>
<td>1.48</td>
<td>1.34</td>
<td>1.25</td>
<td>1.18</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>Mean</td>
<td>3.45</td>
<td>2.57</td>
<td>3.06</td>
<td>3.3</td>
<td>3.89</td>
<td>3.88</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
<td>213</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.46</td>
<td>1.38</td>
<td>1.37</td>
<td>1.24</td>
<td>1.29</td>
<td>1.2</td>
<td>1.11</td>
</tr>
</tbody>
</table>

Table 13: ANOVA Analysis of Reactions of Customers of Various Income Groups

<table>
<thead>
<tr>
<th></th>
<th>Sum of Sq.</th>
<th>df</th>
<th>Mean Sq.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Between Groups</td>
<td>8.38</td>
<td>3</td>
<td>2.79</td>
<td>1.31</td>
<td>0.27</td>
</tr>
<tr>
<td>2 Within Groups</td>
<td>446.25</td>
<td>209</td>
<td>2.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>454.63</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Between Groups</td>
<td>8.03</td>
<td>3</td>
<td>2.68</td>
<td>1.42</td>
<td>0.24</td>
</tr>
<tr>
<td>3 Within Groups</td>
<td>394.23</td>
<td>209</td>
<td>1.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>402.26</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Between Groups</td>
<td>4.1</td>
<td>3</td>
<td>1.37</td>
<td>0.73</td>
<td>0.54</td>
</tr>
<tr>
<td>4 Within Groups</td>
<td>392.1</td>
<td>209</td>
<td>1.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>396.21</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Between Groups</td>
<td>2.35</td>
<td>3</td>
<td>0.78</td>
<td>0.5</td>
<td>0.68</td>
</tr>
<tr>
<td>5 Within Groups</td>
<td>324.42</td>
<td>209</td>
<td>1.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>326.77</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Between Groups</td>
<td>1.58</td>
<td>3</td>
<td>0.53</td>
<td>0.31</td>
<td>0.82</td>
</tr>
<tr>
<td>6 Within Groups</td>
<td>353.72</td>
<td>209</td>
<td>1.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>355.3</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Between Groups</td>
<td>2.88</td>
<td>3</td>
<td>0.96</td>
<td>0.66</td>
<td>0.58</td>
</tr>
<tr>
<td>7 Within Groups</td>
<td>303.18</td>
<td>209</td>
<td>1.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>306.07</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Between Groups</td>
<td>11.38</td>
<td>3</td>
<td>3.79</td>
<td>3.2</td>
<td>0.02</td>
</tr>
<tr>
<td>8 Within Groups</td>
<td>247.9</td>
<td>209</td>
<td>1.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>259.28</td>
<td>212</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The previous analyses done all aimed to test the customers’ reactions to the digital public relations activities of the company. As we discussed in the literature part, in order for the organizations to carry out timely and purposeful public relations, it is necessary to capture the ideas and feeling of the customers. Digitalization has provided new tools to the customers to communicate their demands and complaints to the organizations. To get a general idea about this issue, we gave some statements to the participants of the survey to learn which digital tools they use to express their demands and complaints to the company. The frequencies are seen in Table 14. It is observed in the table that most of the customers still prefer traditional tools to communicate their demands and complaints. Thus, it could be said that organizations should not ignore the traditional channels of public relations.

Table 14: Customer Preferences about Tools to Express Their Demand and Complaints

<table>
<thead>
<tr>
<th>Tool</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neither agree nor disagree</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social media</td>
<td>63</td>
<td>36</td>
<td>29</td>
<td>13,62</td>
<td>41</td>
</tr>
<tr>
<td>2. Blogs</td>
<td>87</td>
<td>54</td>
<td>25</td>
<td>25,35</td>
<td>39</td>
</tr>
<tr>
<td>3. Company forum page</td>
<td>54</td>
<td>25,35</td>
<td>25</td>
<td>11,74</td>
<td>53</td>
</tr>
<tr>
<td>4. Company e-mail</td>
<td>28</td>
<td>15,96</td>
<td>41</td>
<td>19,25</td>
<td>55</td>
</tr>
<tr>
<td>5. Company website</td>
<td>24</td>
<td>10,33</td>
<td>33</td>
<td>15,49</td>
<td>57</td>
</tr>
<tr>
<td>6. Company physical store</td>
<td>9</td>
<td>4,23</td>
<td>6</td>
<td>2,82</td>
<td>22</td>
</tr>
<tr>
<td>7. Customer service phone</td>
<td>3</td>
<td>1,41</td>
<td>4</td>
<td>1,88</td>
<td>13</td>
</tr>
</tbody>
</table>

5. CONCLUSION

Digitalization has big impacts on business life and makes it necessary for the marketers to reconsider almost every issue. The nature of many concepts is undergoing evolution thanks to the opportunities digitalization provides to the business life. Therefore, many concepts in the marketing realm need to be researched in the new digitalized marketing context. An attractive topic that is in rise in the business life is digital public relations. Digital public relations is presenting so many opportunities as well as complexities which bear some risks to the marketers. This exploratory study is examining the effectiveness of digital marketing tools among different consumer segments. It is observed that demographic features are significant determinants of being prone to using digital tools, which gives significant hints to the managers about the strategies they could apply to different consumer segment. It is observed that young people are more adaptive to digital tools. Organizations should use both traditional public relations and digital public relations tools since both of them have potential to influence consumers.

REFERENCES


LIFESTYLE ENTREPRENEURSHIP IN TECHNOLOGY START-UPS: THE CASE OF “PIRI” MOBILE APPLICATION

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Ayla Esen¹, Tutku Eker Iscioglu²
¹Altinbas University, Istanbul, Turkey. ayla.esen@altinbas.edu.tr
²Piri Reis University, Istanbul, Turkey. teiscioglu@pirireis.edu.tr

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ABSTRACT
Purpose: Lifestyle entrepreneur is attributed to those business owners who have an aspiration for self-management and independence but with an emphasis on their quality of life with respect to their livelihood. In line with their lifestyles, these entrepreneurs are mostly motivated by the factors such as balance between work and family life, sufficient and comfortable living, freedom and flexibility rather than economic drives, such as enormous financial gains or business growth.
Methodology: Lifestyle entrepreneurship has long been associated with tourism or hospitality domain, especially with accommodation, bed & breakfast or guest house services. Acknowledging that the term is used for entrepreneurs who establish a business corresponding with their lifestyle, with the motivating factor of achieving better life quality and being their own boss, this study aims to build on existing lifestyle entrepreneurship conceptualization by transferring it to a technology start-up, simply by taking Piri mobile application as a case study.
Findings: Piri is an audio walk tour application that allows users to listen to the stories of cities from the tour guides as the users take one- or two-hour tours. It is developed by an entrepreneur who quitted professional business life because of challenging colleagues and demanding bosses, traveled all around the world for two years and created Piri as he returned back to homeland. An in-depth interview held with the entrepreneur of Piri revealed that lifestyle entrepreneurship of a technology start-up might be considered as a constrained lifestyle entrepreneurship where the entrepreneur has strong economic or growth motives but constrained by the desire of a particular lifestyle.
Conclusion: Results of the study indicate that lifestyle entrepreneurship can be observed in knowledge-intensive industries. Our specific case study on a mobile application developer showed that, technology start-ups may serve as means of self-realization, self-reflection, freedom, flexibility and social impact for entrepreneurs in addition to economic benefits. The findings of the study provide managerial and marketing implications for technology start-ups.

Keywords: Lifestyle entrepreneurship, technology start-up, innovation, marketing.
JEL Codes: L26, M13, M31

1. INTRODUCTION
Entrepreneurship involves the recognition of opportunities as well as the assembly of resources to exploit them, and entrepreneurs are people who can see the commercial value within these opportunities (Alvarez and Busenitz, 2001; Shane and Venkatraman, 2000). Research shows that, in recent decades entrepreneurship has occurred at significantly higher rates and entrepreneurship has become a suitable career identity for many people (Gartner and Shane, 1995; Thornton,
Entrepreneurship, non-economic determinants of entrepreneurship such as legitimacy, social mobility or psychological factors have increasingly been considered in recent research (McKay, 2001; Morrison, 2006). These studies posit that a growing number of individuals establish new ventures to suit their own lifestyle. In this sense, lifestyle entrepreneurship has become a popular concept since the term is linked to a business model where the entrepreneur generates income through pursuing a preferred style of life without compromising the work-life balance (Andrews et al., 2001).

The aim of this study is to explore lifestyle entrepreneurship, a concept which has been mostly associated with the tourism and hospitality domains, from the perspective of technology start-ups. The results of the study will shed light on the dynamics of a sector in Turkey that has significant growth potential. According to OECD’s Digital Economy Outlook 2015 Report, Turkey was ranked second in the world for use of high-speed mobile broadband networks via smart phones (OECD, 2015). There are 42 million active social media users in Turkey of which over 27 million people use Facebook daily, over 12 million people use Instagram at least once a month and Twitter has over 11 million users (TITA-Turkey, 2016).

This study will contribute to the current understanding on lifestyle entrepreneurship by providing an analysis of the motivations and behaviors of technology start-up entrepreneurs and the degree to which they are linked to the current characteristics of the lifestyle entrepreneurship concept. The paper is organized as follows: In the first part of the paper, we present a review of literature on lifestyle entrepreneurship and entrepreneurship in the technology domain. Additionally, we provide a framework that integrates various aspects of lifestyle entrepreneurship with motivations of mobile application entrepreneurs. In the second part of the paper, we provide detailed information on the case of the mobile application, Piri. We, then, analyze the motive and the nature of such entrepreneurial activity, relating these to lifestyle entrepreneurship. In the final section, we discuss managerial and marketing-related implications.

2. LITERATURE REVIEW

This section will provide an overview of research in lifestyle entrepreneurship and will relate certain aspects of the concept to entrepreneurial motivations and behaviors in technology start-ups.

2.1. Lifestyle Entrepreneurship

Lifestyle entrepreneur is attributed to those business owners who have an aspiration for self-management and independence but with an emphasis on their quality of life with respect to their means of income generation. Lifestyle entrepreneurs can be defined as “individuals who own and operate businesses closely aligned with their personal values, interests and passions” (Marketti et al., 2006, p.241). According to Morrison (2006), “the primary concern (of a lifestyle entrepreneur) is to provide a sufficient and comfortable living to maintain a selected way of life’ (p.198). Opposite to growth-oriented entrepreneurs, lifestyle entrepreneurs primarily start their businesses to undertake an activity they enjoy or to perform an economic activity to provide adequate income (Peters et al., 2009). Thus, personal satisfaction (Claire 2012), improving knowledge and friendship (Tucker and Lynch 2004), the desire to be his/her own boss (Lashley and Rowson 2010), self-affirmation (Lynch 2005; Sweeney and Lynch 2009) and the ability to balance work and family responsibilities (Lynch 1998), have all been identified as other motivations for lifestyle entrepreneurship. Table 1 summarizes the basic characteristics of lifestyle entrepreneurs.

Shaw and Williams (1998) have classified lifestyle entrepreneurs into two distinct groups: the constrained lifestyle entrepreneur and the non-constrained lifestyle entrepreneur. The constrained lifestyle entrepreneur is younger with strong economic motives; however they are constrained by the desire for a particular lifestyle. The non-constrained lifestyle entrepreneur is driven by a desire to be their own boss and to live in a particular location.

The high number of lifestyle entrepreneurs among tourism and hospitality firms has made it an attractive research topic in these domains (Lynch, 2005). However, there are also studies highlighting lifestyle entrepreneurs in other areas such as jewellery design, furniture design and coffee retail (Marketti et al, 2006). Although lifestyle entrepreneurship has been an area of interest for many scholars in the small business and tourism domains, as Allardye (2015) puts it, the topic is at the early stages of entrepreneurial research.

Table 1: Basic Characteristics of Lifestyle Entrepreneurs

| Valuing a decent living doing something one enjoys |
| Aligning entrepreneurial activity to fit with personal circumstances and style of life |
| Making money from a hobby |
| Prioritising personal over business goals |

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Not being growth motivated

Defining primary concern as providing a sufficient and comfortable living to maintain a selected way of life

Searching for a flexible work schedule

Respecting balance between family and work

Source adapted from: Claire (2012) and Morrison (2006)

2.2. Mobile Applications Industry and Lifestyle Ent

‘(1) instead of physical capital and labor, knowledge has become the driving force of economic growth; (2) individuals rather than firms are the leading factor in new knowledge creation; (3) as opposed to large conglomerates, small and new firms play the dominant role in transferring newly created knowledge to marketable goods; (4) traditional industrial policy, with antitrust laws and small business protection, has been replaced by a much broader entrepreneurship policy aiming to promote individuals and to enable high-growth potential start-ups’ (p.10).

In line with the rise of the knowledge-intensive entrepreneurial activity, the mobile applications industry has shown a tremendous growth in the last decade (Bresnahan et al., 2015). As Bresnahan et al. (2015) put it, ‘by successfully recombining existing information technologies with new innovations, (new mobile development platforms) have spurred a positive feedback loop of consumer adoption of mobile devices and firm entry into a wide variety of applications, or “apps.” (p.233).’

The mobile application industry has attracted the attention of a new generation of entrepreneurs since developing new products in this industry requires relatively less investment and time. According to Tiarawut (2013), ‘a typical mobile application requires, on average, three developers and three months of development time’ (p.1028). Although it is easy to establish a start-up, maintaining competitiveness in the mobile application industry is challenging. Application developers have to use novel and unique ways in the design of new products to enable consumers apply multiple features of their mobile device, such as GPS, camera and communications (Yin et al., 2014). In addition to the application itself, how it is priced, communicated and commercialized are also very important to create consumer desire. For the pricing of an application, various strategies are advised such as in-app advertising, in-app purchasing, freemium or sponsorship (Kanada, 2015). To create awareness and increase the number of downloads, prelaunch and after launch activities as well as using appropriate communication tools especially on digital platforms are also suggested (Dholakiya, 2015). Therefore, mobile entrepreneurs should not be seen as individuals pursuing an easy-to-achieve career goal considering both the development and commercialization stages of an application.

In addition to the traditional motivation of ‘seeking and exploiting opportunities’, entrepreneurs of technologically innovative new ventures are driven by self-fulfilment and self-realization motives as well (BarNir, 2012). The reasons for mobile entrepreneurs to start new businesses resemble similarities with motivations of constrained lifestyle entrepreneurs as defined by Shaw and Williams (1998). Table 2 is developed to demonstrate these similarities.

Table 2: Mobile Entrepreneurs and Constrained Lifestyle Entrepreneurship

<table>
<thead>
<tr>
<th>Characteristic of Constrained Lifestyle Entrepreneur</th>
<th>Mobile entrepreneur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young age</td>
<td>Entrepreneurs in technology start-ups are relatively younger</td>
</tr>
<tr>
<td>Strong economic motives</td>
<td>Entrepreneurs in this domain are seeking and exploiting opportunities for economic gains</td>
</tr>
<tr>
<td>Desire for a particular lifestyle</td>
<td>Motives such as self-fulfillment, flexible working conditions, livelihood through doing something one enjoys are among reasons for starting business</td>
</tr>
</tbody>
</table>

Source adapted from: Shaw and Williams (1998)

3. DATA AND METHODOLOGY

Case study methodology is a well established and widely recognized research method in social sciences, as it inspects a real life contemporary phenomenon (e.g. Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 1994). Additionally, because the study of lifestyle entrepreneurship requires exploring the experiences of entrepreneurs which would be difficult to identify
with numbers and statistical analysis, qualitative research is undertaken. More specifically, this research is developed based on a deductive qualitative case study, where the accumulated knowledge on lifestyle entrepreneurship is applied to a new situation. Therefore, the case developed in here aims to both confirm and develop an existing conceptualization of lifestyle entrepreneurship, but in an area with limited examples. For this purpose, a semi-structured interview, which lasted two hours, was held with the entrepreneur of a technology start-up.

The case study has been carried out on the basis of the instructions suggested by Miles and Huberman (1994) for single case studies. Although single case studies have been criticised because of their inability to deliver generalising conclusions (Tellis 1997), a single case could be considered adequate if it meets established objectives for the study. The objective of this study is to understand the motivations and behaviors of technology start-up entrepreneurs and thus if lifestyle entrepreneurship can be transferred to domains other than tourism and hospitality. To this end, the research question is to what extent technology start-up entrepreneurs can be associated with the characteristics of the lifestyle entrepreneurship.

4. FINDINGS AND DISCUSSIONS

4.1. About Piri

Piri is a smart phone application that provides information about the history and culture of the places traveled through, telling the stories of the buildings one might even have not noticed before. As this walking audio tour guides users on the way of the selected tours, two historian-travellers tell enjoyable stories out of history. Currently, the application includes four rotated tours in some of Istanbul’s historical districts, one in Edirne, one in Kars and another one in Konya. Other interesting places in Anatolia and various foreign cities like Amsterdam and London, as well as an English version of the application, will be added in near future.

Piri’s rich content comes from its unique guides: the most preferred tour guide of Turkey and a Turkologist share the stories that no one knew about those places. One of Turkey’s best sound producers has created the audible content in a way that the tours’ music and sound effects reflect the soul of the particular space. Due to location-based technology and maps developed, Piri tours are transformed into continuous and valuable experiences. When considering all of these, Piri offers a unique experience with very premium content at affordable prices. The application can be downloaded free of charge but each tour has a cost. An in-app advertising is not preferred because the entrepreneur wants this valuable experience to be uninterrupted for users.

The Piri team tried out tours with different user groups before commercializing the application. The experience of these groups allowed them to be the first to spread word-of-mouth about Piri when it was launched in November, 2016. Number of downloads reached to 10,000 in the first week of the launch. Currently there are more than 55,000 users and it is anticipated that the number will rapidly move towards a hundred. The team wants to spread this new understanding of travelguide from Turkey to the whole world. By 2020 they aim to reach 10 million travelers all over the world.

Piri brings a digital experience with a physical experience. Thus, communication strategies are planned in a similar way, where target people are informed through app stores, search engines and social media. On the other hand, one of the biggest banks of Turkey sponsors Piri and the credit card owners of that bank can download the tours without any cost. One of Turkey’s biggest GSM operators and airlines will be other sponsors of the application.

4.2. Lifestyle Entrepreneurship of a Technology Start-up

Piri is established by an entrepreneur, who took undergraduate and graduate degrees from Middle East Technical University and Bogazici University, the two leading universities of Turkey. He worked for a multinational technology company for five years and fulfilled various assignments in Africa and Middle East. Because of challenging colleagues and demanding bosses, he had a sudden decision of resigning from his duty and traveled all around the world for two years, have been to 26 countries and more than a hundred cities. In general, the entrepreneur definitely believes Piri reflects his own way of life, because it is a business that combines learning and traveling.

Having the opportunity to see the most magnificent places of the world, the entrepreneur witnessed that many people who visited these places were taking an Instagram photo and then leaving the area. He realized that when one does not get to know the story of the moment, he can not connect with that geography and its past. As he recalls, the impact of the cities he visited with a good guide has always been more impressive. Then he started to think how this experience can be offered with the easiest and most convenient conditions. After he returned back to homeland, he started to work full time for Young Guru Academy (YGA), for which he became a volunteer in 2009 before he took the world tour. YGA is a non-profit organization which cultivates selfless leaders to realize the dream of a brighter future for the younger generations and raises those volunteers as selfless leaders with social responsibilities (YGA, n.d). It embraces the standpoint that mission without a hearty vision is denegation and this leads them to be best for the world, instead of being best in the world. After starting full time for YGA, the entrepreneur has acted as the project leader and developed Piri application as a joint

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project of YGA. Although there are similar value propositions around the world, the entrepreneur and other YGA volunteers created Piri as a unique application with its content authenticity, production quality, location based technologies and partner ecosystem. Since YGA motivates graduates to develop projects with a socially responsible nature, he believes Piri serves to this objective by reaching a wider audience who cannot afford a tour guide and helping them become more acquainted with their own culture or different cultures. Seeing culture as a societal glue that keeps people together, the entrepreneur believes Piri also helps sustaining cultural identity.

In line with the philosophy of YGA, the entrepreneur defines success as the creation of environments in which “achievement altogether” is the ultimate goal and where people can witness the correct role models. Putting what he learnt in YGA into action, the entrepreneur has the pride of doing something that he enjoys for living and thus the actualization of his self. Doing all of these in a way that improves one another, he believes it is very valuable to work in an environment where ideas can be developed freely. Rather than owning beautiful houses or cars as a result of his success, he embraces the travelers’ minimalist lifestyle. Although he does not consider to earn for himself, he admits that Piri was established with economic motivations because economic sustainability is an important factor for ensuring that innovations and the philosophy of “achievement altogether” can be realized. In fact, in addition to the economic motivation, the main motivating factor of the establishment of Piri appears to be achieving success altogether, with other volunteers and graduates of YGA.

When working for a technology company, the entrepreneur of Piri believed that professional life does not offer a balance between work and private life. He thought working as an employee and fulfilling the required responsibilities is something that had to be done because it was compulsory and it steals from one’s private life. According to him, being an entrepreneur and working together with a group of people looking in the same direction and who are in search of doing something meaningful, do not necessitate a distinction between work and private life. As he states, it is such a precious experience that, he does not desire to balance these two different lives as the two concepts are naturally intertwined in his lifestyle as a mobile entrepreneur; that is, he enjoys what he does for a living.

The entrepreneur works with a small, young and dynamic team. Although he dreams of opening offices in different countries and thus enlarging the team in the future, currently Piri remains as a small business. He considers providing job opportunities to big-hearted leaders who have low ego as another socially responsible aspect of Piri.

4.3. Discussion

Our findings on the motivations and behavior of the entrepreneur of Piri are congruent with findings of extant literature on lifestyle entrepreneurship. The challenges that the entrepreneur previously experienced as an employee, such as demanding bosses and competitive colleagues, served as a trigger for entrepreneurial activity (Marcketti et al., 2006). The entrepreneur chose to develop a mobile application that serves as a comprehensive travelguide in order to do something he enjoys doing (Sweeney and Lynch, 2009), as he was a traveler himself. The entrepreneurial activity provided freedom and flexibility (Claire, 2012), away from previous employment structures towards being his own boss (Sweeney and Lynch, 2009). The entrepreneur’s relationship with YGA, his vision of “achievement altogether”, and his desire to be a role-model for younger entrepreneurs reflect his aspirations for giving back to society (Henricks, 2002). Therefore, the motivations for Piri seems to be connected to personal and psychological rewards, more than economic motivations, as it is the case in lifestyle entrepreneurship. On the other hand, one of the motivations of lifestyle entrepreneurship, seeking a balance between family life and work commitments (Lynch, 1998), may not apply to this case because the entrepreneur in fact does not need to distinguish them.

Considering the entrepreneur’s opinion that economic motivations are vital to ensure the development of innovations, the entrepreneurs of technology start-ups can be conceptualized as constrained entrepreneurs. As stated in the previous section, the constrained entrepreneur is younger with strong economic motives, but constrained by the desire for a particular lifestyle as well as the business, whereas the non-constrained entrepreneur is driven by a desire to be their own boss and to live in a particular location (Shaw and Williams, 1998).

The entrepreneur, however, did not lose his business perspective as he was alert to need and opportunities, and recognized the need for an easy-to-use travel guide which served as a mobile application enriching the customer experience through utilization of technology. He turned this opportunity into a profit-generating business with growth potential. This is in line with Marcketti et al.’s (2006) proposition that lifestyle entrepreneurs do not ignore the entrepreneurial perspective that influences their alertness to needs and opportunities in the market. We adapted the framework of lifestyle entrepreneurship developed by Marcketti et al. (2006) to summarize our findings in Figure 1.
5. CONCLUSION

Lifestyle entrepreneurship remains an underresearched area where there is need for further theory development and empirical research. This qualitative study highlighted the concept of lifestyle entrepreneurship and provided insight regarding its reflections in the mobile applications industry. Findings of the study provide information on the motivations and behaviors of entrepreneurs of technology start-up entrepreneurs and the degree to which they are linked to the current characteristics of the lifestyle entrepreneurship concept. Results of the study indicate that lifestyle entrepreneurship can be observed in knowledge-intensive industries. Our specific case study on a mobile application developer showed that, technology start-ups may serve as means of self-realization, self-reflection, freedom, flexibility and social impact for entrepreneurs in addition to economic benefits.

Although it provides a better understanding of how lifestyle entrepreneurship can be transferred to a new research field, this study has its limitation: the usage of a single case study. Despite its widespread acceptance, case study research, as an interpretive methodology, is more prone to subjective reporting and lack of generalizability (Eisenhardt, 1989; Yin, 1994). Therefore, to further analyze the dynamics of lifestyle entrepreneurship in technology start-ups, multiple cases should be analyzed. Additionally, future research should focus on case studies from a longitudinal perspective since the nature of entrepreneurship may change throughout the course of an entrepreneur’s life (Gibb and Ritchie, 1982).

In addition to building upon the current conceptualization of lifestyle entrepreneurship, this study also serves as a case to demonstrate marketing actions of a mobile application. From the value creation and design of the product to its pricing and communication, Piri is a good example to show different marketing activities may be required particular to mobile applications.
REFERENCES


AN INVESTIGATION ON THE EFFECT OF PERSONAL CHARACTERISTICS OF GENERATION Y ON THEIR ENTREPRENEURIAL TENDENCIES

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Gonul Konakay¹
¹Kocaeli University, Kocaeli, Turkey. gkonakay@hotmail.com

1. INTRODUCTION

The concept of entrepreneurship began to gain importance through the scientific study of Joseph Schumpeter. According to Schumpeter, an entrepreneur can be defined as an entrepreneur if there is innovation in his activity. Studies have shown that creativity, change, risk taking, pioneering and competitive thinking as well as innovation are necessary to become entrepreneurs (Çifçi, 2010: 345). In this regard, entrepreneurship is the demonstration and promotion of knowledge and experience with the talent and courage that one has intrinsically (Öner et al., 2016: 625). Especially in the 20th century, the concept of entrepreneurship is defined as the process of taking more risks, catching up on innovations, using the opportunities and putting them into practice (Göçmen, 2007: 2). In another study by Ronstadt (1984) entrepreneurship is defined as a dynamic process of an established ever-increasing wealth. According to Hisrich (1989), entrepreneurship is the process of a valuable difference brought about by time and effort; it is the prediction of the accompanying financial, psychological and social risks, and it is the formation of material rewards and personal pleasure (As cited in Kılıç, Keklik and Çalış, 2012: 425). According to Hatten (1997), risk is one of the evident behavioral characteristics of entrepreneurship. Entrepreneurs are reasonable or moderate risk takers who do not go to extremes (Bayram, 2014: 9). Innovativeness, which
is the use of new or improved products and processes, is another function of entrepreneurship. Innovativeness is the creation of prosperity by entrepreneurs creating new resources or increasing the utilization capacity of existing resources (Er, 2012: 32).

In distinguishing entrepreneurial individuals from other individuals and bringing successful entrepreneurs forward, individual differences should be emphasized, focusing on individual factors and values such as the individual's previous work experience, need for success, superior social skills and personal commitment (Çavuş and Akgemici, 2008).

Altuntuğ (2009:2) defines value as the importance given to objects and events by people. He states that today the concept of value, which also has moral, aesthetic and scientific qualities beyond the monetary criteria, has moved away from all these semantic qualities and the formal and material side has begun to come to the fore. In a study by Rokeach (1973) a personal value is defined as “an enduring belief that a specific mode of conduct or end-state of existence is personally and socially preferable to alternative modes of conduct or end-states of existence” (As cited in Schiffman et al, 2003:170).

Rokeach (1973) also argues that people have the same values but values are in different structures and exhibited differently in each individual (As cited in Hüseyiniklioğlu, 2010: 46). According to Yirik and Yıldırım (2014:100), individual values are the result of experiences that individuals acquire in the process of socialization. They develop in the social environment. In this regard, they are the product of a social system or a culture.

Schwartz (1996) describes values as three universal realities related to human existence in conscious goals. These are biological needs, social coordination requirements, and groups' survival and activity demands. Values also considered as universal necessities are grouped into 10 main headings as power, success, hedonism, arousal, self-orientation, universalism, benevolence, traditionalism, conformity and security (Bulut, 2012: 219).

Values which are described as basic principles leading to our lives (Schwartz, 1992) were stated as having an importance order, and this relative order guides our attitudes and behaviors (Şendil, Cesur, 2011: 4). In general, values research has ascribed to one of two basic models, which we refer to as “values as preferences” and “values as principles.” Values as preferences (work values) are essentially attitudes. They indicate the preferences that individuals have for various environments. For example, someone who values autonomy would be more satisfied with a job that provides considerable discretion (Parks, Guay, 2009: 676).

Universities, which are the highest level of the education system, are education organizations that convey the values, knowledge and skills to the growing generations, develop new thought norms and values and influence and steer the society. Beyond merely adopting values, these institutions also have the tasks and responsibilities to criticize, evaluate, and when necessary, attribute new meanings (Önder, Taş, 2014: 143). The values of the students, who are composed mostly of generation Y, are developed through these institutions during the education period.

2. LITERATURE REVIEW

2.1. The Concept of Generation and Generation Y

In the past, the differences between the generations used to develop more slowly and did not use to affect the business world much. However, especially the speed of changes in technology, the liberation of communication, the removal of borders and the serious changes in habits made it essential to investigate the values of Generation Y (Tekin, Akgemci, 2016: 17).

Because of the presence of some characteristic traits and value judgments within each generation, individuals exhibit characteristics similar to the behaviors of the generation group they are born with, but different from those of the other generation groups (Aykün, 2013: 96). There are similarities and differences among employees in terms of age, cultural background, physical abilities and disabilities, race, religion, sex, and sexual orientation. Workforce diversity occurs when there is a wide variety of people with different generations, i.e Gen-x & Gen-Y, culture backgrounds, nationalities, and ages in the workforce (Namibyar, 2014: 328)


Those who were born between 1980 and 1990 are called Generation Y, also known as Gen-Yers. Gen Yers are described as independent, entrepreneurial, self-confident individuals who expect to succeed in a short period of time, like freedom and flexibility, dislike micromanagement, have individual decision-making mechanisms and are good at using information technology (Konakay et al, 2015: 1). Generation X, those who were born after baby boomers, describes a demographic, social, cultural group in the Western culture and refers to people born in the1960s and 1970s. The term was given in 1964.
by American and British researchers Charles Hamblett and Jane Deverson (1964), who have conducted a series of interviews with teenagers. Definitely conformist youth cultures (pros and cons racism, homosexual rights, Vietnam War; hippies) were defined by the term Gen X. (Levickaitë, 2010:172)

Members of the Generation Y are usually described as optimistic, smart and able to work in teams. In addition, they are recognized for their respect and ability to live with different hierarchy levels and rules (Howe & Strauss, 2000). In the workplace, these individuals are described as skilled to perform multiple tasks at the same time, self-confident and comfortable to show their qualities. Fame and wealth are ideals to be achieved but, on the other hand, a surprising sense of empathy can lead the Generation Y to carry out social and charitable work. This generation comprises explorers and curious individuals that are always in search of a new job and experiences, a feature that can neglect marriage, children, and the purchase of a home. For them, free time, leisure, traveling and time to be spent with friends are priorities. Work must offer long periods of seclusion, possibility to work at home and provide an amusing corporate environment. If a job is considered unattractive and does not offer some of these characteristics, it is likely to be quickly abandoned or replaced by another one, since the threat of unemployment apparently does not frighten these youngsters. (Verzoni, Carolina: 2016: 107-108).

This generation is a generation that constantly asks the question “why?” and acts according to the answers it receives. The unrequited Y Generation can easily leave their work (Yelkikalan and Altin, 2010: 14). Time for Y Generation is a much more important value than money (Lai et al., 2010: 439).

Generation Y feels the guardianship of their family when they have problems. Their parents are also referred to as “helicopter families” because they are immediately there with their children when there is a problem or an emergency (Downing, 2006: 4). This generation, which has a lower dedication to work than older generations, becomes unhappy and less productive if it does not feel a sense of belonging to work. Therefore, spiritual satisfaction from work is more important than material satisfaction (Kömürçüoğlu, 2014: 45).

In his study of 2013, Ayhün emphasized the necessity for top management to handle and manage generation differences by referring to the importance of generations in the population.

In their study, Demirkaya et al., (2015) identified the difference of management perception among the generations in the business world, and determined the appropriate leadership style expectations through this perception. It has been determined that intergenerational management perception and the structure of working life in Turkey do not show parallelism with Western societies (Demirkaya et al, 2015: 186).

Kultalahti, et al. (2013), in their study, examined the leadership preferences of Y generation innovators and non-innovators. In the research conducted, the Y generation has more expectations than its leaders compared to the older generations, and they push the leader because they prefer Transformational leadership to other styles (Kultalahti, 2013: 152).

Günay (2016:155), in her study, compared two state universities regarding students’ entrepreneurship intentions and stated that the similarities of demographic factors that affect the students’ entrepreneurship intentions of both universities were seen on the same age groups and same objectives (establishing their own businesses, not considering to work in state agencies), and differences are observed in terms of gender and grades (semester). One of the important findings of the study is that entrepreneurship education at Trakya University affected the entrepreneurship intentions of the students partially and for a short period of time.

Korkmaz (2012), in her study, conducted to determine the entrepreneurialism inclination of university students, obtained significant correlations between students’ self-perception of having an entrepreneurial personality and their psychological, demographical and family factors which are effective in their will to establish a business in the future.

The studies in the literature generally measure the Generation Y students’ entrepreneurial values considering demographic variables. However, there is no research about how effective individual values of Generation Y is on entrepreneurship.

3. DATA AND METHODOLOGY

The purpose of the present study was to investigate whether individual values of Generation Y had an effect on their entrepreneurial tendencies. Within this context, some hypotheses were formed, and they were examined by means of statistical analyses. The study was administered to 948 Gen Y students of Kocaeli University who took the course titled Introduction to Business. The distributed questionnaires were analyzed with the SPSS program, and 512 questionnaires were included in the survey without any problems. The “Rokeach Value Inventory” was used for the personal characteristics the Generation Y university students. As a result of the factor analysis, individual characteristics such as Distrust of Others, Forgiveness, Trust, Honesty and Dedication to Work were determined. Entrepreneurial tendencies of Generation Y were determined by using the “Entrepreneurship Scale For University Students”, developed by Yilmaz and Sünbül in 2009. As a
result of the factor analysis, entrepreneurship characteristics were identified as leadership, innovation, sharing and risk taking. Significant differences in entrepreneurial tendencies were determined by t-test and Levene's test for gender variable at the level of being affected by variables based on demographic variables which were determined by factor analysis. For each of the variables of Entrepreneurship Trends of Y Generation students (Leadership, Innovation, Sharing and Risk Taking), the Individual Value Scale considered to affect these variables was subjected to Multiple Regression Analysis separately with factors called distrust, forgiveness, trust, honesty, and dedication to work.

3.1. Research Model
The hypotheses formed around the purpose of the research are as follows:

H1: There are significant gender differences in the dimensions of the entrepreneurship scale of the Y generation.

H2: There are significant gender differences in the dimensions of the values scale of Y generation students.

H3: There is a significant relationship between the leadership dimension of the entrepreneurship scale and the distrust to others dimension of the values scale of Y generation students.

H4: There is a significant relationship between the leadership dimension of the entrepreneurship scale of the Y generation students and the dimension of forgiveness of the values scale.

H5: There is a significant relationship between the leadership dimension of the entrepreneurship scale of the Y generation students and the trust dimension of the values scale.

H6: There is a significant relationship between the leadership dimension of the entrepreneurship scale of the Y generation students and the honesty dimension of the values scale.

H7: There is a significant relationship between the leadership dimension of the entrepreneurship scale of the Y generation students and the dedication to work dimension of the values scale.

H8: There is a significant relationship between the innovation dimension of the entrepreneurship scale of the Y generation students and the distrust to others dimension of the values scale.

H9: There is a significant relationship between the innovation dimension of the entrepreneurship scale of the Y generation students and the trust dimension of the values scale.

H10: There is a significant relationship between the innovation dimension of the entrepreneurship scale of the Y generation students and the honesty dimension of the values scale.

H11: There is a significant relationship between the innovation dimension of the entrepreneurship scale of the Y generation students and the dedication to work dimension of the values scale.

H12: There is a significant relationship between the sharing dimension of the entrepreneurship scale of the Y generation students and the distrust to others dimension of the values scale.

H13: There is a significant relationship between the sharing dimension of the entrepreneurship scale of the Y generation students and the trust dimension of the values scale.

H14: There is a significant relationship between the sharing dimension of the entrepreneurship scale of the Y generation students and the honesty dimension of the values scale.

H15: There is a significant relationship between the sharing dimension of the entrepreneurship scale of the Y generation students and dedication to work dimension of the values scale.

H16: There is a significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and the distrust to others dimension of the values scale.

H17: There is a significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and dedication to work dimension of the values scale.

H18: There is a significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and the trust dimension of the values scale.

H19: There is a significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and the forgiveness dimension of the values scale.
H20: There is a significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and the trust dimension of the values scale.

H21: There is a significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and the honesty dimension of the values scale.

H22: There is a significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and the dedication to work dimension of the values scale.

3.2. Results of the Research

According to Table 1, of the university students participating in the research, 57.4% are female and 42.6% are male. 0.66% of the university students participating in the survey are in 18-24 age range, 33% are in 25-34 age range and 2.09% are in 35-44 range. The family income status of the university students is as follows; 28.1% around 1000TL and below, 32.6% between 1001-2000TL, 23.8% between 2001-3000TL, 11.3% between 3001-5000TL, 4.1% over 5001. 28.5% of the university students’ career goals are in public sector, 30.3% in private sector, 2.0% in family business, 34.8% in self-employment and 4.5% point to other goals. The fact that those who want to set up their own business take the first place in the percentiles is the sign of the fact that entrepreneurship culture has started to be formed.

Table 1: Demographic Analysis of University Students

<table>
<thead>
<tr>
<th>GENDER</th>
<th>N</th>
<th>%</th>
<th>AGE</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>294</td>
<td>57.4</td>
<td>18-24</td>
<td>338</td>
<td>66</td>
</tr>
<tr>
<td>Male</td>
<td>218</td>
<td>42.6</td>
<td>25-34</td>
<td>169</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>512</td>
<td>100</td>
<td>35-44</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>512</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FAMILY INCOME STATUS</th>
<th>N</th>
<th>%</th>
<th>CAREER GOAL</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 TL and below</td>
<td>144</td>
<td>28.1</td>
<td>Public Sector</td>
<td>146</td>
<td>28.5</td>
</tr>
<tr>
<td>1001-2000</td>
<td>167</td>
<td>32.6</td>
<td>Private Sector</td>
<td>155</td>
<td>30.3</td>
</tr>
<tr>
<td>2001-3000</td>
<td>122</td>
<td>23.8</td>
<td>Family Business</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>3001-5000</td>
<td>58</td>
<td>11.3</td>
<td>Self-Employment</td>
<td>178</td>
<td>34.8</td>
</tr>
<tr>
<td>5001 and over</td>
<td>21</td>
<td>4.1</td>
<td>Other</td>
<td>23</td>
<td>4.5</td>
</tr>
<tr>
<td>Total</td>
<td>512</td>
<td>100</td>
<td>Total</td>
<td>512</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Factor Table of Entrepreneurial Trends of Generation Y Students

<table>
<thead>
<tr>
<th>FACTOR NAME</th>
<th>QUESTION</th>
<th>EXPRESSION</th>
<th>Factor Weights</th>
<th>Factor Descriptiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEADERSHIP</td>
<td>G35</td>
<td>I can make effective decisions about the future in business.</td>
<td>0.812</td>
<td>18,294</td>
</tr>
<tr>
<td></td>
<td>G34</td>
<td>I do not abstain from taking leadership in a job or practice.</td>
<td>0.765</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G36</td>
<td>My motivations and tendencies for different jobs are strong.</td>
<td>0.731</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G32</td>
<td>My creativity aspect is strong in my work.</td>
<td>0.673</td>
<td></td>
</tr>
<tr>
<td>INNOVATION</td>
<td>G20</td>
<td>I engage in projects and activities that allow me to look from a new perspective.</td>
<td>0.764</td>
<td>15,976</td>
</tr>
<tr>
<td></td>
<td>G19</td>
<td>I like to challenge old ideas and practices and explore better things.</td>
<td>0.746</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G21</td>
<td>I try to work with new methods that have not been used by others in the past.</td>
<td>0.658</td>
<td></td>
</tr>
</tbody>
</table>
G18: I like to work on projects that allow me to try something new. 0.616

G11: I talk about different business projects with my friends. 0.758

G12: I create areas where I can apply my skills. 0.72 13,768

G13: I do not hesitate to join some projects from my friends 0.683

G26: Every job has a risk. I can take all kinds of risks in my work. 0.791

G16: I do not hesitate to take risks. 0.719 11,895

G25: I am not afraid to make a mistake on a topic I’m working on. 0.632

TOTAL 59,933

KMO value of entrepreneurship scale is 859. The value obtained is an indication that the suitability of the factor analysis is at an excellent level. Cronbach's alpha value of the survey questions is 0.904.

Table 3: Table of Factor Load of Values Scale of Generation Y Students

<table>
<thead>
<tr>
<th>FACTOR NAME</th>
<th>QUESTION</th>
<th>EXPRESSION</th>
<th>Factor Weights</th>
<th>Factor Descriptiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTRUST TO OTHERS</td>
<td>D10</td>
<td>Instead of listening to other people's ideas, I find myself confronted with them.</td>
<td>0.702</td>
<td>12,914</td>
</tr>
<tr>
<td></td>
<td>D8</td>
<td>I do not trust anybody.</td>
<td>0.685</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D4</td>
<td>It is not for me to apologize.</td>
<td>0.671</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D12</td>
<td>Honesty and integration are not necessary outside the home.</td>
<td>0.661</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D21</td>
<td>I think trusting others is old fashioned.</td>
<td>0.621</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D36</td>
<td>I hold grudge.</td>
<td>0.586</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D31</td>
<td>I think apologizing is a sign of weakness.</td>
<td>0.559</td>
<td></td>
</tr>
<tr>
<td>FORGIVENESS</td>
<td>D28</td>
<td>I forgive someone who has done wrong to me in the past.</td>
<td>0.801</td>
<td>12,372</td>
</tr>
<tr>
<td></td>
<td>D14</td>
<td>I can forgive when someone hurts my feelings.</td>
<td>0.728</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D43</td>
<td>I can forgive people who make mistakes.</td>
<td>0.727</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D49</td>
<td>I can “forgive and forget”.</td>
<td>0.716</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D6</td>
<td>I can forgive people who promise to do something but do not do it.</td>
<td>0.647</td>
<td></td>
</tr>
<tr>
<td>TRUST</td>
<td>D44</td>
<td>I consider myself as an honest person.</td>
<td>0.769</td>
<td>10,428</td>
</tr>
<tr>
<td></td>
<td>D47</td>
<td>I am a trustworthy person.</td>
<td>0.695</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D39</td>
<td>People trust in me.</td>
<td>0.689</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D45</td>
<td>I am a person who people trust in.</td>
<td>0.646</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D52</td>
<td>I define myself as a loyal person.</td>
<td>0.536</td>
<td></td>
</tr>
<tr>
<td>HONESTY</td>
<td>D22</td>
<td>I can be honest about my own mistakes.</td>
<td>0.735</td>
<td>9,22</td>
</tr>
<tr>
<td></td>
<td>D13</td>
<td>Honesty has the highest priority for me.</td>
<td>0.684</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D15</td>
<td>I see myself as a disciplined person.</td>
<td>0.637</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D37</td>
<td>I feel good when I share with someone.</td>
<td>0.615</td>
<td></td>
</tr>
<tr>
<td>DEDICATION TO WORK</td>
<td>D54</td>
<td>I dedicated myself to see my employer’s success.</td>
<td>0.711</td>
<td>7,472</td>
</tr>
<tr>
<td></td>
<td>D34</td>
<td>I am a dedicated employee.</td>
<td>0.709</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D50</td>
<td>I am committed to a qualified working environment.</td>
<td>0.632</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL 52,407

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The KMO value of the values scale is 0.823. This value is an indicator that the suitability of the variables to the factor analysis is at the perfect level. Cronbach's Alpha value of the questionnaire is 0.779.

### Table 4: Differentiation of Leadership Factor in Terms of Gender Variance of Generation Y Students

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Ort.</th>
<th>s.s.</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>287</td>
<td>3,9286</td>
<td>76021</td>
<td>2,401</td>
<td>0.016</td>
</tr>
<tr>
<td>Male</td>
<td>215</td>
<td>4,0907</td>
<td>73261</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 4, Levene's test results for Entrepreneurship Leadership questions are: F = 3.75, P = 0.016, P = (0.000) <0.05. Therefore, leadership varies by gender.

### Table 5: Differentiation of Innovation Factor in Terms of Gender Variance of Generation Y Students

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Ort.</th>
<th>s.s.</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>294</td>
<td>3,4201</td>
<td>81134</td>
<td>2,357</td>
<td>0.018</td>
</tr>
<tr>
<td>Male</td>
<td>218</td>
<td>3,5894</td>
<td>79422</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 5, Levene's test results for Entrepreneurial Innovation questions are: F = 0.97, P = 0.018, P = (0.000) <0.05. Therefore, Innovation questions vary by gender.

### Table 6: Differentiation of Sharing Factor in Terms of Sex Variance of Generation Y Students

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Ort.</th>
<th>s.s.</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>294</td>
<td>3,2744</td>
<td>89511</td>
<td>2,046</td>
<td>0.038</td>
</tr>
<tr>
<td>Male</td>
<td>218</td>
<td>3,4312</td>
<td>80424</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 6, Levene's test results for Entrepreneurship Sharing questions are: F = 2.787, P = 0.038, P = (0.000) <0.05. Therefore, the sharing questions vary by gender.

### Table 7: Differentiation of Risk Factors in terms of Gender Variance of Generation Y Students

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Ort.</th>
<th>s.s.</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>294</td>
<td>3,5385</td>
<td>80799</td>
<td>2,900</td>
<td>0.003</td>
</tr>
<tr>
<td>Male</td>
<td>217</td>
<td>3,7404</td>
<td>73471</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 7, Levene's test results for Entrepreneurship Risk taking questions are: F = 2.841, P = 0.003, P = (0.000) <0.05. Therefore, Risk taking questions vary by gender.

### 3.3. Multiple Regression Model

In the generated regression model, it is necessary to test whether the independent variables all together have a significant effect on the dependent variable at the determined confidence level. According to this, the leadership factor of entrepreneurship in model 1, the innovation factor of entrepreneurship in model 2, the sharing factor of entrepreneurship in model 3 and finally the risk factor of entrepreneurship in model 4 were added as the dependent variable, and the factors of the individual values scale, namely, distrust to others, forgiveness, trust, honesty, and dedication to work were added to four models as independent variables.

#### Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the F Value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>0.371</td>
<td>0.137</td>
<td>0.126</td>
<td>6.9445</td>
<td>12.233</td>
</tr>
<tr>
<td>Innovation</td>
<td>0.282</td>
<td>0.079</td>
<td>0.068</td>
<td>7.7975</td>
<td>6.766</td>
</tr>
</tbody>
</table>

DOI: 10.17261/Pressacademia.2017.490
## Partial Regression Coefficient Test of Leadership Factor

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.429</td>
<td>0.367</td>
<td>3.891</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Distrust to others</td>
<td>0.025</td>
<td>0.043</td>
<td>0.031</td>
<td>0.581</td>
<td>0.561</td>
</tr>
<tr>
<td>Forgiveness</td>
<td>0.024</td>
<td>0.041</td>
<td>0.029</td>
<td>0.584</td>
<td>0.559</td>
</tr>
<tr>
<td>Trust</td>
<td>0.323</td>
<td>0.072</td>
<td>0.239</td>
<td>4.496</td>
<td>0.000</td>
</tr>
<tr>
<td>Honesty</td>
<td>0.096</td>
<td>0.052</td>
<td>0.099</td>
<td>1.864</td>
<td>0.063</td>
</tr>
<tr>
<td>Dedication to work</td>
<td>0.162</td>
<td>0.054</td>
<td>0.155</td>
<td>2.982</td>
<td>0.003</td>
</tr>
</tbody>
</table>

### a. Dependent Variable: Leadership

In the Coefficients table, the value of b13.2456 is 0.323 and the H<sub>0</sub> Hypothesis is REJECTED because the significance value is <0.05 at the significance level of 0.05. That is to say, the value of Trust is effective on Leadership at the significance level of 0.05.

In the Coefficients table, the value of b16.24567 is 0.162 and the H<sub>0</sub> Hypothesis is REJECTED because the significance value is <0.05 at the significance level of 0.05. That is to say, Dedication to work is effective on Leadership at the significance level of 0.05.

## Partial Regression Coefficient Test of Innovation Factor

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.487</td>
<td>0.407</td>
<td>3.654</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Distrust to others</td>
<td>0.139</td>
<td>0.047</td>
<td>0.159</td>
<td>2.957</td>
<td>0.003</td>
</tr>
<tr>
<td>Forgiveness</td>
<td>0.068</td>
<td>0.046</td>
<td>0.075</td>
<td>1.467</td>
<td>0.143</td>
</tr>
<tr>
<td>Trust</td>
<td>0.07</td>
<td>0.08</td>
<td>0.047</td>
<td>0.872</td>
<td>0.384</td>
</tr>
<tr>
<td>Honesty</td>
<td>0.136</td>
<td>0.057</td>
<td>0.128</td>
<td>2.365</td>
<td>0.019</td>
</tr>
<tr>
<td>Dedication to work</td>
<td>0.159</td>
<td>0.06</td>
<td>0.14</td>
<td>2.636</td>
<td>0.009</td>
</tr>
</tbody>
</table>

### a. Dependent Variable: Innovation

In the Coefficients table, b12.3456 is 0.159 and the H<sub>0</sub> Hypothesis is REJECTED because the Sig. value is <0.05 at the significance level of 0.05. In other words, the value of Distrust to others is effective on the innovation value of Entrepreneurship at the significance level of 0.05.

In the Coefficients table, the b15.2346 value is 0.128 and The H<sub>0</sub> Hypothesis is REJECTED because the Sig. value is <0.05 at the significance level of 0.05. In other words, the value of Honesty is effective on the innovation value of Entrepreneurship at the significance level of 0.05.

In the Coefficients table, the b16.2345 value is 0.140 and The H<sub>0</sub> Hypothesis is REJECTED because the Sig. value is <0.05 at the significance level of 0.05. In other words, the value of Dedication to Work is effective on the innovation value of Entrepreneurship at the significance level of 0.05.
Partial Regression Coefficient Test of Sharing Factor

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>0.847</td>
<td>0.423</td>
<td></td>
<td>2.004</td>
<td>0.046</td>
</tr>
<tr>
<td>Distrust to others</td>
<td>0.116</td>
<td>0.049</td>
<td>0.127</td>
<td>2.383</td>
<td>0.018</td>
</tr>
<tr>
<td>Forgiveness</td>
<td>0.15</td>
<td>0.048</td>
<td>0.159</td>
<td>3.135</td>
<td>0.002</td>
</tr>
<tr>
<td>Trust</td>
<td>0.134</td>
<td>0.083</td>
<td>0.086</td>
<td>1.609</td>
<td>0.108</td>
</tr>
<tr>
<td>Honesty</td>
<td>0.182</td>
<td>0.06</td>
<td>0.163</td>
<td>3.039</td>
<td>0.003</td>
</tr>
<tr>
<td>Dedication to work</td>
<td>0.113</td>
<td>0.063</td>
<td>0.094</td>
<td>1.799</td>
<td>0.073</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Sharing

In the Coefficients table, the b12.3456 value is 0.116 and the H_0 hypothesis is REJECTED because the Sig. value is <0.05 at the significance level of 0.05. In other words, the value of Distrust to others is effective on the sharing value of Entrepreneurship at the Sig. Level of 0.05.

In the Coefficients table, the b13.2456 value is 0.150 and the H_0 hypothesis is REJECTED because the Sig. value is <0.05 at the significance level of 0.05. In other words, the value of Forgiveness is effective on the sharing value of Entrepreneurship at the Sig. Level of 0.05.

In the Coefficients table, the b15.2346 value is 0.182 and the H_0 hypothesis is REJECTED because the Sig. value is <0.05 at the significance level of 0.05. In other words, the value of Dedication to Work is effective on the sharing value of Entrepreneurship at the Sig. Level of 0.05.

Partial Regression Coefficients Test of Risk Taking Factor

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.714</td>
<td>0.399</td>
<td></td>
<td>4.302</td>
<td>0</td>
</tr>
<tr>
<td>Distrust to others</td>
<td>0.142</td>
<td>0.046</td>
<td>0.168</td>
<td>3.086</td>
<td>0.002</td>
</tr>
<tr>
<td>Forgiveness</td>
<td>0.085</td>
<td>0.045</td>
<td>0.097</td>
<td>1.879</td>
<td>0.061</td>
</tr>
<tr>
<td>Trust</td>
<td>0.155</td>
<td>0.078</td>
<td>0.108</td>
<td>1.969</td>
<td>0.05</td>
</tr>
<tr>
<td>Honesty</td>
<td>0.101</td>
<td>0.056</td>
<td>0.098</td>
<td>1.796</td>
<td>0.073</td>
</tr>
<tr>
<td>Dedication to work</td>
<td>0.053</td>
<td>0.059</td>
<td>0.048</td>
<td>0.893</td>
<td>0.373</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Risk Taking

In the Coefficients table, the b12.3456 value is 0.168 and the H_0 hypothesis is REJECTED because the Sig. value is <0.05 at the significance level of 0.05. In other words, the value of Distrust to others is effective on the Risk Taking value of Entrepreneurship at the Sig. Level of 0.05.

4. FINDINGS AND DISCUSSIONS

Acceptance and rejection of the hypotheses formed around the purpose of the research are as follows:

There are significant gender differences in the dimensions of the entrepreneurship scale of Y generation students. The H1 hypothesis is ACCEPTED according to the Levene test results. Male students from the Y generation show significant differences in their entrepreneurship tendencies compared to female students in terms of Leadership (Male X = 4.09, Female X = 3.93), Innovation (Male X = 3.59, Female X = 3.42), and in Sharing (Male X = 3.43, Female X = 3.27), and Risk Taking (Male X = 3.74, Female X = 3.54).

There is no significant gender difference in the dimensions of the values scale of Y generation students. According to the results of the Levene test, the H2 hypothesis is REJECTED.

There is no significant relationship between the leadership dimension of the Entrepreneurship scale of the Y generation students and distrust, forgiveness and honesty dimensions of the values scale. According to the regression analysis performed, H3 hypothesis is REJECTED because P value is greater than 0.561 > 0.05, H4 hypothesis is REJECTED because P value is greater than 0.559 > 0.05, and H6 hypothesis is REJECTED because P value is greater than 0.063 > 0.05.
There is a significant relationship between the leadership dimension of the entrepreneurship scale of the Y generation students and the trust and the dedication to work dimensions of the values scale. $H_5$ hypothesis is ACCEPTED because $p$ value is $0.000 < 0.05$, and $H_7$ hypotheses is ACCEPTED because $p$ value is $0.003 < 0.05$.

There is a significant relationship between the innovation dimension of the entrepreneurship scale of Y generation students and the dimension of distrust to others, honesty and dedication to work dimensions of the values scale. $H_2$ hypothesis is ACCEPTED because $p$ value is $0.003 < 0.05$, $H_{11}$ hypothesis is ACCEPTED because $p$ value is $0.019 < 0.05$, $H_{12}$ hypothesis is ACCEPTED because $p$ value is $0.003 < 0.05$.

There is no significant relationship between the innovation dimension of the entrepreneurship scale of the Y generation students and forgiveness and trust dimensions of the values scale. $H_8$ hypothesis is REJECTED because $p$ value is greater than $0.143 > 0.05$, and $H_{10}$ hypothesis is REJECTED because $p$ value is greater than $0.384 > 0.05$.

There is a significant relationship between the sharing dimension of the entrepreneurship scale of Y generation students and distrust to others, forgiveness and honesty dimensions of the values scale. $H_{13}$ hypothesis is ACCEPTED because $p$ value is $0.018 < 0.05$, $H_{14}$ hypothesis is ACCEPTED because $p$ value is $0.002 < 0.05$, $H_{16}$ hypothesis is ACCEPTED because $p$ value is $0.002 < 0.05$.

There is no significant relationship between the sharing dimension of the entrepreneurship scale of the Y generation students and distrust to others dimension of the values scale. $H_{15}$ hypothesis is REJECTED because $p$ value is greater than $0.108 > 0.05$, and $H_{17}$ hypothesis is REJECTED because $p$ value is greater than $0.073 > 0.05$.

There is a significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and distrust to others dimension of the values scale. $H_{18}$ hypothesis is ACCEPTED because $p$ value is $0.002 < 0.05$.

There is no significant relationship between the risk taking dimension of the entrepreneurship scale of the Y generation students and forgiveness, trust, honesty and dedication to work dimensions of the values scale. $H_{19}$ hypothesis is REJECTED because $p$ value is greater than $0.061 > 0.05$, $H_{20}$ hypothesis is REJECTED because $p$ value is greater than $0.050 > 0.05$, $H_{21}$ hypothesis is REJECTED because $p$ value is greater than $0.373 > 0.05$.

5. CONCLUSION

Each generation has its own characteristic traits and value judgments. In the study conducted to find out how much these value judgments affect the entrepreneurial tendencies of Generation Y, different dimensions and different results were obtained. The research on Generation Y is quite new. In the related literature, most studies are about leadership choices of Generation Y, their behaviors in the workplace, and their individual characteristics. This study contributes to the literature by comparing entrepreneurial tendencies of generation Y and individual characteristics. The limitation of the study is that it only covers the generation Y students of Ömer İsmet Uzunyol Vocational High School of Kocaeli University who attend the course titled Introduction to Business. The study can be applied to other universities and it can be used to test if there is a difference between the students of public universities and private universities as well. One can also investigate how much generation Y is affected by the other generations. An increase in the number of such studies is considered as a basis for economic development and the welfare of the country. New values of the concepts such as technology, innovation and creativity will gain momentum with the generation Y’s entrepreneurial tendencies and their ability to activate these tendencies.

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A STRATEGIC APPROACH TO INNOVATION

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Ebru Dogan
Istanbul University, Faculty of Economics, Department of Business Administration, Istanbul, Turkey. ebruseng@istanbul.edu.tr

ABSTRACT

Purpose- The aim of this study is to examine the concept of strategic innovation - which includes a strategic approach to innovation - within the framework of its antecedents, the elements forming it and the advantages provided to the company.

Methodology- Theoretical analysis: Innovation has been analyzed from a strategic point of view by examining the current literature extensively.

Findings- Along with the impact of globalization and the emerging new technologies, companies must manage the change by perceiving it as an opportunity to be able to sustain, grow and compete in a rapidly changing environment and respond to change with innovation. Innovation reflecting the perspective of companies on change creates value through change. In today’s business world, there are true opportunities for the ones that can manage the process of change well. At this point, a company desiring to create value and maintain the sustainable competitive advantage should use innovation strategically.

Conclusion- A strategic perspective on innovation leads the organization to look at the whole system beyond the product and the process in order to create value. Successful companies in innovation deal with it in a holistic and systematic approach by developing a fully integrated innovation strategy with its mission and objectives and by making organizational culture and organizational systems compatible with the strategy. Strategic innovation is a future-oriented concept that contains a creative discovery. The strategic consideration of innovation involves the use of appropriate strategic management techniques to increase the impact of innovation activities on growth and performance of the company.

Keywords: Innovation, strategy, strategic innovation, strategic management, change.

JEL Codes: M10, M13

1. INTRODUCTION

Today's business environment has changed qualitatively from many directions since the late 1980s. An economy based on manufacturing and commodities has quickly become an economy where information, services, support and distribution issues are more important. This change has increased the importance of information workers being a new class of wealthy, educated and mobile people who see themselves as free in the seller’s market. Along with the information age, the acceleration of technological change in almost every sector, besides the domination of information technologies, has created entirely new businesses, they have destroyed those who cannot adapt to this change and have created an ever increasing demand for innovation. New product, process, and distribution technologies provide powerful levers for creating competitive value. More companies have realized the importance of disruptive technologies; innovation has attained a potential that invalidates a product line or even an entire business division. Another fundamental trend has become the decoupling of consumer and labor markets. Consumer expectations are changing very rapidly and even similar customer groups can have very different preferences for the products they want to buy. Today, new technology has made it easier, faster and cheaper to reach target micro markets that were physically impossible and too expensive to reach in the past. Moreover, this tendency is self-sustaining and the ability of a company to serve sub-markets is accompanied by an increasing demand from customers for more specific presentations (Nadler&Thusman 1999: 48,49).

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Such changes in the competitive environment affect many companies unwittingly due to the features that can appear at any time and can have important consequences for the development and management of products, markets and organizational capabilities. They have to get away from monolithic and rigid organizational strategies and practices in such an environment (Ahmed and Shepherd, 2010: 82). These changes in the business environment challenge the basic assumptions about organizational design. While the purpose of historically organizational structures is to institutionalize the stability, the purpose of design in today's organizations will be the institutionalization of change. In this regard, there is a profound change in the purpose and meaning of organizational design (Nadler&Thusman 1999: 49). Past accomplishments do not guarantee a survival in the long run now. Managing the continuously changing aspect of change is the challenge to strategy. In this context, successful firms are those that can innovate and develop strategically (Ahmed and Shepherd, 2010: 82).

Today, change has become a natural part of the business; however, even more important is the increasing speed of change. The life span of products, processes and technology is rapidly shortening and the critical issue at this point emerges as managing the time. The demands revealed by the time pressure push the companies towards competing, innovating and finding creative ways and methods while doing it.

As a result of this change, firms must strategically use innovation to compete effectively in local and global markets, to gain competitive advantage, to adapt their strategies to changing market and customer demands, to create value and to achieve superior performance (Keupp, Palmié and Gassmann, 2012: 367). In this study, innovation is addressed from a strategic point of view, the basic elements of strategic innovation are examined and the role of strategic innovation for companies in creating value and maintaining sustainable competitive advantage is put forward.

2. INNOVATION

The word innovation comes from the Latin, innovare, and is about change. Innovation is a process of creating value from ideas (Tidd and Bessant, 2014: 3).

According to Drucker, “Innovation is the act that endows resources with a new capacity to create wealth. Innovation, indeed, creates a resource. There is no such thing as a resource until man finds a use for something in nature and thus endows it with economic value” (Drucker, 1985: 27).

“An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations” (OECD-Eurostat, 2005: 45).

When the most successful innovations are analyzed, it is observed that they are the beneficiaries of the change. As a matter of fact, change always provides opportunities for the new and different one. “The discipline of innovation is a diagnostic discipline: a systematic examination of the areas of change that typically offer entrepreneurial opportunities”. Systematic innovation means tracking seven sources for innovative opportunity. The first set of sources is included in the business or industry. These are ‘the unexpected’ which means an unexpected success, failure or an event in outer environment, ‘the incongruity’ indicating the innovation based on the process need – the changes that cannot follow everyone in industry or market structure. The second set of sources contains the changes apart from the business or industry. These are demographics (population changes) – changes in perception, mood and meaning – and new knowledge (Drucker, 1985: 31,32).

The ability of companies to innovate is not limited to the development of products; it may target four main procedures. These all begin with a ‘P’: P1 innovation to introduce or improve products; P2 innovation to introduce or improve processes; P3 innovation to define or re-define the positioning of the firm or products; P4 innovation to define or re-define the dominant paradigm of the firm. P4 provides a structured approach in order to analyze the opportunity field for innovation (Francis and Bessant, 2005: 172). The alternatives can be arranged in four dimensions as shown in Table 1 according to the type of change.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Type of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Changes in the things (products/services) which an organization offers</td>
</tr>
<tr>
<td>Process</td>
<td>Changes in the ways in which these offerings are created and delivered</td>
</tr>
<tr>
<td>Position</td>
<td>Changes in the context into which the products/services are introduced</td>
</tr>
<tr>
<td>Paradigm</td>
<td>Changes in the underlying mental models which frame what the organization does</td>
</tr>
</tbody>
</table>

Source: Tidd and Bessant, 2014: 24

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Pressures on firms to make innovation can come from trajectories (such as technological progress and changes in the economy) or actors (such as shareholders, suppliers, customers and competitors). In order to eliminate the tension between the impairment of the status quo and existing competencies, organization starts to search for opportunities and resources to innovate and build new core competencies. Thus, firm starts an innovation process. Management shapes the nature and activity of the process by dividing the resources into the operational skills and transforming these resources into basic skills that are difficult to imitate for competitors (Sammut-Bonni and Parautis, 2013: 925, 928).

Innovation is any product or service that creates extraordinary value for shareholders, real and sustainable competitive advantages and unique and effective solutions valued by customers. Sustainable competitive advantage can be achieved through the identification, creation and use of unique organizational knowledge, skills and experience that cannot be imitated by the rivals. Organizations must start positioning the innovation as the fundamental capability (Snyder and Deborah, 2003: 6-8).

In a study conducted on innovation leaders in twenty-five sectors, it has been delivered that such firms have drawn away their competitors and displayed a performance over the average stock prices. All the economic growth that has taken place since the eighteenth century can be attributed to innovation. Innovation involves a dynamic goal; effective management if innovation doesn’t guarantee the success due to the fact that technology, markets, arrangements and other factors are continuously changing. Successful innovators are interested in developing dynamic talent to change their approach (Tidd and Bessant, 2014: 9).

Companies faced with a complex and uncertain future and operating in such areas as information technology, multimedia and communications need to find a new direction in the 21st century in order to master the competition. They need to manage a radical transformation of the basic framework used in the past including current strategies, structure, culture, competencies and business processes. Organizations should be flexible in order to respond to competition threats coming from their competitors on the one hand and they should still maintain the growth based on their strengths by ensuring a sustainable working environment on the other. In this regard, it is necessary to ensure more effective operation of managers, to develop creativity through innovation management and to think on global scale while acting locally (Kodama, 2003: 235).

Although innovation has different meanings, it manifests itself in different ways in a similar way. These formats are derived from the variety of meanings implied. Formats are generally divided into two categories; those under the control of an operator and those outside the scope of company or affecting each other. Strategic innovation forms the types of innovation that are under the control of the enterprise together with product and process innovation (Figure 1). Any form of innovation occurs when value is added to produce a hitherto novel outcome (Ahmed and Shepherd, 2010: 7-11).

- Product innovation is the most visible manifestation of innovation process. The products consumed by the market represent the visible traces of the innovation process or action. New products are the result of the innovation process and product innovation can be focused on technology or marketing.

- Process innovation expresses the change in execution of the organization activities of an enterprise. How a company organizes and manages its functions can be a result of the technological improvements or it may come from the acceptance of the latest structural or operational form.

- Strategic innovation usually involves a major adaptive change in the firm’s business model or the adoption of a new business model. They can sometimes be driven by innovations that occur within the organization such as strategic change, product and process innovations or by external innovations and challenges. External strategic changes such as mergers are the most common manifestations of strategic innovations. Also, internally focused strategic innovations generally involve structurally remodeling.

- Social innovation is the result of many factors that come together in order to drive a society that is constantly changing towards a new direction (e.g.: heightened awareness of atmospheric pollution has made society environment conscious and this in turn led to social innovation).

- Political innovation is often observed in the form of legislation, institutional reform, social orientation and governance. The changes that take place in the political arena often have important consequences for the direction and development of the society as well as the organizations.

- In philosophical innovation, new philosophical thought has profound influence on society, promotes the knowledge of the society and enables the community to be guided by defining what is right and wrong.

Companies have now realized that business management is not only behavioral but also an intellectual discipline and that different thinking is a necessary condition to be different (Styles & Goddard, 2004: 65):
3. STRATEGIC INNOVATION

3.1. The Concept of Strategic Innovation

The competitive environment that companies face today is very different from the competitive environment that created the concept of strategy fifty years ago. However, the rapidly changing strategy environment has become a power that partially depresses some traditional strategy concepts such as industry structure analysis while evoking a lot of new thoughts at the same time. Indeed, this context changing for the strategy has encouraged many new ideas on strategy content. The new themes in the strategy world include foresight, knowledge, competencies, coalitions, networks, extra-market competition, ecosystems, transformation and renewal. In order to maintain their existence in an “innovate or die” environment of the new economy, companies must develop a new strategy, which is highly important for them (Hamel, 1998: 9,10).

A new competitive situation called “hyper-competition” emerged in the 90’s. Hyper competition is a structure in which the core competitive success factor is to constantly develop new products, processes and services with increasing functionality and performance for customers. There are also increasing technological pressures on firms. It has been acknowledged that the technological life cycles in some industries have declined compared to previous times. New technologies have a strong competitive influence and therefore technological dynamics will affect the competitive dynamics and strategy of companies. Organizations should be more innovative and think proactively in their strategic management (Drejer, 2006: 143,144). At the same time, a company should try to institutionalize innovation by establishing appropriate cultures, structures, incentives, systems and processes that will realize innovation as a part of everyday work (Markides, 1997: 22).

In recent years, widespread researches into scientific and managerial conception of strategy and innovation have been observed. Nevertheless, most of these researches are either focused on strategy or innovation; so that strategy and innovation have evolved considerably separately in the schools of thought. In this context, the strategy literature is primarily focused on the level of the institution and the business units while the innovation literature is mostly focused on...
the product level. However, researchers have tackled the innovation and corporate strategy together unlike the traditional tendency in recent years. In this regard, strategic innovation can be expressed as the implementation of innovation on corporate strategy (Schlegelmilch, Diamantopoulos and Kreuz, 2003: 118).

The strategic management of innovation indicates an important component of the corporate strategy and an important factor that has a significant contribution to a company's competitive advantage. For this reason, the strategic management of innovation has become a fundamental issue in the field of strategic management. An innovation can be a new product or service, a new production process technology, a new structure or administrative system or a new plan or program pertaining to organizational members (Keupp et al., 2012: 367). “The field of strategic management, deals with the major intended and emergent initiatives taken by general managers on behalf of owners, involving utilization of resources to enhance the performance of firms in their external environments” (Nag, Hambrick and Chen, 2007: 942). In this context, the strategic management of innovation is concerned with the use of appropriate strategic management techniques in order to increase the effect of firm’s innovation activities on firm’s growth and performance (Keupp et al., 2012: 368).

Innovation has traditionally focused on products and processes, and then it has attracted attention as an area that will provide significant gains regarding innovation; however, the combination of product, process and distribution hasn’t reflected the sufficient potential for organizational innovation. Nadler and Thusman have stated that the successful organizations of the future are those who will develop extraordinary skills to innovate in the areas of strategy development and organizational design. If the most critical feature of the new business environment is the increasing speed of change, the ability to develop and implement new strategies and organizational designs quickly and creatively will become an important source of competitive differentiation (Nadler and Thusman 1999: 52). The developments experienced over the course of 20 years also confirm these opinions.

Strategy deals with the essential issues of maintaining the entity’s existence, represents the new activities and areas of interests and addresses the unusual affairs for the organization (Drejer, 2006: 146). In a world where discontinuity is dominant, the strategic innovation is perceived as a key to creating wealth and as the only way to combat resource disadvantages for new entrants of the market and to maintain success (Hamel, 1998: 8). In a turbulent economic environment characterized by radical changes in a short time, it is essential for the enterprise to have the ability to develop and play a different game. Developing a unique strategy requires learning at a high level of innovation, proactivity, calculated risk taking and analysis of the changes that occur in customer preferences and behaviors of competitors (Preda, 2013: 608). Companies must focus more on strategic innovation that integrates and even transcends all dimensions of innovation in order to create sustainable growth (Moeller, Stolla and Doujak, 2008: 14).

There are different definitions about strategic innovation in the literature. Accordingly;

Strategic innovation is the redesigning capacity of a firm in a way to create new values for customers over the existing industry model and to generate new wealth for all stakeholders (Hamel, 1998: 8).

Schlegelmilch et al. describes strategic innovation as “the fundamental reconceptualization of the business model and the reshaping of existing markets (by breaking the rules and changing the nature of competition) to achieve dramatic value improvements for customers and high growth for companies”. There are three main factors in this definition. These factors are as follows; reconceptualization of business model (reanswering such questions related to business model “in which business line we are in”, “who are our customers”, “how can we create value”), reshaping the existing markets and creating value for customers (Schlegelmilch et al., 2003: 118,119).

According to Drejer, “Strategic innovation is the ability to create and revitalize the business idea and concept of the company by changing both the market of the company and the competencies and business system of the company. In this way, strategic innovation is concerned with developing the entire company” (Drejer, 2006: 144).

According to Markides, all companies in an industry have to decide on three main issues at strategic level: 1) Who will be our customers?, 2) What products and services should we offer to target customer? and 3) How should we offer these products and services?. In short, the answers of “who-what-how” questions constitute the strategy of every enterprise. A strategic positioning map for an enterprise shows the answers to these questions and each company has to make choices that will answer these questions. While some companies may choose to focus on specific customer segments and offer specific products and services, others prefer to be global players and offer related products and services. Some companies may even choose a specific technology or distribution method. However, a specific industry positioning map is filled over time. For instance, most of the possible customer segments have been considered; most products and services have been offered; the most common distribution or production methods or technologies have been used (Markides, 1997: 11,12).

Strategic innovation takes place when an enterprise establishes gaps in its industry positioning map and decides to bridge these gaps. The gaps express 1) newly emerged customer segments or those ignored by competitors, 2) newly emerged customer needs or the existing customer needs that aren’t well-serviced by rivals and 3) new production, presentation and
distribution methods of existing or new products and services for current or new customer segments. While the gaps may occur due to such reasons as changing customer pleasures and preferences, changing technologies and changing governmental policies etc., they can also be proactively created by outer changes or the company (Markides, 1997: 12; Markides & Anderson, 2006: 131).

The first requirement to be a strategic innovator is to define these gaps before everyone else. However, being the first one to identify the right gaps does not guarantee success; a company has to use this gap competitively (Markides, 1997: 12). Strategic innovators go after these gaps and find ways to turn them into profitable markets. They find new customers (“new whos”), new products or services (“new whats”) and new ways (“new hows”) to promote, produce or distribute them (Anderson & Markides, 2007: 83). In this regard, strategic innovation means for an enterprise to test new strategies with new combinations created about who, what and how questions. Strategically innovative companies discover the process of continuous learning, experiencing and developing new business opportunities, concepts and new strategies related to these three dimensions (Moeller, Stolla and Doujak, 2008: 15). In this context, strategic innovation is the innovation in the creation and implementation of the strategy; new knowledge is the discovery of the unknown to create new markets and a new field of competition (Preda, 2013: 608).

After examining more than thirty companies that challenged the market leader, Markides has uttered that the common element of success is strategic innovation. Significant changes in market share and revenues arise from the fact that the company changes the rules of the game rather than playing better than the competitors. Without any new technological innovation, it is extremely difficult for any company to compete successfully with the established industry leaders or to enter into a new market where resident companies are located. “The strategy that seems to improve the probability of success in those situations is the strategy of breaking the rules -strategic innovation”. (Markides, 1997: 9-11).

The idea behind strategic innovation is based on three themes: 1) Strategic managers should consider strategy for both tomorrow and today if they want to continue their success. 2) Different types of organizations are needed to succeed in innovation and effectiveness. Creative thinking is different from traditional analytical thinking. 3) Competition focuses on the concepts and business models that change the rules of competition play rather than product markets and technology (Drejer, 2006: 144).

The basic elements of strategic innovation are as follows (Styles & Goddard, 2004: 65):
- A firm is seen as a pool of scarce and valuable resources and capabilities that are exploited through a specific business model or strategy.
- High returns are derived not from adapting the same appropriate policies as everyone else, but from industry-wide hard assumptions.
- Inspiration for innovation may come from the feeling that there is no customer satisfaction and no other choice by the business.
- A radical change in operational efficiency creates more value than the incremental improvement.
- Strategy focuses on shaping some aspects of the future environment.

Strategic innovation is different from technological or product innovation. New technologies don’t always deliver successful products or new products aren’t important strategically. Strategic innovation made in at least one of these three areas of value chain design, conceptualization of customer value and identification of potential customers draws a line under the past implementations. Strategic innovation involves a discovery to create new knowledge and possibilities. Strategic testing is used to test the applicability of new business ideas (Govindarajan & Trimble, 2004: 69). While managing the strategic testing, a CEO must make choices about structure, staff, systems and culture. These choices together constitute the fundamental rationale of how an organization behaves. At this point, Govindarajan and Trimble (2005) propose the concept of organizational DNA which is constituted by organization’s structure, systems, personnel and culture (Govindarajan and Trimble, 2005: 48,49).

3.2. Sources and Outcomes of Strategic Innovation

In literature, there are four key forces determined to feed the strategic innovation in an enterprise together; these are culture, processes, people and sources. The outcomes of strategic innovation are customer value and competitive positioning. Schlegelmilch et.al. have proposed Strategic innovation MIMIC Model containing these factors that affect strategic innovation and the outcomes of strategic innovation (Figure 2).
Culture: It is necessary to understand its strong connection with the organizational culture while trying to understand the strategy and its development. “Strategies are both rooted in and partly explained by organization culture”. The organizational culture to be formed under the influence of visionary leaders in the organization is one of the most important strategy areas (Clark, 1995: 2). The most important cultural value on which researchers unanimously agree that it is necessary for strategic innovation is the creation of a questioning attitude. A prerequisite for strategic innovation is the identification of dominant mental models that manifest themselves in the organization’s culture, routines and non-written codes of conduct. An industry’s most dominant mental model is business perception including the assumptions concerning area of competition, customers, suppliers and technology. Companies have to create a culture that challenges traditionalism, exposes the feeling of discovery and encourages decision makers to look at different perspectives. Today, an enterprise can sustain its innovation-focused culture by encouraging project teams with flexible organizational boundaries, creating an environment where ideas and creativity is freely expressed and supporting staff turnover (Schlegelmilch et.al., 2003: 120).

An organizational culture devoted to innovation and openly recognizing the collective nature of innovation efforts will undoubtedly increase innovative success (Panne, Beers and Kleinknecht, 2003: 19) In a global survey of more than 700 publicly traded companies from 17 developed and developing countries’ economies, it has been determined that the culture is the most important driver of innovation. A different innovative culture helps to harmonize the innovation approach of an organization with business strategies (Schroeder, 2013: 7,8).

Processes: Innovation requires the use of structures and systems to support each phase of the innovation process, the allocation of adequate resources to each business cycle and the clear description of responsibilities (Schroeder, 2013:10). The traditional strategy development process is often characterized as an analytical and time-ordered discourse. As a result, strategic planning is criticized for being rule-based, control-oriented and based on many historical examples. These features lead to a general acceptance of dominant business parameters and as a reflection of this, the outcome of the strategic process is limited by existing conditions and opportunities for growth may be overlooked. On the other hand, the strategic innovation process is a process of growth-oriented and future-oriented process involving a creative discovery and therefore, it deliberately surpasses existing business boundaries. So, growth opportunities neglected by traditional processes can be utilized by discovering the areas where there is no rivalry. The creative strategic innovation process and the traditional analytical strategy process must be combined (Schlegelmilch et.al., 2003: 120,121).

Figure 2 : Strategic Innovation MIMIC Model

Source: (Schlegelmilch et.al., 2003: 127).
Wood proposes a simple approach to the question of how firms can achieve repeatable successful strategic innovation: rather than trying to develop a clear, detailed plan of how the innovative organization should work, starting with a big and enthusiastic goal, improvising some steps along with a team to this end and maximizing learning from improvisation (Wood, 2007: 21). A well-thought executive strategy can give an opportunity to make more strategic innovations to a company (Eppink, 1995: 158). This process allows the emergence of new procedures and methods embodying the wisdom of the organization and can encourage future recurrent innovation (Wood, 2007: 21).

Innovation processes are based on innovative ways of making innovation that occur with less routine planning used for more strategic innovation. In his work, Wood brings out successful implementations of a five-step process in order to initiate constant strategic innovation. However, the key to understand these steps is to realize the importance of improvisation. Leaders need to understand the difference between improvisational change and planned change to support effective strategic innovation processes. The five-step process used by successful companies requires continuous learning from below points in order to reveal a vague yet powerful goal, the first innovation experiments that have been largely improvised and effective strategic innovation routines. The process is as follows in companies making innovation (Wood, 2007: 21-27):

1. Accepting change as indispensable. Leaders recognize the crisis that the organization is facing and help others understand and confront it.

2. A commonly-shared strong goal is to develop strategic intent. The goal should have an emotional attraction and so it should be easily supported by people. Benefits must be open to society, not just for the company. The goal is the main idea to advance the first innovations.

3. A person who is motivated by a strong goal makes a new and different innovation without following any well-defined rules or methodology.

4. Some innovations seem to succeed and people copy the first innovation processes, adapt them to new uses and thus create new innovations.


- **People**: Innovative organizations are aware of the fact that the innovator is not the organization but the people who make the organization innovative with their thoughts and movements (Dobni, 2008: 43). A widespread criticism in the literature is that the strategy is typically formulated by senior executives in an organization. However, their experience is valuable only to the extent that future is similar to the past. In industry the terrain is changing so fast that experience becomes irrelevant (Hamel, 1996: 48). One of the factors strongly associated with successful innovation is the ability to establish strong relations with internal and external stakeholders in order to cooperate with them or to incorporate them into the innovation process (Schroeder, 2013: 7,8). In this framework, the strategy creation process is strong only when the dialogue related to strategy is pluralistic and broadly participatory by overcoming all functional and hierarchical limits. Anyone whose supports are needed for the successful implementation of a new strategy should be included in its creation process. In the context of strategic innovation, representatives from R & D, sales, marketing, finance and other basic functions must play an active role in developing strategy. Additionally, the different perspectives that young people, newly-recruited people in business and stakeholders around a business can bring to creation of a strategy should become more effective. Creating a dialogue that transcends the organizational and industrial boundaries of the strategy significantly increases the likelihood of emerging new strategic insights (Schlegelmilch et.al., 2003: 122).

- **Resources**: One of the main tasks of the managers is to procure, develop and appropriately distribute the resources of an organization. According to traditional logic, a company must use its existing resources (assets and capabilities). Superior business performance can be achieved when these company-specific resources are rare, valuable, unique, and have no equivalent substitutes. According to this resource-based view, companies see the job opportunities in terms of their existing assets and capabilities and they ask the following question: what can we do best if we accept what we have as data? Thus, internal systems and capabilities of focusing should be matched with the external opportunities. A great deal of the literature on strategic innovation criticizes the inward approach focused on these corporate capabilities because it limits the opportunity horizon of the business (Schlegelmilch et.al., 2003: 122). The opportunity to make innovation depends on the opinion on strategy and company’s success. Hamel and Prahalad have expressed their view of strategy as “stretch” against the traditional strategy view, which is the fit between the opportunities/threats and the strengths/weaknesses. Successful companies don’t always comply with the ‘fit’ criterion and most of them can benefit from the resources of other companies by entering into strategic alliances instead of doing everything through their own means (Eppink, 1995: 159). In this sense, strategic innovators are violating the paradigm of matching internal resources with external opportunities and are asking the following question: What would we do if we were starting a new? They choose to
create and maintain strong relations that provide stakeholders network and complementary assets, capabilities, products and services (Schlegelmilch et.al., 2003: 123). Today, however, technology is a very important resource for many organizations and they should manage this resource for competitive advantage and integrate it with the strategy of the firm (Burgelman, Christensen and Wheelwright, 2004: 2).

According to Pitt and Clarke, “strategic innovation is the purposeful orchestration and directed application of organizational skills and knowledge”. Effective strategic management requires the deployment of this ‘architectural’ ability, which is primarily an organizational skill, not a technical skill. Effective strategic management is basically the development of collective information and the regulation of leverage. Business-specific ‘architectural’ skill is primarily an organizational and managerial competence and it is undoubtedly crucial for success in the long run (Pitt and Clarke, 1999: 301,312). Numerous studies have emphasized the importance of innovation as a critical success factor in business performance. Leading global companies such as Apple Inc., 3G and Procter & Gamble owe their business success to the continuous registration of their successful innovations. The available evidence shows that the most successful companies in the innovation field approach to innovation with a holistic and systematic approach by developing a fully integrated innovation strategy with the mission and objectives of the business and by according the organizational culture and organizational systems with strategy (Schroeder, 2013: 6).

Surveys show that monitoring a clearly defined innovation strategy is one of the preconditions for success in innovation. However, many enterprises cannot afford to spend time and resources in developing ideas that are tangential to the organizational missions or their main objectives. Creating a strategy defines a broad scope within which innovations that present business value can be developed; the strategy is a series of decisions concerning where the business will play and how to win in order to maximize long-term value. Therefore, innovation strategy must depend on organizational mission, main values and business goals. It will define the goals and objectives of innovation, the acceptable ways to fulfill them and the responsibilities for developing solutions in specific areas. This strategy not only helps to develop value-creating innovations, it also motivates employees to find innovative solutions to specific organizational issues and subjects (Schroeder, 2013: 9).

A strategic perspective on innovation and strategic thinking will motivate the organization to look at the entire system beyond the product and the process to provide value to customer. Strategy and innovation is a motivation to promote participation and to produce value-creating innovations and its reward is profit and sustainability (Stewart and Fenn, 2006:182). Success in creating customer value is largely due to proactive market interpretation rather than tracking customer recommendations. Strategic innovation is concerned not with making marginal or incremental improvements, but with making a significant leap about value. Thus, strategically innovative companies proactively create value and provide new solutions to customers (Schlegelmilch et.al., 2003: 119).

Innovation means creating value via change. However, it can be risky to change work in a random way; if the company does not know where it is going, it can go somewhere different. In this respect, there is a clear sense of direction at the heart of effective innovation management: how and where innovation will help us progress? Another reason why an innovation strategy is a good idea is that it clarifies the question of - even the best equipped organization cannot do everything and therefore for what and why will it spend its rare resources? At this point, innovation strategy can give a road map for change. However, there is no certainty that the new technology will really work and that the expected market will come into being because there is a vague future; the actions of competitors or governments sometimes happen unexpected for the enterprise. Of course, it is useful for a company to have a road map in order to reach the point it wants to arrive; but the fact that it opens to change shouldn’t be ignored. Strategy is also related to determining a vision about future. Three main elements in creation of innovation strategy are as follows: strategic analysis- exploring where we could innovate; strategic choice- choosing between different options; strategic implementation- planning to make innovation happen (Tidd and Bessant, 2014: 21,22).

Strategically innovative firms follow competition by changing the traditional competitive mentality expressed as making an effort to exert superior performance than their competitors; however, they use it as benchmark. They don’t follow any strategy as the competitors apply, they make competition irrelevant by offering fundamentally new and superior value. Strategic innovators first identify the total solution that buyers want to achieve when choosing a product or service and then look for complementary product and service offerings outside the industry to discover the value in the dark (Schlegelmilch et.al., 2003: 124-127). Process innovation and product innovation are the predominantly used methods to maintain the company’s competitive position. However, in order to strengthen the growth potential of a company, it is desirable to create new business - which is another strategic option - and to create new market space through new business concepts. It can be focused on a new set of customer needs, addressed to new or insufficient customer segments or new methods of offering value can be presented (Moeller et.al., 2008: 10,11).
4. CONCLUSION

Along with the information age, the dominance of information technology and rapid technological change in almost every sector have created completely new businesses, have destroyed those who cannot adapt to this change and have made a constant need for innovation. Today, stakeholder expectations are changing rapidly and the areas of responsibility of the company are expanding day by day. The companies faced with a complex and uncertain future need to find a new direction to maintain their existence, compete and sustain their achievements. The life span of products, processes and technologies is rapidly shortening and the demands revealed by the time pressure push companies to find new creative ways and methods while making innovation. In this regard, they need to be flexible enough to respond to any change that may arise in the environment and develop a strategic view of innovation in order to sustain their existence.

Today, the rapidly changing competitive environment has become a force that motivates new ideas while partially reducing the value of traditional strategy concepts. A company should try to institutionalize innovation by creating the appropriate culture, structure, systems and processes that enable the emergence of innovation. Companies should focus more on strategic innovation that integrates all dimensions of innovation to ensure sustainability, long-term profit, competitive advantage and diversification. A strategic perspective on innovation will guide the organization to look at the whole system beyond product and process, ensure motivation to generate innovations that will encourage participation, strategy and create value and will be the key to sustainable competitive advantage for companies.

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Pınar Kaya¹, Tolga Erol² and I. Gokhan Ozbilgin³
¹HAVELSAN Technology and Academia Directorate, pkaya@havelsan.com.tr
²HAVELSAN Technology and Academia Directorate, terol@havelsan.com.tr
³HAVELSAN Technology and Academia Directorate, gozbilgin@havelsan.com.tr

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ABSTRACT

Purpose- In this paper, the methodology of definition a tailored Technology Management (TM) Framework for a large scale enterprise defense company (HAVELSAN) will be explained briefly, and selected subset of TMF components in the company will be further discussed. The method of managing technologies in enterprises depends primarily on the size of the company and its organizational structure.

Methodology- The main purpose of this paper is the identification and analysis of the factors influencing the manner in which technologies are managed in big enterprise companies especially focused on defense industry.

Findings- The concepts that are investigated and the methodologies that are developed in this study are primarily based on the case of technology management framework within a defence technology enterprise.

Conclusion- The methods of defining a newly introduced Technology Management Framework (TMF) will help to enhance knowledge related to the development of methods used for technology management and the technology management tools in relation with each other.

Keywords: Technology management, technology management framework, technology taxonomy, technology roadmap, technology radar, technology readiness level, technology competency.
JEL Codes: O32

1. INTRODUCTION

The term TM has been defined as, combination of the disciplines of engineering and management sciences with the purpose of planning, development and implementation of technological capabilities which will enable the implementation of strategic and operational objectives of the organization [1]. Therefore, TM is a set of management disciplines that allows organizations to manage their technological fundamentals to create competitive advantage, the advantages should be clearly identified from the beginning.

Many managers are aware of the strategic importance of technology in delivering value and competitive advantage to their companies. These issues are becoming more critical as the cost, complexity and rate of technology change increase, and competition and sources of technology globalise. The management of technology for business benefit requires effective processes and systems to be put in place to ensure that the technological resources within the organisation are aligned with its needs, now and in the future [8]. As the organizations develop, an orchestration is required in order to define, collect, manage and improve the activities related with technology, which is TM.
Although TM has aforementioned advantages, the task of integrating the TM into businesses has become a complex and challenging step to overcome. For this purpose, in accordance with the needs of the organizational structure, existing processes within the organization, market requirements in the current sector, technological competencies, core and critical technologies needs to be assessed to be able to define all of the relevant TM components.

2. LITERATURE REVIEW

The tools of the TMF such as; technology radar, S curves, road-mapping, patent analysis, technology readiness levels in relation with a technology taxonomy, asset libraries, portfolio management, licensing, etc. has been studied and provided in [1-3]. It would be fair to say that there is not a common toolset or a defined framework that could be taken as a benchmark. Therefore, selection of TM components will be a tailored step that companies will have to experience solely; in accordance with the company goals, expectations after TMF definition, the business innovation level that they would like to get into.

US National Research Council (NRC) team has also defined the key elements of technology management [2], which served other researchers to build the models of technology management. These keys elements of the TM are:

- identification and evaluation of technological options
- R&D management of and the determination of the feasibility of the projects
- integration of technologies into the organization’s activities
- implementation of new technologies in products and/or services
- obsolescence management and replacement of technology;

including five major activities in the field of technology management of in an enterprise, among which it is possible to distinguish as;

- identification,
- selection,
- acquisition,
- operation and
- protection of technology.

Roadmaps can take various forms, but the most common approach is encapsulated in the generic form proposed by EIRMA (European Industrial Research Management Association) (1997), which is Market, Product, Technology and Research and Development (R&D) and the STAR® methodology. The generic roadmap is a time-based chart, comprising a number of layers that typically include both commercial and technological perspectives. The roadmap enables the evolution of markets, products and technologies to be explored, together with the linkages between the various perspectives [6].

3. TMF METHODOLOGY

3.1. Approach to TMF

HAVELSAN is an IT(Information Technologies) and systems company providing global solutions in the areas of defense and IT sectors, and expanding its expertise in the fields of C4ISR(Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance), Naval Combat Systems, Air Defense Systems, Management Information Systems, Simulation and Training Systems, Homeland Security Systems and Energy Management Systems. Through his expertise, HAVELSAN focuses on the analysis, design, development and integration of large-scale systems in operational areas and in the fields of information and communication technologies, together with system integration, developing cost-effective integrated systems which transforms data into information as powerful instruments for decision-makers.

Elements that create the company policy of the investigated enterprise are focuses on four main areas, describing; competitiveness, creativity, stakeholder satisfaction, ethical values.

On the basis of a critical analysis of literature, a questionnaire was developed, which is then carried out in the form of direct interviews with representatives of the managers and related personnel. The current HAVELSAN strategies and processes have been examined with more than 300 hours of workshops and trainings over 10% employees for successful integration of TM processes into company structure. Conducted research allowed identifying a number of primary factors influencing in
the way of the technologies management in the medium to big sized enterprise of the defense industry. As a result of inquiries, the routine process of developing solutions in the enterprise can be distinguished by the following activities:

- analysis of the possibilities of realizing the customer expectations
- identify the technological possibilities available in the market
- the selection of technology which will be adapted in the enterprise
- verification of selected technology with self-invested R&D projects prior to solution development
- obtain financial resources for R&D projects in relation with current financial charts
- train and adapt employees via R&D projects in the use of the technologies
- apply the newly adapted technologies for specific customer production requirements, through the execution for the proper realization of the solution
- search for new possibilities of application the technologies adapted with the other available projects

The results of internal analysis states that the driving force for HAVELSAN definitely looks as satisfaction of current customers, which is military forces herein, with breakthrough technological solutions. To have a controlled and measured TMF, using the five major activities of TMF defined by US NRC, the HAVELSAN TMF and the related tools and components of it is positioned as given in Figure 1. In this depiction, supplying TM activities with company’s strategy, organization, processes, process measures, financial and resources planning activities is the key issue to have success in the transformation. In order to achieve this purpose, a major effort of analyzing the current technologies, capabilities already acknowledged and rapidly create new, and alternative efficient solutions will be the challenge.

In Figure 1: HAVELSAN Technology Management Framework, the components of HAVELSAN TMF are defined in accordance with 5 major TM activities defined by US NRC. These tools will be clarified further more herein in a relational manner in the following sections.

**Figure 1: HAVELSAN Technology Management Framework**

3.2. Identification

Identification and selection of technologies become the focal, integrating device for carrying the business strategy and planning process forward, bringing together the market/commercial and technological knowledge in the business (Figure 2) [6].
3.2.1. Technology Radar

Technology forecasting and foresight estimates the future value of characteristics and performance of a technology. Since technologies are embedded in products, different measures of these products can be used in technology forecasting. Two classes of data play a central role in technology forecasting studies. In the first class, publications and patents are commonly excepted measures as indicators of scientific and technological performance. The second class is the performance data of the “technology in use” [5].

Technology Radar is the tool for identification of applicable technologies to HAVELSAN’s solutions. With an exterior analysis; using both patent databases, competitive analysis, current technology forecast reports, in relation with company strategies promising area of interests are defined. The aim is to combine and store various findings from all environmental scanning activities on a central platform and represent near and far future set of potential technologies in a user friendly way for upper management to assess sustainable investment or make-bu}
3.3.2. Technology Taxonomy

Technology taxonomy is important as it is used to define a common organizational understanding on technology descriptions. It is the basic technology thesaurus, in a defined level of depth and detail for managing overall technology operations of company. It is different from Technology Roadmap because taxonomy includes both core technologies that were already used in main businesses and the critical technologies that needs to be acquired in the future. The inputs from Technology Radar is flowed down to organization’s interiors via Technology Roadmap, but Technology Taxonomy includes each and everything that organization already have or will have. Technology taxonomy is the key connection point, for the use cases of TMF and also the other processes such as project management, product development, acquisition, etc. within the company.

For HAVELSAN, there is a need to allocate hardware and software component level to certain technologies and to measure the changes in development cycle in means of TRLs. This need, is concluded with a certain level of depth – four levels-, but expandable in width. Finally, HAVELSAN Taxonomy is structured with:

- 12 main, 75 secondary technology areas
- Depth in four levels
- Width in averagely five hundred levels

3.4. Acquisition

3.4.1. Technology Maturity Plan

Technology acquisition is the set of activities done after defining the goals. Everything done in order to achieve the goals are studies such as; ideation, the proof of concept, technology demonstration, applied R&D activities, and the demonstrations within a system or a product. These activities are mostly related with projects or productization phases, therefore for the projects or products defined in technology roadmap, it is essential to track the outcomes.

Technology Maturity Plan (TMP) is developed for this purposes originally by HAVELSAN in order to define the goals of technology demonstration projects. The activities to be done for successful completion of project, key milestones, TRLs evaluations, technical performance measures (TPM) or success metrics and the goals to be achieved to declare that project concludes with expected outcomes are all defined in this plan. TMP is the starting point for acquisition that needs to be monitored and assessed within the whole life cycle of development until full mission of operation completed together with customer.

3.5. Operation

There is two aspects of gain in technological developments. First, is the progress achieved via work product; second is the employees’ knowledge capability changes during the operations. TRL’s are the measurement aspect of the first, which is work products; competencies are measures for personnel’s level of technological know-how.

3.5.1. Technology Readiness Levels

As known, Technology readiness levels (TRL) are a method of estimating technology maturity of Critical Technology Elements (CTE) of a program during the acquisition process.

In HAVELSAN TMF, TRL’s are positioned as measures of outputs or work products in relation of Technology Taxonomy. That means, for all technologies included in taxonomy has a measure of readiness level defining absorption level of technological capability. For TRLs to be calculated and verified, output criteria were tailored for HAVELSAN, align with the organizational processes and templates. TRLs were assessed in three different levels to have a measure on technological gains gathered via work products.

- Project level TRLs were measured in the beginning and at the end of the projects to assess the overall technology achievement of specific technology taxonomy element within the project. The purpose was to maintain the technical risks in the projects. Technology Maturity Plan’s is the way of tracking this level of TRLs.
- Organizational level, that is the overall status of the organizations domination on a specific technology, was derived from projects outputs.

3.5.2. Technological Competencies

While starting to measure work products, the employees’ competencies were also raised up as a new attribute that needs to be measured as technological competencies (TCs). It is obvious that while having a high level of TRL with a certain
technology and product, it does not mean that, company is eligible to develop it again in the case of a loss in the resources or know-how. Or similarly, in case of a high competency level on resources does not mean that he/she will be available for a certain technology development project. Independently from TRL, competencies are a measure on achievement of technologies on human resources basis, which needs to be planned, assessed and managed regularly. Therefore, TCs are a measure of technological know-how on the employees that will be the power or the weakness of a specific topic to be implemented in the work products. This parameter will be managed in relation with Human Resources Management discipline, in order to get ready for future resource management.

TCs are important and needs to be assessed, but to measure a level of know-how for a specific technology will not be accurate, if you do not take domain expertise into consideration. Therefore, application domains of technologies are raised up as another attribute of taxonomy that needs to be taken into consideration. The difficulties of TC calculations are; it’s a subjective evaluation of management, there needs to be a defined scale of evaluation which is always subject to discussions, calculations needs to be repeated in a periodic basis and as mentioned, domain expertise needs to be considered.

3.6. Protection

When the operational activities within the project/product development completes, there are quantitative and qualitative outputs in place. These are assets that needs to be evaluated, restored, classified, and reused wisely for investments to be returned efficiently.

In protection phase, of course there is Intellectual Property Rights (IPR) subject as a huge activity to be considered. But herein this paper, details of IPR will not be given, as it is another area of expertise.

3.6.1. Technology Asset Inventory

Technology Asset Inventory (TAI), is a database includes the outcomes of the research&development activities. Main purpose of developing this database is for reusability purposes. Hardware/software components, subsystems/systems, algorithms implemented, white reports that has some kinds of analysis, models that are simulated are subject to TAI database. In other words, it is the HAVELSAN’s open source library that everyone has access and right to both deploy and use.

The critical attributes of each asset is; Technology taxonomy correlation, TRL evaluation, ownership, source of the asset (Project/Product name), driven effort (man-month or line of code or etc.), maturity or quality of the asset.

3.6.2. Ecosystem Inventory

During the technology acquisition process, all of the organizations are interacts with others; similarly systems includes dependencies to outsourced components. Or more openly, there could be transfer of technology with sharing in the responsibility with partners. For such cases, technology providers and their capabilities also needs to be evaluated, restored, classified, and reused. This step makes organizations more agile and competitive in today’s fast developing technology revolution. Especially for defense companies such as HAVELSAN, developing large-scale systems, an improved technology provider ecosystem is a must.

In means of TMF, differently from supplier management systems, and standard quality management system evaluations, TRL level assessments are taken into consideration for technically approved suppliers to be in the loop. For this purpose, first of all technology suppliers are differentiated from the others, than supplied products or services are correlated with technology taxonomy and measured with TRLs, this TRLs are evaluated in accordance with HAVELSAN’s output criteria and lastly these data are stored in Ecosystem Repository for future uses.

4. FINDINGS AND DISCUSSIONS

In this section, other attributes of TMF are defined; such as schedule, goals, milestones; what had been completed so far and what are the goals for future work. The issues, risks, assumptions and constraints will be evaluated herein further for bodies that are interested or already applying such factors into their business. Unresolved subjects, affected processes, the reasons of tailoring, unexpected changes that we had passed on the road will be analyzed. Also the organizational and the process wise dimensions and limitations will be clarified.

The HAVELSAN TMF definition processes to achieve a defined and measurable output, tools and components of TMF, the unique ways of integrating TM components are identified in this paper. The derived TM Process flow is given in Figure 3: HAVELSAN Overall TM Process Flow. This flow clearly shows the inner and outer dependencies of process. R&D, innovation, strategy, finance, HR, project planning and development, ecosystem management are the most critical predefined
processes for TM. For TM use cases to be applied to the whole project/product development life cycle, the interactions of these processes are managed via more than 30 Document Change Request (DCR) to the current system.

The whole process is divided into 3 sub processes, as; assessment, steering and wrap-up. Assessment phase includes more strategic activities to decide “what to do” in accordance with technologic intelligence collected, TRM conformity, technology taxonomy compliance, make-buy decisions, technology transfer possibilities etc. Steering phase, consists of “how to do” activities after project kick-off, such as planning the technologic achievements, evaluation of reusability opportunities, definition of success criteria and technical performance measures, TRL goals, etc. Wrap-up phase is the collection of all the outputs in means of technology competencies, accomplished TRL levels, and tangible outputs of the project which are subject to TAL.

By this process flow given in Figure 3: HAVELSAN Overall TM Process Flow, triggers such as innovative ideas, R&D proposals, and contracted projects are considered and managed in line with whole project life cycle.

The definition of TMF within HAVELSAN is managed as a transition project of five quarters, starting from the second quarter of 2016, which we are in the fourth quarter of it. The TMF Transition Project (TMFTP) includes the following activities;

- Constitution of a working group from all related departments of organization, such as HR, Finance, Engineering, Purchasing and Acquisition, etc.
- External and internal analysis,
- Definition of TMF and its components,
- Developing the processes related with TM,
- Evaluation of current HAVELSAN processes and making the necessary changes on them,
- Definition of KPIs and metrics of TM,
- Definition of additional roles, responsibilities, evaluation boards and organizational structures
- Automization of TMF tools and use cases as much as possible

**Figure 3: HAVELSAN Overall TM Process Flow**
Other than the automization task of TM tools and use cases, all the other tasks are completed. The TM process started to be run in the company since last two quarters. But of course, there are issues and improvements that needs to be recovered.

Analyzing the advantages of TMF, reporting the gains and losses after the TM activity will be a major step to be achieved. Especially for upper management, as sponsorship, all the measures of the TM and related KPIs are already defined. But, as collection of measurement data is a time consuming activity, a period of time for enough sampling is required.

The most challenging step was the resistance to the change. To change the processes derived from military standards was also a huge step such as raising over thirty document change requests to the system. To overcome this issue, a working group was established. This group of people was attended to all the workshops, discussions and necessary trainings, who are then used as technology agents within the organization for dissemination of information for the rest of the company.

Two newly defined boards and a new role is defined in order to ensure the process as control points. Technology Control Board (TCB) is mainly tracks, ensures and reports the operations done mostly in engineering departments for in-house assessments to understand the current position of company. Technology Management Board (TMB) is mostly a strategic decision authority for technologic alignment. There is still a need for a new role of technologists, as agents of TM within the organization to fulfill the necessities of TM phases.

The activities undertaken in the implementation of process management technologies in enterprises generally proceed in a linear manner, to minimize the time of its introduction, providing the enterprise a competitive advantage and increase the production capacity. But, some pilot activities are needed to be activated before baselining the processes, since results or reaction of the assumptions to be verified. These pilot activities needs to be attentively defined, placed and controlled for the successful operation.

As a future work, all TM tools will also be automized in an organizational management software tool, with inner and outer process dependencies. The outputs of the new TM system will be shared comparing with the older results as a future work, together with the challenges that had been faced during the transition project TTMP, which makes this work to be business model innovation.

5. CONCLUSION

The technology management in an enterprise largely depends on the size of the company and its organizational structure. It takes place at the level of executives management, but substantially supported by technologists and technology agents. Not without significance are issues of the economic viability of implementation the new technologies, as well as the possibility of adapting these technologies into enterprise development/production, and as a result the possibility of long-term exploitation of the technology.

We hope this case study will be guidance for similar companies, who also aims to have a big step up to management of technologies, in the rapidly changing technology evolving environment. It needs to be remembered that, definition of a TMF in an organization is a unique step to be achieved solely. For this purpose some level of consultancy might be taken into consideration for the process to be expedited.
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A RESEARCH ON DIVIDEND POLICIES OF THE COMPANIES IN LOGISTICS SECTOR IN TURKEY

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Mustafa Yurttadur¹, Zeynep Isik Altintas², Hulya Gokce³, Yilmaz Kurt⁴, Yunus Emre Yildirim⁵, Ibrahim Celebi⁶, Veli Kayar⁷
1 İstanbul Gelisim University, Faculty of Economics, Administrative and Social Sciences, İstanbul, Turkey. myurttadur@gelisim.edu.tr
2 İstanbul Gelisim University, Institute of Social Sciences, İstanbul, Turkey. zeynep.altintas86@hotmail.com
3 İstanbul Gelisim University, Institute of Social Sciences, İstanbul, Turkey. karacan_1981@hotmail.com
4 İstanbul Gelisim University, Institute of Social Sciences, İstanbul, Turkey. yilmazkurt_39mudur@hotmail.com
5 İstanbul Gelisim University, Institute of Social Sciences, İstanbul, Turkey. emreyildirim_34@hotmail.com
6 İstanbul Gelisim University, Institute of Social Sciences, İstanbul, Turkey. ibrahimcelebi83@hotmail.com
7 İstanbul Gelisim University, Institute of Social Sciences, İstanbul, Turkey. velikayar27@gmail.com

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ABSTRACT

Purpose- The primary policies of the financial management could be stated as the investment, financing and profit share, and there are different approaches between the various opinions on the target of the dividend policies is to increase the value of the company. The dividend policies include the decisions about sharing the business income obtained at the end of the period to the partners or being turned these assets into the investment. One of the purposes of the establishment of the company is to make a profit and share this to the partners. The dividend policy is also important in terms of maximization the stock quotes.

Methodology- It is inconsistent with the expectation that the business grows and gives a high-profit share at the same time. Being the dividend policies intensifier of the productivity of the company and supportive of the growth are so important to eliminate this inconsistency.

Findings- By this purpose, firstly the terms in the study are described, and the relations between these terms are tried to be supported by the literature review by the premise studies. The hypothesizes of the study are started to be improved by being generated the theoretic frame. The research was done by a questionnaire form about how the companies actualized the profit sharing, such a relationship between their financial growth and their dividend policies has existed and how these policies affect the company value.

Conclusion- The data obtained were evaluated by the statistical analysis and tested by the hypothesizes. The dividend policies of companies in logistics sector in Turkey are specified at the end of the review and seen that a significant relation between company growths by the dividend policies and growing the companies financially as directly proportional.

Keywords: Company growth, dividend policy, financial growth, logistics sector, profit sharing

JEL Codes: G10, G31, G39
1. INTRODUCTION

The subject of how the companies will distribute their profits with calculating the dividend accounts is a financial issue increases its importance each passing day. The companies need absolutely drive profit and consider to please both the business and the partners while distributing this profit. Rapidly increasing the production in parallel with the developed technology made essential to get into new markets (Şener, 2009).

1.1. The Concept of the Profit

The concept of the profit can also be defined as the difference between the money earned by shopping or cost price and the sale price. The price is described in the sense of tax laws that the positive difference of the company obtained as a result of the economic activities in a specific period and the expenses for these activities (Karyağdı, 2001).

The profit in that the commercial law is ‘the amount reserved for the shareholders by being obtained the profit balance of the profit and deficiency account of that year as a result of the economic activities actualized within the annual account period (Pulaşlı, 1973). It is possible to define the profit in tax code that after being added the values obtained from the company onto the difference obtained as a result of comparing the equity capital at the beginning of the related accounting period with the equity capital at the end of the related accounting period, then being deducted these added values from this difference (Gündoğdu, 2004)

1.2. The concept of Distribution of Profit

Driving profit is the chief purpose of the establishment of companies because the presence of them depends on making the profit as well. The issue of how the companies use this profit is one of the crucial administrative subjects beside being driven profit (Anbar, 2006). Firstly the two conditions must be realized together for being distributed the profit. First of them is being the partnership has distributable reserve funds or made the gain, the second one is the general assembly decide for the distribution of the profit (Domaniç, 1978). It is not enough to complete the term with profit. Whether the profit obtained will be distributed or not, in what way and how much the share of this profit will be distributed are the issues of the company needs to decide. The policy of distribution of profit has more importance for the publicly held corporations which have stocks traded at the exchange (Anbar, 2006).

1.3. Dividend Policy

The basic policies of the financial management can be named as financing and dividend (profit sharing). The goal of dividend policy is to increase the value of the firm, and there are different opinions and approaches about this. Dividend policy involves the decisions about being distributed the profits of the company obtained at the end of the period to the shareholders or turned these profits into an investment. One of the purposes of establishment of the company is to drive profit and distribute this profit to the shareholders. The policy of distribution of profit is also important concerning the maximization of the share prices. But expecting from company both to grow and return profit conflict with each other.

II-19.1 arranges the principles of distribution of profit margin of publicly-held corporations numbered Profit Share Notification of Stock Exchange Commission. According to these principles, the partnerships distribute their profits based on the related legislation rules and within the frame of the policies of distribution of profit. There must be the below considerations in minimum in policies of distribution of profit:

a) Whether the profit share is to be distributed or not; the payout ratios for partners and other participators of the profit if it will be distributed.

b) The made of the profit share (in cash, as share certificate, cash in a certain extent share certificate in a certain extent).

c) The time of payment on condition that being started for the actions of distribution of profit share as from at the end of the accounting period when the general meeting conducted.

d) Whether the advance dividend will be distributed or not; the rules if will be.

The dividend is distributed to all shares existed prorate at the rate of the margin without being considered the date of issue and acquisition.

Publicly-Traded incorporated companies are free for distributing the dividends under prescribed conditions below based on the decisions of their general assembly;

• Distributing in cash completely,
• Distributing as share entirely,
• Distributing in cash in a certain extent and distributing as share to a certain extent, then reserving the rest within partnership,
• Resting within partnership without distributing in cash or as the share.

But, it is not allowed to reserve other provisions, transfer dividend for the next year and distribute dividend to redeemed shares owners, board members and employees of the partnership without reserving the provisions and the profit share determined for allottees of the prime contract.

1.4. The Fundamental Principles of Dividend Distribution

According to the 1st sub article of 523rd of TTK, ‘The dividend must not be specified for allottees without reserving the optional provisions predicted in legal and prime contract.’ So, it firstly needs to be calculated the provisions before distributing the profit share.

The stages of distribution of dividend are tried to be stated below based on all these explanations and related TTK principles.

1. The net profit for the year of the company is found (article. 509/2, 519/1),
2. 5% of the net profit of the year is reserved as the primary legal reserve (article. 519/1),
3. If there is a rule in prime contract, the arbitrary provisions is reserved (article. 521, 523),
4. 5% first part dividend from the rest of the net profit for the year is paid to shareholders after being reserved the primary reserve and the arbitrary provisions (article, 519/2),
5. After being distributed the first part dividend, the profit of up to 10% of the net profit of the year is being circulated to the founders if there is a rule in the prime contract (article.348),
6. The dividend is distributed to redeemed shareholders based the rules of the primary contract (article. 502),

1.5. The Conditions of the Dividend Distribution

The companies have to obey the rules of TTK and the contract to be able to decide on dividend distribution. The first condition of dividend distribution is being driven profit based on the balance arranged duly and have reserve fund from previous profits to use for this purpose (TTK. ARTICLE. 470, 469/2) (4). When being decided for distributing the profit of the company, the profit share must not be distributed if the other monies required to being reserved based on the rules of law and original contract are not secluded from the net profit (TTK. Article. 469/ 1).

In this respect, the general assembly has to decide to keep 1/20 of the annual profit of the company as the legal reserve until finding 1/5 of the issued capital. It is possible to be foreseen by the contract that an amount more than 1/20 of the earning of the company is kept for this legal reserve and will be continued to this keeping even if being reached 1/5 of the issued capital (TTK. Article. 467/ 1). If there is a condition on the contract about paying share from the earning of the company to founders and board members; the general assembly has to reserve these amounts in compliance with the TTK. Article. 466/2, b.3 and TTK. Article. 472. If there is a rule for paying the share to stakeholders from the company profit (TTK. Article. 279/2 b.3), this amount must be reserved as well. If there is prescribed in the contract about reserving further provisions, the general assembly must also consider these with the decisions of dividend distribution (TTK. Article. 455/2, 467.2.468) (5). The profit accrued for each share by deciding the general assembly about the dividend distribution becomes the independent claim of the allottee from the company and also be assigned to each other.

1.6. Time of Dividend Distribution

The general assembly decide on the conditions and made of payment of the profit actualized or can authorize the board of management for this issue. In this respect, it is possible to pay the profit actualized in a single some or by a few installments. There is no need for a general assembly decision for each installment if it will be paid by installments. That’s why the 364/2nd article of TTK called ‘it needs to convene the general assembly for each distribution for the corporations distribute dividend a few times in a year’ has no meaning and an application area.

It needs to be submitted the coupons if the coupon was issued to pay the profit. If it was not issued, there is a need for the proof of the title of share ownership. This evidence can occur by submitting the share certificates or just certificates; the book of partnership shareholders must be reviewed if these certificates were not kept. After the profit reached to the level
for being paid, it drops due to the prescription for the benefit of the company if it is not demanded from the company within 5 years (BK. ARTICLE. 126).

2. THE CONCEPT OF LOGISTICS

The background of the concept of logistics is as old as the history of humanity. It is known that the word of logistics was firstly used in 1905 to define a military function as ‘carrying, procurement, maintenance and renewal of materials and personnel belong to armies’ (Karacan, Kaya, 2011). The logistics defined conceptually in the military of USA at the beginning of the 21st century as ‘ensuring continuity, distributing, relocating and improving the personal and the material.’ This concept has been started to use also in the business world since the 1960s (Demir, 2008).

The word stem of the logistics originates in combining the words of logic and statics, and its lexical meaning is ‘logical statistics.’ The prevailing definition of the logistics at present belongs to the institution of The Council of Management (CLM). According to this definition, logistics is the service of planning, applying, carrying, and storing of movements of all kinds of products, services and information flow within the supply chain from the starting point (source) to the final point (ultimate consumer).

2.1. Logistics Sector in Turkey

The economy of Turkey continues to feel the effects of the 2008 finance crisis. According to the report of ‘World Economic Outlook’ of the International Monetary Found (IMF), the growth of world economy regresses from 3,4% in 2012 to 3,3% in 2013 (TOBB, 2014).

In the same period, the growth rate of Turkey was actualized as 2,1% and 4,1%; the prediction of growth was given as 3,0% and realized as 2,9% (TOBB, 2014).

In the same period, the growth rate of Turkey was actualized as 2,1% and 4,1%; the prediction of growth was given as 3,0% and realized as 2,9% (TOBB, 2014).

According to the data of Turkish Statistical Institute, the Maritime transport is the preferable mode of conveyance (59%), the second mode is road transport (32%), and the third one is air freight (12%). The least preferred mode of conveyance is the railroad transportation (0,6%). The gradation is not changed in importation as well as the marine transportation increased to 65% due to being imported mostly from the Asia. The importation by road transport decreased by 16%, and the ratio of air freight is at 10% level. The increment reason of pipe transportation is being provided the natural gas from the abroad. Since there is not both domestic and foreign trade data on the ton or TEU basis, the weighted comparisons are actualized by the dollar. The data are not healthy and entirely correct due to measuring the capacity in the sectors of shipping and logistics as the ton and cubic meter as well as creating a data financially. This problem underlies the fact that being the share of airlines higher than the share of the railway.

In our country, there are totally 21 highway border gates including 10 Ro-Ro ports (12 Ro-Ro lines) and administration of customs (the entrance and exit of trucks from the boarding gate in Akça kale cannot be actualized due to the war in Syria. The Ro-Ro travels from Haydarpaşa to Trieste was conducted by a logistics company in 2013). Among the customs gates, following ones are the most intensive gates; ‘Kapıkule’ gate in the west, ‘Sarp and Gürbulak’ in the east, “Habur” in the south and ‘Zonguldak Harbor’ in the north.

In every year, totally 1,5 million of exportation and 500,000 of importation expedition are actualized from our country to more than 100 counties in three continents. The share of vehicles with Turkish license plates is 80%, and the ones with foreign license plates are 20% in export transportations while the share of Turkish vehicles is 68% and the proportion of foreign vehicles is 32% in import transportations. In 2014, totally 1,25 million of exportation transport and 431.263 importation transportation are actualized by the Turkish vehicles. The trough transport is conducted via Turkey to 75 countries as well as approximately 100.000 transportation is realized from our nation for transit purposes in a year; 74 of them by foreign vehicles (International Transporters Association).

3. RESEARCH

3.1. Hypotheses and Theoretical Frame of the Research

Variables of the Research
Dependent Variables: Financial Growth-Company Value
Independent Variable: Dividend Policy
Mediator Variable: Correct Detection of Dividend Policy

Hypotheses
H$_{2}$: There is a significant and positive relation between dividend policy and financial growth of the companies,
H₂: There is an important and positive relation between dividend policy and the company value of the companies.
H₃: Being increased the company value by growing the companies financially has a significant mediator role with correctly detecting the dividend policy of the company is accepted.

Figure 1: Theoretical Frame of the Research

3.2. Purpose of the Research
Reaching the marketing value of the company to the top level by means of this policy targets to create the dividend policies for companies to have the edge on themselves in the fierce competition environment in the logistics sector. It is planned by the survey designed for this purpose that to conduct a study about the dividend policies of the companies in the logistics industry in Turkey.

3.3. Sample Process
The convenience sampling method is used in this research. Our survey is conducted on totally 221 Logistics company, and 176 of them made a comeback via the internet.

3.4. Method
The quantitative research technique and the ‘Survey’ method were used to obtain the research data. Our survey consists of 27 questions and, five points Likert scale measured the variables.

4. ANALYSIS OF THE DATA OBTAINED IN RESEARCH
The information collected from the questionnaire forms were recorded in a computer environment and the data created were analyzed by being transferred to SPSS 22.0 program. Cronbach's Alpha test, Chi-Square test were conducted in the analyses, then the Frequency, percentage values, and the graphic data were determined.

Table 1: Cronbach's Alpha Testi

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.805</td>
<td>27</td>
</tr>
</tbody>
</table>

Cronbach’s Alpha test measured the reliability of the questions prepared for reviewing the dividend policies of the companies in the logistics sector. As is seen in Table 1, the result of 0.805 is described as ‘good’ based on the measurement criteria (0.7 ≤ α < 0.9) of Cronbach’s Alpha test.

Table 2: Chi-Square Tests
The purpose of dividend policies in logistics sector is to maximize the marketing value of the company. The innovative profit sharing increased the profitability of your business.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>67,296(a)</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>55,856</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>44,022</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>176</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DOI: 10.17261/Pressacademia.2017.493
a 1 cells (11.1%) have expected count less than 5. The minimum expected count is 3.13. According to Table 2, determined that the significance value is less than 0.000<0.005 when being analyzed if there is a relation between the variables or not in the distribution of propositions called ‘the purpose of dividend policies in logistics sector is to maximize the marketing value of the company’ and ‘the innovative profit sharing increased the profitability of your business.’ In this case, the hypothesis ‘H1: there is a significant and positive relation between dividend policy and financial growth of the companies’ is accepted.

Table 3: The purpose of dividend policies in logistics sector is to maximize the market value of the company

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolutely Agree</td>
<td>98</td>
<td>55.7</td>
<td>55.7</td>
<td>55.7</td>
</tr>
<tr>
<td>Agree</td>
<td>53</td>
<td>30.1</td>
<td>30.1</td>
<td>85.8</td>
</tr>
<tr>
<td>Maybe</td>
<td>25</td>
<td>14.2</td>
<td>14.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>176</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

It is seen in Table 3 when looking at the frequency values of the question called ‘The purpose of dividend policies in logistics sector is maximize the marketing value of the company’ that 98 (55.7%) of the company executives (attendees) answered as ‘absolutely agree’, 53 (30.1%) of them answered as ‘agree’ and 25 (14.2%) of them answered as ‘maybe’.

Graphic1: The purpose of dividend policies in logistics sector is to maximize the market value of the company

Table 4: The Innovative profit sharing increased the profitability of your business

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolutely Agree</td>
<td>86</td>
<td>48.9</td>
<td>48.9</td>
<td>48.9</td>
</tr>
<tr>
<td>Agree</td>
<td>68</td>
<td>38.6</td>
<td>38.6</td>
<td>87.5</td>
</tr>
<tr>
<td>Maybe</td>
<td>22</td>
<td>12.5</td>
<td>12.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>176</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

In Table 4, the distribution of the answers of attendees for the question of ‘the innovative profit sharing increased the profitability of your business’ is as like follows: 86 (48.9%) of them answered as ‘absolutely agree’, 68 (38.6%) of them answered as ‘agree’ and 22 (12.5%) of them answered as ‘maybe’.

DOI: 10.17261/Pressacademia.2017.493
Graphic 2: The innovative profit sharing increased the profitability of your business.

Table 5: Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>72,223(a)</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>62,360</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>48,803</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

N of Valid Cases 176

According to Table 5, determined that the significance value is less than 0.000<0.005 when being analyzed if there is a relation between the variables or not in the distribution of propositions called ‘the innovative profit sharing increased the profitability of your business,’ and ‘the innovative profit share makes your company desirable and preferable more than your competitors in the sector.’ In this case, the hypothesis ‘H2: there is a significant and positive relation between dividend policy and the company value of the companies’ is accepted.

Table 6: Your company grows by the innovative profit share

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolutely Agree</td>
<td>94</td>
<td>53,4</td>
<td>53,4</td>
<td>53,4</td>
</tr>
<tr>
<td>Agree</td>
<td>53</td>
<td>30,1</td>
<td>30,1</td>
<td>83,5</td>
</tr>
<tr>
<td>Maybe</td>
<td>29</td>
<td>16,5</td>
<td>16,5</td>
<td>100,0</td>
</tr>
<tr>
<td>Total</td>
<td>176</td>
<td>100,0</td>
<td>100,0</td>
<td></td>
</tr>
</tbody>
</table>

As is seen in Table 6, 94 (53,4%) of the company executives answered the question called ‘your company grows by the innovative profit share’ as ‘absolutely agree’, 53 (30,1%) of them responded as ‘agree’ and 29 (16,5%) of them mentioned as ‘maybe’.

Graphic 3: Your company grows by the innovative profit share
Table 7: The innovative profit share makes your company desirable and preferable more than your competitors in the sector

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Absolutely Agree</td>
<td>86</td>
<td>48,9</td>
<td>48,9</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>68</td>
<td>38,6</td>
<td>38,6</td>
</tr>
<tr>
<td></td>
<td>Maybe</td>
<td>22</td>
<td>12,5</td>
<td>12,5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>176</td>
<td>100,0</td>
<td>100,0</td>
</tr>
</tbody>
</table>

As is seen in Table 7, 86 (48,9%) of the attendees answered the question called ‘the innovative profit share makes your company desirable and preferable more than your competitors in the sector’ as ‘absolutely agree’, 68 (38,6%) of them answered as ‘agree’ and 22 (12,5%) of them mentioned as ‘maybe’

Table 8: Chi-Square Tests

The logistics businesses that actualize the profit share by cash dividend grows faster in the sector* The dividends increase the company value.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>24,223(a)</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>29,559</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.059</td>
<td>1</td>
<td>.808</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td></td>
<td>176</td>
<td></td>
</tr>
</tbody>
</table>

*2 cells (22,2%) have expected count less than 5. The minimum expected count is 1,03.

According to Table 8, determined that the significance value is less than 0,000<0,005 when being analyzed if there is a relation between the variables or not in the distribution of propositions called ‘the logistics companies which actualize the profit share by cash dividend grow faster in the sector’ and ‘the dividends increase the company value’. In this case, the hypothesis ‘H3: being increased the company value by growing the companies financially has a significant mediator role with correctly detecting the dividend policy of the company is accepted’.

Table 9: The logistics companies which actualize the profit share by cash dividend grow faster in the sector

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Absolutely Agree</td>
<td>117</td>
<td>66,5</td>
<td>66,5</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>45</td>
<td>25,6</td>
<td>25,6</td>
</tr>
<tr>
<td></td>
<td>Maybe</td>
<td>14</td>
<td>8,0</td>
<td>8,0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>176</td>
<td>100,0</td>
<td>100,0</td>
</tr>
</tbody>
</table>

According to Table 9, 117 (66,5%) of the attendees answered as ‘absolutely agree’, 45 (25,6%) of them answered as ‘agree’ and 14 (8,0%) of them mentioned as ‘maybe’ for the question called ‘the logistics companies which actualize the profit share by cash dividend grow faster in the sector’.

Graphic 4: The logistics companies which achieve the profit share by cash dividend grow quicker in the sector
According to Table 10, 86 (48.9%) of the attendees answered as ‘absolutely agree,’ 77 (43.8%) of them answered as ‘agree’ and 13 (7.4%) of them mentioned as ‘maybe’ for the question called ‘the dividends increase the company value.’

5. CONCLUSION

It is observed in the study that the profit sharing approaches in the logistics sector are mostly composed of the decisions about being distributed to the business partners or turned these profits into the investment. As a result of our research that there is a positive and significant relation between the profit share and the financial growth, also the company value increases in this direction, and the dividend policies need to be created correctly for occurring these conditions mean economic growth. Placing these policies on a correct axis causes to company moves free, so this situation creates a more competitive effect globally.

The companies become more desirable and preferable position by being determined the dividend policies correctly. This case enables to increase the number of the customers and being moved with a more efficient structure. The company value increases if the business partners receive the share from the profit in cash within a period. The value size of the company is quickly perceived in the sector and causes being focused on the business value by competitors. The dividend policy is also important regarding the stock quotes of the company. The preferability of the logistic enterprises that are listing on the stock exchange and these companies can use their capital more efficiently. Growing and providing profit at the same time are the conflictive expectations. The dividend policies should increase the productivity of the company to remove this discrepancy, because the positive relation between the growth and the productivity is essential in the economic approach.

As a result of the analyses conducted, it is determined that the dividend policies of the companies in the logistics sector in Turkey need to work studiously and seen that the dividend policies and the financial growth of the companies are directly proportionate to the values of the companies. It is also proved that being affected the company value and the growth is pretty normal.

6. LIMITEDNESS OF THE RESEARCH

This research is limited with the dividend policies of the businesses in the logistics sector in Turkey and dividend policy perceptions and decisions of the managers take relation about these policies. Within this scope, the research must be in a different size and applied in other countries for generalizing so as to include the logistics companies out of Turkey. Moreover, due to this study just includes the decision maker managers, there is also a limitedness belongs to the people. Therefore, the data and findings obtained reflect the experiences, abilities, attitudes and perception levels of the people create the sampling group. It can be thought that due to the similar studies conducted in a bigger universe, we can reach to more important and significant findings.
REFERENCES


The Turkish Republic. 2011, “Turkish code of commerce.”


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THE IMPACT OF ENTREPRENEURSHIP ON ECONOMIC GROWTH: GEM DATA ANALYSIS

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Mesut Savrul¹
¹Canakkale Onsekiz Mart University, Canakkale, Turkey. msavrul@comu.edu.tr

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ABSTRACT
Purpose - Since the last decade of the 20th Century, the relation between entrepreneurship and economic performance have been discussed and empirically examined by various studies. Although the importance of the impact of entrepreneurship on economic performance have been studied empirically exclusively at the firm and industry level, country level contributions are rather short. Taking this deficiency into account, the aim of this study is to examine investigate the impact of entrepreneurial activities on economic growth at country level.
Methodology - The empirical analysis of the study is modelled by consolidating entrepreneurs hip as an intermediate variable to the Cobb-Douglas growth model beside the basic variables of labour, gross capital formation, and gross domestic product per capita. The data of 35 countries covering 2006-2015 period is used in the study and the data is collected from OECD and Global Entrepreneurship Research Association databases.
Findings - The results of the study produce that although the changes in the entrepreneurial variables don’t effect economic growth immediately, they present a significant and positive effect in the long run.
Conclusion - As the effect of entrepreneurial activities on economic growth come out in the long run, policies for entrepreneurship should be planned on a long-term basis.

Keywords: Entrepreneurship, GEM data, economic growth, Schumpeterian growth, economy wide country studies.
JEL Codes: L26, O40, O50

1. INTRODUCTION
The entrepreneurial function is accepted as a vital component of economic growth for a long time and latest empirical studies, which argue that historical theories explaining economic growth with capital accumulation and expansion of the labour force now fail to satisfy explaining production function implicitly, and the lessons learned from the experiences of the countries are supporting this approach (Baumol, 1968: 65). At the present time entrepreneurship is regarded as a significant setting for economic development by expanding employment, innovation and welfare. However the factors such as institutional context and level of economic development of the host country may differentiate the dynamics of entrepreneurship which give rise to extensive diversities across countries in introduction of the entrepreneurial activities (Autio, 2007).

Schumpeter (1934) is one of the first scholar to spotlight on the significance of entrepreneurial activity, in the debate about the function of entrepreneurship in the economic development. He argues that entrepreneurs fulfil the search, discovery,
opportunity evaluation, mobilization of the production factors for the business, making time-wise arrangements, taking obligation for administration and being the unpredictability in the existence of market imperfections. However, although a notable time has passed over the first arguments theories of economic growth clearly cover the variables of entrepreneurship. While general equilibrium models are facing challenges in dealing with the innovating entrepreneurship dynamics, profit conveniences for entrepreneurs aren’t acknowledged by the neo-classical postulate of perfect competition (Solow, 1956). The connection between entrepreneurial features of economic performance has not been investigated enough yet and the empirical proof on the relationship between economic growth and entrepreneurship is still narrow and offer a mixed picture (Tang and Koveos, 2004: 162-163).

In this perspective, this study concentrates on the direct impact of entrepreneurship on economic growth. The study is formed of four sections. The first part includes the discussion on the rising importance of entrepreneurship phenomenon. In the second part the inclusion of entrepreneurship in economic growth is dealt within the framework of evolution of economic theory. In the third part the former studies dealing with the effect of entrepreneurship on economic growth is reviewed to conclude an appropriate model for the study. And in the following section the relation is analyzed empirically using the data of 35 countries including total early-stage entrepreneurial activity (TEA), labour force, gross capital formation and gross domestic product per capita for the years 2006-2015.

2. RISING IMPORTANCE OF ENTREPRENEURSHIP

When small and specifically new enterprises are recognized as an instrument for entrepreneurship by the last decade of the 20th Century, its contribution on innovative and competitive capability beside employment and social and political stability began to attract attention. In the following course the expectations towards small businesses changed from being a social good to an instrument for economic growth via entrepreneurship. Actually entrepreneurial function’s being an essential determinant of economic growth is also represented by econometric evidence and it is argued that the lack of entrepreneurship is going to result in a reduce in economic growth. In this perspective, the positive connection between entrepreneurship and economic growth is justified across a wide range of units of observation, connecting the establishment, business, industry and the country (Acs et.al, 2009: 226).

A potential transformation in economics was postulated by Schumpeter (1908) by demonstrating the entrepreneur’s being the underlying force of economic development, at the beginning of the 20th century. Despite the contribution of Schumpeter and although it was noticed that entrepreneurship had an significant role in economic theory since the 18th and early 19th century, its been regarded as a production factor in explaining economic growth materialized only in the latest decade (Santarelli and Vivarelli, 2007:455).

Economic growth is exogenously driven by technological progress in neoclassical or exogenous growth models. In contrast, the theories of the new economic growth or endogenous growth models suggest that the accreditation of knowledge and technologies, seen as forces that are internal to the economic system, stimulate economic growth. As stated in the stock of human capital model of Romer is crucial for economic growth and accordingly countries with larger stocks of human capital will have a faster economic growth (Hessels and Stel, 2011: 258).

The shift towards knowledge intensive industries in new business environment gave rise to emergence of entrepreneurship in which especially small businesses play an active role. Knowledge spillovers and the evolution of industries as learning mechanism serving as agents of change in small businesses (Fritsch, 2013: 26) however although small business and entrepreneurship are associated concepts, they aren't identical because entrepreneurship is a sort of behaviour focusing on resources more than opportunities. In this regards, it is clear that this kind of behaviour may actualize in large businesses as well as the small ones (Thurik and Sander, 2004: 140).

The roles of entrepreneur have attracted attention in the community of economist for a long time by means of both the static role of organization of the other factors of production and the dynamic role of innovation and creation. Thereby a considerable literature and countless definitions exists on the topic. To brief the subject the traditional definitions of the term can be grouped in four leading categories as follows (Tyson et.al, 1994: 166):

- entrepreneurship as stabilizing force;
- entrepreneurship as risk-taking;
- entrepreneurship as innovation;
- entrepreneurship as founding, owning or managing a enterprise.

Regarding these functions of entrepreneurship, it is clear that the dynamics of entrepreneurship within any given economy is outlined by climate of the economy which may be listed as the perceptions of entrepreneurs, access to capital, quality of governance, interdependencies between economic development and institutions, and other resources (Acs et.al, 2008: 226).
Before taking country level discussion a step further, the connection of entrepreneurship and economic growth will be referred in the next section.

3. ENTREPRENEURSHIP AND ECONOMIC GROWTH

Schumpeter (1934) highlights the role of the entrepreneur as the major element of economic development in his Theory of Economic Development. In the study, it is defined that innovation efforts of an entrepreneur forces the firms to introduce new inventions which result in the current products and technologies to be obsolete. This mechanism, called as creative destruction, is the leading features of Schumpeter Mark I regime (Acs et.al, 2009: 219). Likewise Romer (1990) argues that entrepreneurship is the instrument which converts knowledge into economic growth. In his model, the need for developing new products to gain competition advantage force the enterprises to employ researchers and the RD efforts of this researchers convert knowledge into economic growth. However the generated knowledge can’t be commercialized by the researchers but the entrepreneurs who discover potential opportunities and start new firms to exploit knowledge (Acs et.al, 2006: 4-5).

These historical aspects of entrepreneurship that connect entrepreneurship and economic growth, later emerged in many fields of study such as management and economics. In the current view, the literature propose that economic performance is contributed by the entrepreneurial activities such as introduction of innovations, creation of change, creation of competition and enhancement of rivalry. (Wong et.al, 2005: 337). In today’s business environment, how the entrepreneurial action can affect economic growth can be seen in Figure 1.

Figure 1: Strategic Entrepreneurship

Entrepreneurial Action by Co-Creators of Knowledge

Existing organizations make knowledge investments

- Firms
- Universities
- Others

New venture formation

Heterogeneity in new venture capabilities and performance

Growth of industries, regions, economies


Entrepreneurship may affect economic growth in many distinct ways such as introduction of essential innovations which result in production processes or new products. The crucial roles played by the entrepreneurs such as Sam Walton, Ray Kroc, Bill Gates, Michael Dell, Henry Ford, Andrew Carnegie and Thomas Edison led to transformation in many initial industries. Another way the entrepreneurs boost productivity is competition building. They can improve our knowledge of what is technically applicable and by offering alternatives for the existing products and services in the market, what consumers prefer (Stel et.al, 2005: 311-312).

The ways how entrepreneurship can be effective on economic growth can be extended further. To stay within the scope of the subject, we may summarize these effects in three essential ways as follows (Audretsch and Thurik, 2004: 6-7):

- The first is the creation of knowledge spillovers. As established in literature, knowledge spillovers are an significant mechanism underlying endogenous growth.
• A second is generation of economic growth by entrepreneurship capital through boosting the number of enterprises and raising competition. It is discussed in literature that competition is more helpful to knowledge externalities than local monopoly.

• A third is generation of economic output by entrepreneurship capital by presenting diversity among enterprises. Entrepreneurship capital increases the variety of enterprises in a certain location beside generating a greater number of enterprises.

In making a country level consideration, the variables such as level of corruption, regulatory framework, extent of educational capital and availability of financial capital directed towards entrepreneurship influence entrepreneurial effort considerably (Bowen and Clercq, 2008: 749). In this respect, it is clear that the variation of the impact of entrepreneurial actions of economic growth in country level can be questioned in many ways. Before analysing this question, how the literature approaches this topic will be dealt in the next section.

4. LITERATURE REVIEW

Using cross-sectional data of the 37 countries taken from GEM database and developing a Cobb–Douglas production function, Wong et al. (2005) investigated technological innovation and firm formation as independent determinants of economic growth. They analysed the contrast between different classes of entrepreneurship activities as determined using opportunity TEA, necessity TEA, high growth potential TEA, Total Entrepreneurial Activity (TEA) rates and overall TEA. The result of their study concluded that only high growth potential entrepreneurship has significant impact on economic growth of the four types of entrepreneurship evaluated.

In their paper Acs et al. (2006) identified entrepreneurship as an instrument to facilitate the knowledge spillover. For the study, they used a panel of entrepreneurship data for 18 countries. The findings of their analysis has shown that entrepreneurial activity helps to promote economic growth beside measures of human capital and R&D.

Stel et al. (2005) investigated the effect of total entrepreneurial activity (TEA) on GDP using the data of 36 economies. They analysed if this impact depends on the level of economic development measured as GDP per capita. They adjusted data by consolidating incorporating the Growth Competitiveness Index to generate a range of alternative interpretation on economic growth. The results of their study has shown that entrepreneurial activity by owner/managers of young businesses and nascent entrepreneurs has impact on economic growth, however this impact depends upon the level of per capita income which This imply that different stages of economic development influence the role of entrepreneurship in the host country.

In their study, Acs and Varga (2005) developed an empirical model which indigenize cluster effects on knowledge spillovers beside entrepreneurial activity within a Romerian framework. They used the model to measure the level of entrepreneurial activity in particular economies using their GEM cross-national data. Findings of the study introduced that cluster effects and entrepreneurial activity have a statistically significant and positive effect on technological change in the countries of the European Union.

Using GEM micro and macro data, Acs and Szerb (2007) carried out an analysis to determine the effect of entrepreneurship on economic growth. They based their study upon development level criterion for the countries. Their study ended up with the policy recommendations such as concentrating on supporting enterprise development, upgrading technology availability and increasing human capital for middle income countries, and reducing entry regulations' not resulting in more high-potential start-ups for developed economies.

In their study, Bowen and Clercq (2008) empirically tested if the institutional characteristics affect the allocation of entrepreneurial effort. The findings of the study proved that positive relationship between allocation of entrepreneurial efforts of a country toward high-growth activities and the level of financial capital supports the aspect that financial pressures can be harmful to entrepreneurs who intend to raise their business.

5. MODEL

The study intends to analyse both the time dimension with cross-sectional dimensions of various countries. Due to the presence of time and cross-sectional dimensions of the data set covered in the study, use of panel regression analysis is found eligible.

5.1. Data Set

The study covers gross domestic product per capita (constant 2005 US$), gross capital formation (constant 2005 US$), labour force (total) and total early-stage entrepreneurial activity data from 35 selected countries covering 2006-2015 period. The TEA variable used in the study is collected from Global Entrepreneurship Research Association databases. The
country selection is based upon the countries included in Global Entrepreneurship Research Association database and the countries with missing data is excluded from the analysis. The other variables used in the analysis are Real GDP (2005=100), as GDP; labour force as LAB and gross fixed capital as (2005=100. The reel variables are used in the analysis, the L value of the variables show their logarithm is taken and the D value shows their difference is taken.

5.2. Method

In order to avoid spurious relationships between the variables, the variables used in the study should be stationary. Stationary of the variables has been tested with Cross-Section Dependence Tests and the results of the tests have shown horizontal section dependency between variables as seen in Table 1 below. Therefore, in this study the stationarity of variables is tested with Peseran (2007) which takes horizontal section dependency into account.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Without Trend</th>
<th>With Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGDP</td>
<td>3.129 (0)</td>
<td>0.068 (1)</td>
</tr>
<tr>
<td>LGFC</td>
<td>1.542 (0)</td>
<td>-0.143 (1)</td>
</tr>
<tr>
<td>LLAB</td>
<td>-3.572 (1)*</td>
<td>0.716 (1)</td>
</tr>
<tr>
<td>LTEA</td>
<td>-1.911 (1)*</td>
<td>-0.776 (1)</td>
</tr>
<tr>
<td>DLGDP</td>
<td>-1.409 (1)*</td>
<td>-2.010 (0)*</td>
</tr>
<tr>
<td>DLGFC</td>
<td>-1.864 (1)*</td>
<td>-1.959 (0)*</td>
</tr>
<tr>
<td>DLLAB</td>
<td>-1.614 (1)*</td>
<td>-2.059 (0)*</td>
</tr>
<tr>
<td>DLTEA</td>
<td>-3.013 (1)*</td>
<td>-4.189 (0)*</td>
</tr>
</tbody>
</table>

The results of Peseran test are listed below. Accordingly, LLAB and LTEA are stationary in their level and 5% significance level. All variables were found to be stable at the 5% significance level when their difference is taken.

The impact of TEA on economic growth can be examined via a Cobb-Douglas model of growth. In Cobb-Douglas growth model, output is a function of production factors of capital and labour, A Cobb-Douglas production growth model in which TEA is regarded as a production factor can be expressed as follows;

\[ Y = f(K, L, TEA) \]

or in an open format;

\[ Y = K^{\beta_1} L^{\beta_2} TEA^{\beta_3} \]

when we take the logarithm of the difference of both sides, our equation is transformed into a growth equation.

\[ DLY = \beta_1 DLK + \beta_2 DLL + \beta_3 DLTEA + e_2 \] (3)

When the variables used in the study is replaced in equation, model is transformed into;

\[ DLGDP = \beta_1 DLGFC + \beta_2 DLLAB + \beta_3 DLTEA + e_2 \] (4)

The equation (4) is estimated with Pooled OLS, Fixed effect and Random Effect models and the results of the tests are listed below in Table 3.
Table 3: Panel OLS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pooled OLS</th>
<th>Fixed Effect</th>
<th>Random Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLGFC</td>
<td>0.216483a</td>
<td>0.200449a</td>
<td>0.204783a</td>
</tr>
<tr>
<td>DLLAB</td>
<td>0.049665</td>
<td>0.025255</td>
<td>0.041207</td>
</tr>
<tr>
<td>DLTEA</td>
<td>-0.004354</td>
<td>-0.001368</td>
<td>-0.002135</td>
</tr>
<tr>
<td>C</td>
<td>0.010160a</td>
<td>0.010394a</td>
<td>0.010032a</td>
</tr>
<tr>
<td>R²</td>
<td>0.63</td>
<td>0.77</td>
<td>0.66</td>
</tr>
<tr>
<td>DW</td>
<td>1.31</td>
<td>2.02</td>
<td>1.76</td>
</tr>
<tr>
<td>N</td>
<td>315</td>
<td>315</td>
<td>315</td>
</tr>
</tbody>
</table>

*a, b and c respectively indicate significance at 1%, 5% and 10% level of significance, Ho rejected.*

White cross-section standard errors & covariance (d.f. corrected)

To resolve the internality problem, autocorrelation correction and to avoid heteroskedasticity and cross section dependence problems, white cross-section correction was carried out. The m value is found as 1 and 4 according to FPE (final prediction error) and Akaike criteria. Additionally, relations with the GMM method were estimated again. The lagged values of LGDP and LTEA are used as instrumental variable. The resulting causal relationship is shown in the figure below.

A bi-directional causality between DLGDP and DLTEA is found by both 1 and 4 lag.

According to the results obtained with equations GMM method, a unidirectional causality from DLTEA to DLGDP has been identified. J statistic results showed that Instrumental Variables are valid.

6. CONCLUSION

For long, it has been accepted that the entrepreneurial function is an essential element of economic growth. The lessons gained from the experiences and the latest empirical evidence seem to validate this aspect. Based on this resolution, in this study, the impact of entrepreneurship on economic growth is empirically investigated. The analysis of the study is modelled by incorporating entrepreneurship as an intermediate variable to Cobb-Douglas model of growth.

The results of the study have shown that TEA are not affective on output (GDP) in the current period, however the investments made via TEA create an emerging impact and arise a causality from DLTEA to DLGDP in time. It has been determined that in the longer time periods the impact of TEA on GDP increases and causality gains strength. As a result the effect of TEA on growth does not occur immediately but it has been found to manifest itself in time so it can be concluded...
that as the effect of entrepreneurial activities on economic growth come out in the long run, policies for entrepreneurship should be planned on a long-term basis.

REFERENCES


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