

A Field Study on the Approach of Small and Medium Enterprises (SMEs) to the Information and Communication Technologies and Its Required Skills*

Küçük ve Orta Boy İşletmelerin Bilgi İşlem ve İletişim Teknolojileri ve Becerilerine Yönelik Yaklaşımları ile İlgili Bir Alan Araştırması

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Abstract

Small and Medium Enterprises (SMEs) are the main driver of a country's economic growth. SMEs are thought to be an important source and factor in job creation and they provide flexible working opportunities for the white collar workers. The importance of the SMEs is growing since they have an important impact on the economy which is recently in crises. The rising unemployment rates of the countries cause many social and economic problems in the world. Therefore, SMEs, as an engine in economies, should be studied in terms of their adaption of new technologies which are the most important means to enter new markets and create new jobs. With the globalization, SMEs couldn't go beyond their national borders as much as big companies did and lagged behind of the new global markets. To be able to reach new customers who are far from their countries and to compete with their rivals in both national and international arena, SMEs should adapt to the information and communication technologies. These technologies make them faster and stronger by establishing new channels, reducing time to market, providing opportunities to work more flexible and creating new jobs. In order to catch up with these new developments, which make the firms more competitive, SMEs should consider the ICTs as a strategic integral part. In this study, it is aimed to find out to what extend small and medium companies use information technologies, if they integrate these technologies into their business processes, cut their costs by using ICTs and want to invest more for information technologies.

In this work, the subject is separated into 2 sections. In the first section, the literature is reviewed and some explanations and examples are given from the world and Turkey. In the second section of the study, the survey is used to find answers to the questions mentioned above in relation to SMEs and their integration with information

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and communication technologies. This survey was conducted on January in 2009, with 288 small and medium companies in Istanbul -is the biggest city of commerce in Turkey. The SPSS program is to be used to compile this data which is cross-examined and then results will be obtained to be used for the present study.

Keywords: SMEs, Information Technologies, Productivity, Industry, Flexible Working

Özet

Küçük ve Orta Boy Firmalar (KOBİ) bir ülkenin ekonomik büyümesinin asıl unsurlarındandır. KOBİ'ler iş yaratmada önemli bir kaynak ve faktör olmanın yanında, beyaz yakalı çalışanlar için de esnek çalışma imkânları sunmaktadırlar. Son yıllarda krizler içerisinde olan ekonomi üzerinde artan etkisinden dolayı, KOBİ'lerin önemi giderek büyümektedir. Ülkelerin artan işsizlik oranları Dünya'da birçok sosyal ve ekonomik sorunlara neden olmaktadır. Bu nedenle, ekonominin motoru olarak değerlendirilen KOBİ'lerin, yeni işleri yaratma ve yeni piyasalara girmenin en önemli aracı olan yeni teknolojilerin benimsenmesi yönüyle çalışılmaları gerekmektedir. Küreselleşme ile birlikte KOBİ'ler, büyük firmaların açılabilirdiği kadar ulusal sınırların ötesine gidemediler ve yeni küresel piyasaların gerisinde kaldılar. Kendi ülkelerinden uzak olan yeni müşterilere ulaşabilmek ve hem ulusal ve hem de uluslararası alanda rakipleri ile mücadele edebilmek için, KOBİ'ler bilgi işlem ve iletişim teknolojilerini benimsemiş olmalıdırlar. Bilgi teknolojileri sayesinde KOBİ'ler yeni satış kanalları kurabilecekler, pazara çıkma zamanını azaltacaklar, yeni istihdam alanları açacaklar, daha çok esnek çalışma imkânları sağlayacaklar ve böylece daha hızlı ve sağlam bir yapıya bürüneceklerdir. KOBİ'leri daha rekabetçi yapan bu yeni gelişmelere ulaşmaları için, bilgi teknolojilerini vazgeçilemez stratejik bir unsur olarak benimsemeleri gerekmektedir. Bu çalışmada, KOBİ'lerin ne kadar bilgi teknolojilerini kullandıkları, bilgi teknolojilerini iş süreçlerine entegre edip etmedikleri, bilgi teknolojilerini kullanarak maliyetlerini ne kadar düşürdükleri ve bu teknolojiler için yeni yatırımlar yapmak isteyip istemedikleri anlaşılmaya çalışılacaktır.

Çalışma iki bölüme ayrılmıştır. İlk bölümde, literatür gözden geçirilmiş ve hem Dünya'dan hem de Türkiye'den bazı açıklamalar ve örnekler verilmiştir. Çalışmanın ikinci bölümünde, yapılan saha çalışması kullanılmış ve yukarıda bahsedilen sorulara yönelik olarak ve KOBİ'lerin bilgi işlem ve iletişim teknolojilerini benimsemeleri ile alakalı olarak yanıtlar aranmaya çalışılmıştır. Saha çalışması, İstanbul'da 288 KOBİ ile 2009 Ocak ayında gerçekleştirilmiştir. İstatistik programı kullanılarak veriler derlenmiş ve frekans ve çapraz tablolar yoluyla değerlendirilmiştir.

Anahtar Kelimeler: KOBİ'ler, Bilgi Teknolojileri, Verimlilik, Endüstri, Esnek Çalışma

Introduction

Small and Medium Enterprises (SMEs) play an important role in sustaining domestic and regional economic growth, in addition to being important agents for alleviating poverty in developing countries. Small and Medium Enterprises have an importance both in Turkey and the world in terms of positive impacts on economic and social development, creating new employment opportunities, having a flexible manufacturing and management character by which they are able to adapt rapid changes. The most important solution of the growth and development of Turkey is SMEs which make up 99% of all companies, 81.5% of all employment and the share of investment and export is 26.5% and 16.6% respectively in the country (kosgeb, 2009). However, these companies face with some problems are preventing them to achieve their aims and going forward beyond of national borders. Therefore, some issues and obstacles need to be understood and some answers must be found to solve gradually all of them accordingly for SMEs. In this sense, the number and production capacities of Small and Medium Enterprises must be increased in order to reap the benefits by encouraging them through state institutions as well as regulations in economy.

The main drivers of knowledge era are two specific forms of technology, namely Communication Technology (CT) and Information Technology (IT). Communication technology consists of "the hardware equipment, organizational structures and social values by which individuals or organizations collect, process, and exchange information with other individuals or organization". In contrast, IT largely refers to computer and electronics-based technology, generally encompassing the development, installation, and implementation of computer systems and applications. These two forms of technology converged within the Information Era, creating a new type of technology known as Information Communication Technology (ICT), which facilitates the exchange of information on a many-to-many basis specifically through computer and electronics-based communication systems (Locke, Stuart, 2004, 94).

Information and communication technologies (ICTs) make large, medium and small companies more flexible. Especially, the importance of ICTs for Small and Medium Enterprises is increasing in time since the share of SMEs in countries is about 95-98 % and they have some difficulties to finance and manage their companies, enter market and produce their goods and services. Information and communication technologies provides a lot of opportunities for SMEs such as increasing productivities, gaining competitive advantages, becoming flexible, reaching many customers and other numerous benefits. The opportunities presented by e-commerce participation for small businesses relate to the leveraging of inherent strengths to create competitive advantage. The size of small businesses enables them to be more adaptable and responsive to changing conditions than larger organizations and to further benefit from the speed and flexibility that the electronic environment offers (Simmons, Geoff, 2008, 352).

With this study, the subject is separated into 2 sections. In the first section, the literature is reviewed and some explanations and examples are given from the world and Turkey. In the second section of the study, the survey is used to find answers related to the SMEs and their integration with information and communication technologies.

The Usage and Benefits of ICTs and the Internet in SMEs

Small and medium companies have a variety of support options to be encouraged in countries. Almost every developed country has a government agency

devoted to helping SMEs become more aware of and able to use ICTs and to participate e-business medium (Turban, Efraim & others, 2009, 541). Information and communication technologies (ICTs) can significantly impact the market-oriented dimensions of products and services as well as manufacturing processes, working practices and management practices. ICTs can generate increased levels of uncertainty and put pressure on the firm's knowledge and skill base, individual roles and relationships, particularly in small and medium-sized enterprises (SMEs) (Ritchie, 2005, 205).

Many small companies do not yet see or comprehend the benefits available to them from ICTs and the Internet. Also, this may be true of many large companies as well. Small business owners feel that it's another problem for them to worry about, another uncomfortable learning process for them to have to undergo and another unnecessary expense for them to bear. The reality is that the internet gives every small business an extraordinary opportunity to transform the way in which it can operate and compete with big business on a much more level. They may benefit much more than big companies, because they can move much faster to introduce and carry out the necessary changes. All they need to achieve it is a bit of motivation and will (Urwin, 2000, 137).

The Internet offers great opportunities for SMEs to extend their customer portfolio from their region to the global marketplace. However, there is a need to adopt a different approach to strategic planning and management which can enable an extensive infrastructure network which based on shared resources with other firms. Accordingly, SMEs can save costs if they share their resources with others and carefully analyze and plan for e-businesses. The internet and information technologies offer general advantages for businesses to collaborate. It is well known that Internet-based technologies and ICTs offer great opportunities and advantages for organizations as a foundation for collaboration – both within the organizations as well as between organizations. Therefore, the application of Internet-based technologies provides significant potential opportunities for the integration of business processes between firms for small and medium companies (Viveca, 2008, 179).

SMEs can obtain a lot of benefits from the use of ICT. Following benefits can be gained from the use of ICTs (Barba, Sanchez, 2007, 110).

- Enhance the productivity and effectiveness of certain activities or functions.
- Support the adoption of new organizational, strategic and managerial models.
- An opportunity to reach worldwide customers. It makes marketing, sales and customer supports more efficient (Turban, Efraim & others, 2009, 541).
- With the help of ICTs, SMEs can go for adopting Enterprise Resource Planning (ERP), thus leading to better organization of production, achieve timeliness of delivery and prevent loss of time and resources.
- SMEs can easily improve the qualification and specialization of human resources, which increases the efficiency and efficacy by using ICTs.
- ICTs are significant input factors for both formal and informal SMEs and contribute positively to revenue generation (Esselaar, 2007, 99)

- Decrease product cycle time by sharing designs and production schedules with suppliers (Laudon, 2009, 12-10).
- ICT use increases labor productivity (Esselaar, 2007, 99).
- ICTs can help SMEs to gain knowledge and information on better management practices, better processing practices. ICTs can thus help SMEs to know about better and potential markets, get information on market prices and can help in reducing uncertainties related to production and sales.
- Creating and maintaining an online business is relatively easy and cheap (Turban, Efraim & others, 2009, 541).

Some Obstacles to Adopt ICTs for SMEs

There are different results from different researches and surveys related to the costs of information technologies on businesses. Although there are little results that show the costs are very high, majority of researches indicate the costs of ICTs are pretty lower for entering to the markets in last decade. In this sense, the greatest obstacle to wider ICT usage was the high costs during 1980s. Given the fact that, there is such a strong relationship between ICT costs and production since ICTs are seen as an integral part of business processes including labor, operations, supply and customer side. Although, it is pointed that the cost of ICTs is not high for businesses, governments should implement regulatory and policy changes with the aim of reducing the cost of ICTs in order to foster economic growth and employment. Another obstacle to ICT adoption is given as network problems and unreliable infrastructure. The next-highest obstacle is the lack of awareness and knowledge of ICTs. SMEs listed a lack of financial resources as an obstacle to ICT usage (Esselaar, 2007, 96).

Small and medium companies are commonly managed by the owners or both owners and managers. Therefore, usually the only owner decides how to invest and plan and what to buy and sell. Some research suggests that SMEs are unlikely to follow a stages model. Rather, they focus on the owners' strategy for growth (Levy and Powell, 2008). The 'not planned' growth dimension represents no coherent strategy for growth with stable since SME owners decide for their business (Beckinsale, 2006, 362). Competitive pressure is usually determined by customer demands in small and medium companies. Improved systems and Internet technologies should have a role on growth of businesses since they are strategic tools and integral of both business functions and human resources (Levy and Powell, 2008).

SMEs have insufficient budget, technical infrastructure, institutional tradition, workers and directors. Because of the lack of these requirements and skills, these companies can not easily be institutionalized and planned for their long term aims. SMEs need to think more strategically in relation to the use of ICT. In this respect, SMEs are falling behind best practices adopted by their larger counterparts in the global economy (Harindranath, 2008, 95).

Economic and Business Impact of ICTs and the Internet

Economic and financial issues have been encompassing the internet applications such as business to business and business to consumer online issues (Laudon, 2009). Economy will stay the most important subject as long as information and communication technologies are spread cross the borders. Economy must be understood

not only a local-national but also a global process. In this sense, ICT, which has relatively small cost at the start-up, can provide a wide variety of benefits to different firms especially for SMEs. More specifically, ICT can reduce business costs, improve productivity and strengthen growth possibilities. Besides, the adoption and implementation of ICT by firms can improve business cooperation, business relationships, quality and diffusion of knowledge (Barba, 2007, 111).

In particular, ICTs have a valuable potential for developing SMEs through more effective use and better integration of ICTs in business processes while assisting them to make more efficient decisions relevant to their performance. ICTs have the potential to generate a step change among SMEs and make them more competitive, innovative and generate growth. SMEs play a role of increasing importance in the economy especially when we consider their contribution to the generation of jobs as well as the social-economic development of the community where they are located. In addition to that, SMEs are adopting new technologies more rapidly, and creating innovative products more competitively. It requires that SMEs have the right environment to prosper, form a skilled workforce and drive economic growth (Barba, 2007, 111).

SMEs prefer to use ICT for four distinct activities in their business processes: administration, operations, electronic communications and information systems. These are used for short term operations not long term or strategic processes as much as large companies have. In a general sense, the level of use was again related to the size of the company, larger companies used ICTs for more functions than other companies. However, it is proved that the implementation of ICTs was also dependent on the type of owner and manager of company and their attitudes. The more enthusiastic owners adopt the more extent ICTs to become more competitive (Carignani, 2003, 4).

Interaction, collaboration, and knowledge-sharing among companies are shifting from a physical to a digital level. There is a survey conducted in Italia and it is found that IT is affecting industrial districts as well as businesses. New technologies are changing not only the behavior of the companies but also the industrial districts as a whole, driving e-commerce applications in SMEs of Industrial districts as a whole and challenging their ability to adapt continuously to environmental dynamics (Balocco, Raffaello, 2008, 305).

A number of empirical studies show that a peculiar feature of the U.S. economy during the 1990s was the presence of high growth rates both in productivity and employment. On the contrary, the productivity growth recorded by European countries in the same years was not matched by a comparable creation of jobs, both in manufacturing and services. One of the main arguments for explaining these different patterns has been an earlier, faster and more widespread adoption of Information and Communication Technologies (ICTs) in U.S. business units and households and a greater propensity of consumers to use the Internet for buying goods and services (Lucchetti, Riccardo, 2004, 151). The specific advantages for business units of recent ICT developments are hardly confined to the productivity gains given by the information technologies applied in production (such as CAD/CAM, FMS) or the reduction of co-ordination and transaction costs allowed, for instance, by LANs and EDI. With the Internet boom of the 1990's it has been possible for the firms not only to attain similar efficiency gains at lower costs but also to enlarge the size of their potential markets and find new opportunities for growing.

A survey conducted by the University of Southern California Annenberg School found a majority of US users thought that the Internet had made them more productive. From 2000 to 2007, an increasing number of users believed the Internet productivity. Respondents who said the Internet improved their productivity “a lot” or “somewhat” were at 57% in 2000, but it jumped to 71% in 2007 (e-marketer, 2009).

The Evaluation of the Findings

The Aim and Scope of the Survey

The survey is used to find answers related to the characteristics of SMEs and their approach and integration with information and communication technologies. Whether they give importance to ICTs, the relation between employee numbers and the usage of ICTs, which departments they use ICTs and if they use ICTs on recruiting processes are questioned on the survey. This survey was conducted with 288 small and medium companies on January in 2009 in Istanbul. The answers were compiled and evaluated on a statistic program and the reliability of the survey was 0,799 (Cronbach's Alpha value should be higher than 0.70).

Reliability Statistics

Cronbach's Alpha	N of Items
0,799	13

Characteristics of the Small and Medium Enterprises

In this part of the survey, it is aimed to find out not only sectors and the number of employees but also if SMEs export, have production line, use IT in departments such as accounting, finance, human resource management, selling, manufacturing and marketing. These variables are to be used in the following explanations to be measured for ICTs approaches of SMEs.

The participants of the survey are from different sectors in Istanbul. In the survey, it is preferred to classify into groups according to Istanbul Chamber of Commerce rules. Manufacturing and service sectors have high share with 22.9% and 22.2% respectively in the total number of companies. In the respondents, some small and medium companies, majority of them have 1-9 and 10-49 employees, identified themselves within manufacturing and services sectors. Also, when it is looked the number of companies, which have 1-9 and 10-49 employees, are 102 with 78.46% in manufacturing and services. The other sectors, have a big extend, are textile and food. The numbers of textile companies are 57 and food companies are 41 with share 19.8% and 14.2% respectively in total companies. The rest of the companies are from tourism and construction has 6.9% and education and ICTs have 3.5% share in all of companies. Manufacturing, services, textile and food are striking sectors in among the others.

Table1: Which sector do you work in?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	66	22,9	22,9	22,9
	Textile	57	19,8	19,8	42,7
	Tourism	20	6,9	6,9	49,7
	Education	10	3,5	3,5	53,1
	Food	41	14,2	14,2	67,4
	ICT	10	3,5	3,5	70,8
	Construction	20	6,9	6,9	77,8
	Services	64	22,2	22,2	100,0
Total		288	100,0	100,0	

When it is looked at the companies' size in terms of the number of employees, the majority of companies that have employees between 1-49 and has 78,1% of total participant companies. The number of micro sized companies, which have employees between 1 and 9, is quite higher with 104 pieces and 36.1% than large ones. The percentage of the companies, have employees between 10 and 49, which are called small companies has the biggest number and share with 121 and 42% in total participant companies. The number of the companies, have employees more than 50, which are called medium size, is 63 and the percentage of it is 21.9% in total participants.

Table2: How many employees do you have?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-9	104	36,1	36,1	36,1
	10-49	121	42,0	42,0	78,1
	50-249	42	14,6	14,6	92,7
	250 and more	21	7,3	7,3	100,0
	Total	288	100,0	100,0	

The Number of SMEs Have Department of IT

It is asked a question if there is an IT department in their company. The results were not surprising for article's hypothesis. Actually, to found a department of IT is not only related to firm size but also related to its financial capacity. It is inferred from this answer that small companies don't want to establish an IT department. Some reasons, which are financial restrictions, extra costs such as IT specialist and technical requirements and insufficient workplace area, may be said for it. However, it is understood that the percentage of IT usage is increasing as companies are getting bigger. In other words, the larger company is the higher rate of IT usage. The companies, which have employees 1-9, 10-49, 49-249 and 50-249, have gradually increasing shares with 24.3%, 35.5%, 54.8% and 71.4% respectively in their answers. Micro and small companies may outsource their IT services instead of establishing an IT department since they have some restrictions such as the lack of finance, information and skills.

Table3 : The Department of IT in Terms of Employee Numbers

			Is there a department of IT in your company?		Total
			Yes	No	
How many employees do you have?	1-9	Count	25	78	103
		% within How many employees do you have?	24,3%	75,7%	100,0%
		% of Total	8,7%	27,2%	35,9%
	10-49	Count	43	78	121
		% within How many employees do you have?	35,5%	64,5%	100,0%
		% of Total	15,0%	27,2%	42,2%
	50-249	Count	23	19	42
		% within How many employees do you have?	54,8%	45,2%	100,0%
		% of Total	8,0%	6,6%	14,6%
	250 and more	Count	15	6	21
		% within How many employees do you have?	71,4%	28,6%	100,0%
		% of Total	5,2%	2,1%	7,3%
Total	Count	106	181	287	
	% within How many employees do you have?	36,9%	63,1%	100,0%	
	% of Total	36,9%	63,1%	100,0%	

The Usage of IT in Departments in Terms of Employee Numbers

There are 7 questions which survey if they use IT in different departments from accounting to finance, sales, marketing, human resource management, manufacturing and depot in the companies. Companies primarily start to use IT for their accounting and sales transactions and processes since they need immediate action to integrate these internal processes. In this sense, following **Table 4** proves this hypothesis. Therefore, the usage of IT in accounting department has the highest rate and the usage of IT in sales department has the second highest rate which is shown in the following table. Especially, micro and small companies, which have employees between 1 and 49, have been using IT in accounting and sales departments rather than others. That is why; the gap between micro-small and medium-large is a bit wider in departments except accounting and sales.

Table 4: The Rate of IT Usage in Departments in SMEs

Counts and Rates		Do you use IT in departments?		Total
		Yes	No	
Departments	Accounting Count	178	110	288
	% within How many employees do you have?	61.8%	38.2%	100.0%
	Finance Count	124	164	288
	% within How many employees do you have?	43.1%	56.9%	100.0%
	Sales Count	137	151	288
	% within How many employees do you have?	47.6%	52.4%	100.0%
	Marketing Count	121	167	288
	% within How many employees do you have?	42.0%	58.0%	100.0%
	Human Resources Management Count	92	195	287
	% within How many employees do you have?	32.1%	67.9%	100.0%
	Manufacturing Count	118	170	288
	% within How many employees do you have?	41.0%	59.0%	100.0%
	Depot Count	95	193	288
	% within How many employees do you have?	33.0%	67.0%	100.0%

It is used as a hypothesis that if companies get bigger, they are going to use more ICT than smaller companies. When companies become large in terms of workplace and number of workers, they prefer to invest and try to spread of ICT in all departments and also in the chain of both supplier and customer side. In this context, larger firms have a more positive attitude towards ICTs (Acar, 2005, 718).

Table 5: The mean of the IT usage of SMEs

How many employees do you have?	Do you use IT in accounting department?	Do you use IT in finance department?	Do you use IT in sales department?	Do you use IT in marketing department?	Do you use IT in HRM department?	Do you use IT in manufacturing department?
1-9	1,548077	1,730769	1,567308	1,711538	1,836538	1,740385
10-49	1,31405	1,53719	1,595041	1,578512	1,694215	1,61157
50-249	1,285714	1,404762	1,333333	1,404762	1,414634	1,333333
250 - more	1,142857	1,285714	1,285714	1,285714	1,333333	1,238095
Total	1,381944	1,569444	1,524306	1,579861	1,679443	1,590278

In the following **Table 6**, each number represents the average usage of IT, gained from the survey, in the departments of SMEs. The average numbers of usage of IT in the departments start from micro companies go to medium and large companies in an increasing manner and also the same results are shown in percent column. Companies have 250 and more employees about 3 times higher than have 1-9 employees in terms of the usage of IT departments.

Table 6: The Usage of IT in Departments and Employee Numbers

How many employees do you have?	Average in 7 Departments	Percent %
1-9	2,06	29,40
10-49	2,95	42,15
50-249	4,43	63,27
250 and more	5,05	72,09

Do SMEs Use Commercial Software and Do They Trust These Software

Financial systems, some of the first systems to be computerized, are based on high speed computers and networks. Financial and accounting information can be obtained instantly from internal computer systems and the internet and can flow instantly across entire organizations (Laudon, 2007, 31). The cost of the transactions with traditional methods is pretty higher than online methods. The costs can be changed in terms of transaction, but generally speaking online systems reduce the prices between 10-100 times. Therefore, not only large companies but also small and medium companies have to use the internet and information and communication technologies.

Majority of companies, which are micro and small, decide to buy but they don't know how to use and where to use because of the lack of skills, information and human resources. To use information technologies with their all functions is an important matter of SMEs. After SMEs buy information technologies and programs, mostly cheap ones, they start to use them in their sales processes to make their accounting transactions easy. When it is asked that if they use information technologies in their sales and accounting processes, majority of their answer is "Yes" with more than 90% (average 90.6%) of total participants. Although this percentage is a bit lower in micro companies than total average, it is not an important shortage. It is inferred that small and medium companies prefer to use information technologies for their transactions with customers. Beside, majority of small and medium companies have no tendency for manufacturing and don't produce their goods. As these companies give the importance for their operations' and customers' financial transactions, they generally invest in ICT for customer side relations rather than supply side.

Table 7: The Usage of ICT in departments %

		Do you use ICT in the process of sales, finance and accounting?		Total	
		Yes	No		
How many employees do you have?	1-9	Count	88	16	104
		% within How many employees do you have?	84,6%	15,4%	100,0%
	10-49	Count	112	9	121
		% within How many employees do you have?	92,6%	7,4%	100,0%
	50-249	Count	41	1	42
		% within How many employees do you have?	97,6%	2,4%	100,0%
	250 and more	Count	20	1	21
		% within How many employees do you have?	95,2%	4,8%	100,0%
Total	Count	261	27	288	
	% within How many employees do you have?	90,6%	9,4%	100,0%	

However, there is a question whether they use a second medium which is out of digital medium such as writing on a paper to secure their commercial transactions and information. With this question, it is measured what to extent companies trust information technologies that are used for their commercial transactions. The average of the answer is “Yes” with 53.5% which means that the share of participants (more than half of the participants) does not trust information technologies. Therefore, they need to save their transactions on different medium as a second one in order to backup or secure their commercial information. The shares of the answers are a bit different in terms of companies’ size. According to following **Table 8**, micro companies have the rate with 55.8%, small companies have the highest rate with 56.2% and others have the rates about 45%. The results show that as companies get bigger, their trusting level about digital medium will be increased. Micro and small companies don’t have enough financial resources and personal who know information technologies skills as much as large companies have in order to secure their transactions on digital medium.

Table 8: How SMEs Trust Their Digital Medium?

		Do you use a second medium for transactions to ensure them?		Total	
		Yes	No		
How many employees do you have?	1-9	Count	58	46	104
		% within How many employees do you have?	55,8%	44,2%	100,0%
	10-49	Count	68	53	121
		% within How many employees do you have?	56,2%	43,8%	100,0%
	50-249	Count	19	23	42
		% within How many employees do you have?	45,2%	54,8%	100,0%
	250 and more	Count	9	12	21
		% within How many employees do you have?	42,9%	57,1%	100,0%
Total	Count	154	134	288	
	% within How many employees do you have?	53,5%	46,5%	100,0%	

The internet and the web opened up a powerful new sales and marketing channel to retail consumer and to other businesses. Companies can use the internet for advertising, customer support and selling processes. The ubiquity of the internet makes it possible for small businesses to advertise and sell their goods and services without a physical sales force around the world (Laudon, 2007, 31). When small and medium companies start to use the web for their company’s, they publish their product and company information to reap the benefits of it. According to **Table 9**, while 74,7% of companies have their own web sites, 68,1% of all companies use their web sites for advertising. To be able to design and run the companies’ web site, there is no need to spend much money than it was in traditional methods. When it is compared with the ratio of online selling, which is 14,2%, the ratio of advertising is becoming more higher. It is seemed that SMEs, initially, prefer to use for advertising. A significant number of these websites are little more than brochureware and only a small number have a predetermined online marketing strategy (Towers, 2008). Besides, having an effective website is an important step for small business owners moving towards e-commerce (Fischer, 2007, 255).

Table 9: The correlation between web sites and online advertising

			Advertising / Yes	Advertising / No	Total
Do you have a web site?	Yes	Count	196	19	215
		% of Total	68,1%	6,6%	74,7%
	No	Count	0	73	73
		% of Total	,0%	25,3%	25,3%
Total	Count	196	92	288	
	% of Total	68,1%	31,9%	100,0%	

SMEs can use IT to work collaboratively with other small and large companies. Majority of SMEs are labor intensive companies and they produce large companies' orders. Therefore, they are oriented by large companies to found their production lines and non-production departments such as accounting, finance and sales. On the one hand, if SMEs can achieve these standards in accordance with large companies demand, their standard will be increased and be able to compete in the market. On the other hand, some SMEs work in market by using their sources, knowledge and abilities. Although, some of them are not oriented by large companies, they can develop their skills, standards, but others can not improve. In the survey, the approach of SMEs to the information technologies in terms of online sales is not high level. According to **Table 10**, 14,2% of total participants and 19,1% of companies that have their web sites use online selling technologies and opportunities in order to reach new markets and increase their sales. Although this percentage is pretty low, it is an important level for the beginning for the small and medium companies. Online selling is the most difficult process of the electronic commerce. In this context, the process of online selling needs much skilled human resources, extra investment and different mentality that must meet the requirement of online medium and be much competitive than traditional methods.

Table 10: The correlation between web sites and online sales

			Online sales / Yes	Online sales / No	Total
Do you have a web site?	Yes	Count	41	174	215
		% of Total	14,2%	60,4%	74,6%
	No	Count	0	73	73
		% of Total	,0%	25,3%	25,3%
Total	Count	41	247	288	
	% of Total	14,2%	85,7%	100,0%	

The Approach of SMEs to the ICT Related Skills

Recruiting online is unquestionably faster, less expensive and more effective than other traditional methods. When companies recruit via the Internet, they have real-time access by employers and job seekers literally around the clock. With the information and communication technologies, the way people recruit and hunt for jobs is changing rapidly. Job seekers have greater access to more jobs, and, recruiters have greater access to more candidates. There are lots of tools on the internet to be able to recruit and hunt for jobs. Blogs, podcasts, vodcasts and recruitment sites are being recognized as a new e-recruitment tool as well as a corporate communication channels. By their nature, these new means open up a two-way communication between a company and a prospective employee. According to **Table 11**, while 6,6% of total

participant companies use the internet as an online medium for recruitment processes, 8,8% of participants who have a web site use their sites as an online recruiting medium.

Table 11: The correlation between web sites and online recruiting

			Recruiting / Yes	Recruiting / No	Total
Do you have a web site?	Yes	Count	19	196	215
		% of Total	6,6%	68,1%	74,7%
	No	Count	0	73	73
		% of Total	,0%	25,3%	25,3%
Total		Count	19	269	288
		% of Total	6,6%	93,4%	100,0%

Following **Table 12** explains to what extent SMEs use the internet as a medium of online recruiting processes. The results show that SMEs are aware of the internet as an online recruiting medium. Although 18,8% of respondent SMEs hardly ever use the internet, 81,2% of respondents use the internet as online recruiting medium with different rates. While 9,5% of respondents that have employees 250 and more use hardly ever, 28,6% of them use sometimes, 4,8% use often, 38,1% use very often and 19,0% use all of the time. As the companies get bigger, the internet usage on online recruiting process is increasing in following **Table 12**.

Table 12: How often do you use the internet on recruiting?

		Do you use the internet on recruiting?					Total
		Hardly ever	Sometimes	Often	Very Often	All of the Time	
How many employees do you have?	1-9	21,2%	27,9%	30,8%	9,6%	10,6%	100,0%
	10-49	19,0%	21,5%	30,6%	15,7%	13,2%	100,0%
	50-249	16,7%	28,6%	19,0%	23,8%	11,9%	100,0%
	250 - more	9,5%	28,6%	4,8%	38,1%	19,0%	100,0%
Total		18,8%	25,3%	27,1%	16,3%	12,5%	100,0%

When companies get larger, the level of their preferences towards the internet skills of new recruited employees increases. In the following **Table 13**, while companies, have 1-9 employees, prefer the internet skills with 84,6% and companies have employees 10-49, 50-249 and 250 and more prefer with the rates 88,4%, 90,5% and 95,2% respectively. It is clearly seen that majority of the respondents prefers the internet related skills from new recruited employees and the rate of the small companies that says "Yes" is a bit smaller than subsequent companies who have more employees.

Table 13: Do SMEs prefer IT and the internet skills of new recruited employees?

		Do you prefer IT and the internet skills of new recruited employees?		Total
		Yes	No	
How many employees do you have?	1-9	84,6%	15,4%	100,0%
	10-49	88,4%	11,6%	100,0%
	50-249	90,5%	9,5%	100,0%
	250 and more	95,2%	4,8%	100,0%
Total		87,8%	12,2%	100,0%

Today's knowledge society, the need for high skilled labor is increasing. Especially, information and communication technologies are called as integral part of many jobs and therefore many jobs require skills based on ICT capabilities. In this mean, many companies face some difficulties to find ICT skilled and qualified labor. It is asked whether the companies face difficulties on recruiting of ICT skilled workforce. Generally speaking, even though there are some differences, the companies face some difficulties on the process of recruitment related to ICT skilled workforce. It is seen that the same relation that companies get larger their approach get better is mentioned above. In this context, while the companies says "Fairly difficult" with 5,8% have 1-9 employees, the companies have 50 and more employees don't face (Fairly difficult ,0%) any difficulties on recruiting of ICT skilled workforce.

Table 14: Difficulties on recruiting of ICT skilled employees

		Difficulties on recruiting related to ICT skilled employees				
		Not difficult	Somewhat difficult	Difficult	Fairly difficult	No need
How many employees do you have?	1-9	17,5%	17,5%	16,5%	5,8%	42,7%
	10-49	21,5%	26,4%	17,4%	1,7%	33,1%
	50-249	28,6%	31,0%	19,0%	,0%	21,4%
	250 - more	23,8%	23,8%	14,3%	,0%	38,1%
Total		21,3%	23,7%	17,1%	2,8%	35,2%

For more than a decade, digital possibilities have been challenging traditional ways of delivering HRM services within business and public organizations. In 2006, HCM Survey shows, companies broadened the scope of HRM applications: although administrative e-HRM was still the most popular application (62% of surveyed companies), companies reported an increasing use of strategic applications like talent acquisition services (61%), performance management (52%), or compensation management (49%) (Bondarouk, 2009, 505). Information Technologies is used in every sector and therefore it is called integral part of sectors and jobs. In the following **Table 15**, companies have 50-249 and 250 and more employees use information technologies with the rate 58,% and 66,7% respectively at their HRM department. On the other hand, smaller companies which have 1-9 and 10-49 employees use IT at their HRM departments with the rate 16,3% and 30,6% respectively.

Table 15: The usage of IT in the department of Human Resources Management

		Do you use IT in HRM department?		Total
		Yes	No	
How many employees do you have?	1-9	16,3%	83,7%	100,0%
	10-49	30,6%	69,4%	100,0%
	50-249	58,5%	41,5%	100,0%
	250 and more	66,7%	33,3%	100,0%
Total		32,1%	67,9%	100,0%

Conclusion

In the knowledge society, one of the important elements is information technologies. It makes all processes very easy from reaching and collecting knowledge to the changing characteristics and using it in the end. Information technologies not only affect goods and services but also all sectors and companies. As an integral part of all jobs, information technologies create many opportunities and increase creativity and productivity for small and medium companies. In this context, it is studied how small and medium companies approach and use information technologies and its skills in human resources management process.

In the study, it is seen that information and communication technologies are becoming a part of SMEs in order to improve their productivity and profits and increase ability of HRM processes. It is primarily inferred that as companies get bigger, their usage of information and communication technologies increase. Because, small companies are more struggling with financial problems than big companies are. SMEs mainly use information technologies at their departments of accounting and sales. However, the usage of information technologies at department of HRM increases as the companies' number of employee rise. Small and medium companies need much information and consultancy services in the process of HRM. Also, SMEs give the importance to the skills related to IT and the internet and therefore they prefer the same skills with the rates between 85-95% on their recruiting process. In addition, SMEs use much less online sales opportunities than big companies and SMEs should be encouraged by institutions state and private to be able to reach global market and increase their competitive structures.

Resources

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