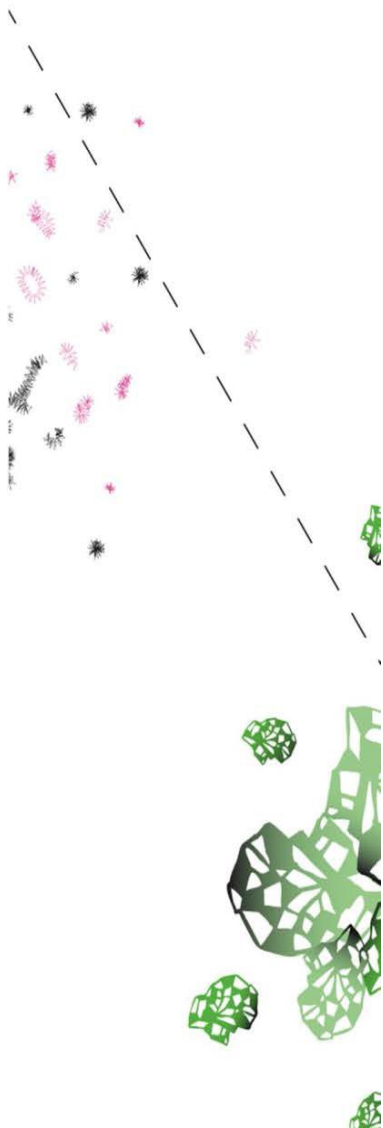


# **E-learning in Small and Medium-sized Enterprises in Greece**

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## Research Summary

In the corporate sector, there is an ongoing growth of technology and a constant need for learning and development. In order to stay competitive and up-to-date with the innovations in Information and Communication Technologies (ICT) companies invest in employees' growth via e-learning (Admiraal and Lockhorst, 2009). Even though in Europe, Small and Medium-sized Enterprises (SMEs) experience the benefits of e-learning and its applications, in Greece the picture of e-learning is still unclear. In particular, Greece is one of the countries with a low level of investment in Information Technology (IT), which is a major drawback for ICT integration (Giotopoulos, Kontolaimou, Korra & Tsakanikas, 2017) and consequently influences the e-learning adoption.

This study aimed to identify the position of Greek SMEs towards e-learning by examining their characteristics, the use of ITC, the attitudes of owner-managers towards learning and development and the attitudes of owner-managers towards e-learning. In order to examine all these factors, mixed method approach was used combining the findings from a survey with the findings from interviews. The survey was descriptively analysed and the interviews were coded based on the data driven from them. The results from the interviews revealed and demonstrated comprehensive insights supporting the results from the survey. The overall results showed that certain characteristics, resources and attitudes within the SMEs affect negatively the adoption of e-learning. The major reason why Greek SMEs cannot fully implement e-learning techniques in their learning processes is the poor technology infrastructure. However, even though the overall picture of e-learning in Greek SMEs is quite discouraging, there is an ongoing increase in informal types of e-learning which are based on communication and knowledge-sharing. The findings in this research could serve as a basis for further investigation on e-learning in SMEs in the context of Greece.

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## **Introduction**

Nowadays, technology plays a fundamental role in many different aspects of our society. In business, technology is responsible for the increase of the challenges which enterprises are facing on a global level. More specifically, the enterprises have to deal with masses of data generated on daily basis, constant updates on new technologies, and need for internationalization. These challenges are related to the new and rapidly changing ICT tools. Simultaneously, an ongoing growth of organizational development is taking place and it is based on evolving employees' knowledge and skills (Drigas & Koukianakis, 2006). This educational process can be continued by the use of lifelong learning, defined as the ongoing renewal of employees' knowledge (Hamburg & Lindecke, 2005). The revolution of new information technologies in combination with the need for lifelong learning fostered the emergence of e-learning. In particular, Cheng (2011), states that e-learning is any kind of learning activity supported by ICT. Today, several companies perceive the use of e-learning in the working environment as an efficient mean of organizational development.

In Europe, the majority of enterprises using e-learning are large companies and organizations. However, when it comes to SMEs, the context and the use of e-learning is more complex. For example, there are small enterprises which do not have large economic resources to invest in technology and their human capital does not possess sufficient Information Technology (IT) knowledge. Paradoxically, the technology that creates the constant changes can also create the solutions by new means of learning to cope with the change. For example, e-learning can be used by companies as a tool in order to enhance quality learning for their employees by overcoming the barriers of time and distance (Klimek, 2009). This means that the employees of SMEs can acquire the relevant knowledge that they need via e-learning without spending significant working time on training or

requiring on-site training. Both of these advantages of e-learning can result in significant savings on the employees' learning and development.

Admiraal and Lockhorst (2009) reveal that in Europe the overall picture of e-learning in SMEs is mostly negative. In specific, the owner-managers do not show positive attitudes towards e-learning in their company. In the case of Greece, there is no recent research in order to provide an update on the current condition of e-learning in SMEs. The overall economic activity in Greece is traditionally dominated by SMEs. They have made a significant progress in recent years. However, Greek economy has suffered from the Global Financial Crisis to a great extent. Those factor raise the research interest in exploring the current use of e-learning in Greek SMEs.

In order to understand the e-learning status of SMEs in Greece, an investigation was conducted within the business context in which these enterprises function. The degree of IT infrastructure and the employees' technical knowledge, are reported as factors which influence the capability of an enterprise to implement e-learning techniques. Another factor is the particular type of learning culture of Greek SMEs. Prior research showed that even though the managers of SMEs do not tend to establish e-learning in their companies, they still show an interest in informal e-learning techniques (Admiraal & Lockhorst, 2009). In summary, there are several aspects that SMEs have to consider when it comes to e-learning. However, they also need to be aware of the e-learning benefits, especially now that knowledge and technology are considered the keys to success.

The goal of this research is to reveal the current patterns between Greek SMEs and use of e-learning. Moreover, this research examines the factors that may influence Greek SMEs' adoption of e-learning. In specific, the investigation is focused on the characteristics of SMEs, the current use of ICT, the attitudes of the owner-managers towards learning and development, and the attitudes of owner-managers towards e-learning.

## **Theoretical Framework**

### **E-learning in the workplace.**

The main goal of today's organizations is to find new innovative ways to increase their power and stay competitive in the global economy. In order to succeed with that, the organizations are investing in workplace learning and development of human capital. Workplace learning is focusing on the development of employees and it can take a formal form, such as training and courses, or an informal one, such as acquiring unintended knowledge in work setting by using search engines or communication channels (Manuti, Pastore, Scardigno, Giancaspro, & Morciano, 2015).

In the meantime, the technology revolution activated a number of changes in learning. The rapid improvement of ICT led to the development of learning and the evolution of electronic learning (e-learning) (Cheng, 2011). Welsh, Wanberg, Brown, and Simmering (2003, p. 246), define e-learning as "the use of computer network technology, primarily over an intranet or through the Internet, to deliver information and instruction to individuals". The e-learning systems can be distinguished in different types according to their application (Bora & Ahmed, 2013). For example, computer-based learning is a form of e-learning in which the learner uses training programs on a computer (De Corte, Linn, Mandl, & Verschaffel, 2013). This system worked effectively in the pre-Internet days but with the explosive use of Internet it was forced to expand. Web-based learning is a subset of computer-based learning in which the learner uses social networks and communication technologies as means of knowledge (Wasim, Sharma, Khan, & Siddiqui, 2014). Some remarkable tools of this type of e-learning are the mobile (Lau, Yen, Li, & Wah, 2014), Massive Open Online Courses (MOOCs) (Gros & García-Peñalvo, 2016), Learning Management Systems (Gros & García-Peñalvo, 2016), Internet-based training (Amara & Atia, 2016) and the cloud computing (Bora & Ahmed, 2013). These web-based learning

systems have been developed in the last years in many organizations and they transformed the traditional tools of learning into digital interactive means of knowledge. This transformation has led to the upgrade of training processes, the utilization of web-based communication and the information delivery with no time and space barriers (Cheng, 2011; Little, 2001; Welsh et al., 2003).

Several researchers have identified multiple advantages of e-learning use in the workplace, which refer to different aspects of a business environment. In particular, e-learning enables the learner to have access to the learning process anytime in any place (Pollard & Hillage, 2001). Moreover, e-learning can improve tracking of employees' activity and store data on them, which is a huge advantage (Fry, 2001). However, while e-learning is cultivated in the corporate world several issues have been identified concerning the efficient planning to engage e-learning in different businesses (Welsh et al., 2003). The most profound issue is the implementation of e-learning, which requires good planning in order to have profitable outcomes (Fry, 2001; Welsh et al., 2003). Another potential drawback is that sometimes e-learning can be impersonal and less interactive than initially expected (Pollard & Hillage, 2001). E-learning brought significant changes in the work field and promises of higher job performance, but potential barriers and limitations should be taken into account beforehand.

### **E-learning in SMEs.**

Most relevant literature in the field of e-learning was built upon the context of large companies. However, in regards to SMEs, the contribution of e-learning is still unclear. Companies which have from 1 to 250 employees can be named as SMEs (Lukács, 2005) and it is universally known they play a fundamental economic role in society. They are the backbone of a country's economy and they are mainly responsible for growth and prosperity (Lukács, 2005).

In regards to learning and development, SMEs have some unique characteristics which influence their learning needs and more specifically their e-learning adoption. The small company size indicates limited number of people who have to stay up-to-date and develop their business skills continuously (Hamburg & Lindecke, 2005). Also, SMEs of different economic sector, assimilate the ICT tools differently, which is a prerequisite for e-learning (Sin Tan, Choy Chong, Lin, & Cyril Eze, 2010). Last characteristic of SMEs influencing e-learning adoption is the employees' educational level, which is strongly connected with their ability to acquire new knowledge.

Moreover, Hamburg, Vladut and O'Brien (2016) state that SMEs have significant restrictions on ICT use for learning and that the owner-managers play an essential role in promoting the updated forms of e-learning such as webinars, learning with social media and on-demand learning. Similar, Admiraal and Lockhorst (2009), demonstrate that the availability of ICT in the company and the attitudes towards learning and development are two major aspects related to the adoption and contribution of e-learning.

### Characteristics of SMEs.

*Company's size.* First, the size of the company which indicates the number of employees that are employed is an essential factor that influences the growth and prosperity of SMEs (Batra, Kaufmann, & Stone, 2003). According to the World Business Environment Survey, conducted between 1999 and 2000 and including firms from more than 80 countries, companies with a small number of employees have more difficulties to face in their development compared to the larger companies. For example, when the limited number of employees in a small company, is engaged in training, the working activities are negatively influenced, which jeopardize the company's continued existence (Hamburg & Lindecke, 2005). In this case, e-learning can be beneficial since it can help to reduce the workload in recording and storing data of employees' activity (Welsh et al., 2003).



*Company's economic sector.* Second, the economic sector of SME plays a significant role regarding the readiness of the company to develop and grow (Admiraal & Lockhorst, 2009). Admiraal and Lockhorst (2009) also claim that companies from the production sector are less likely to invest in the learning of their employees in comparison to the companies from the service sector. Moreover, the type of economic sector influences the technology infrastructure of a company. The service-based SMEs, use more efficiently ICT tools in order to establish good coordination with their external co-workers when compared to the product-based SMEs (Sin Tan, Choy Chong, Lin, & Cyril Eze, 2010). However, the product-based SMEs tend to have better use of network infrastructure than the service-based SMEs, which is a component of development and customer focus processes (Bhatt, 2000).

*Employees' education.* Third, the educational level of the employees of the company is a factor that influences the technology infrastructure of SMEs. According to a survey that was conducted in Italy, the educational background of the employees in SMEs is essential in order to enhance the use of ICT (Lucchetti & Sterlacchini, 2004). In case of Greece, Giotopoulos, Kontolaimou, Korra, and Tsakanikas (2017), emphasize that Greek SMEs have to prioritize the employees' education on ICT skills. Due to financial restrictions, the majority of SMEs lack the knowledge and the resources to adopt concrete ICT skills.

### Use of ICT.

Technology is a prerequisite of the e-learning systems (Pollard & Hillage, 2001). This means that a company can implement an e-learning system only with the existence of appropriate IT infrastructure and ICT knowledge base. However, technology itself cannot guarantee e-learning outcomes without taking into account other parameters and characteristics of the environment. SMEs have limited resources in human capital and in technical infrastructure in order to support the e-learning requirements. Admiraal and Lockhorst (2009), divide e-learning to formal and informal forms and claim that the owner-

managers in SMEs have a more positive attitude towards informal e-learning which does not require advanced ICT infrastructure or large financial investments. The informal e-learning solutions in the workplace are based on effective communication among colleagues via Internet or using search engines in order to retrieve information via World Wide Web (Bancheva & Ivanova, 2015).

Tarutė and Gatautis (2014) argue that ICT has a major impact on enhancing external and internal communication in SMEs, which is a key element for effective delivery of information. Internet usage is an essential integral part of the working process in SMEs (Sadowski, Maitland, & van Dongen, 2002). However, Sadowski et al. (2002) states that the majority of SMEs use the Internet for particular needs (e.g. communication) and they do not take into consideration the multiple additional benefits that it offers related to the performance of the company (e.g. competitive pressure).

The use of internet in combination with the use of the computer is constantly updating. There is a variety of ICT tools that SMEs use in order to follow these updates and maintain competitiveness in the market. The adoption of e-mail and web-technologies (e.g. search engines) were the first ICT tools used in the workplace (Fillis & Wagner, 2005). Over time, SMEs started also to embrace new innovative technologies focusing in different departments of the company such as e-commerce (Jones, Simmons, Packham, Beynon-Davies, & Pickernell, 2014) and e-business (Morgan-Thomas, 2016). The latest ICT tools in the business context are focusing on effective internal and external communication and on the marketing of the company such as clouds and online platforms (Morgan-Thomas, 2016).

### Attitudes towards development and learning in SMEs.

Until recently, the assessment of SMEs sustainability was measured according to their profit. As a result of the business challenges of the 21<sup>th</sup> century, the assessment of SMEs sustainability is based now on the company's environmental contribution and the

degree of communication in and out of the company (Singh, Olugu, & Fallahpour, 2014). Especially the company's relationships with external sources of knowledge, such as customers, suppliers and other companies in the same field, could have a significant impact on the development and innovation of the company (Love & Ganotakis, 2013). However, due to the limited economic resources in SMEs, the investment on employees' development could risk other business activities (Clifton, Huggins, Morgan, & Thompson, 2015).

In order to optimize the business performance and stay up-to-date, SMEs have to include learning in their business goals (Floyde, Lawson, Shalloe, Eastgate, & D'Cruz, 2013) while taking into account their business context and limitations. Companies may feel pressure to allocate part of their budget in learning in order to stay competitive, but each company has its own unique features which determine the type of learning that is needed. Svensson, Ellström, and Åberg (2004) claim that in large companies learning often has a formal form while in small companies it has an informal one. This difference can be explained by the fact that small companies are characterized by the need for practical usefulness and the lack of official learning time. However, SMEs tend to seek for quick solutions on their daily work-based problems and ignore the fact that these solutions are temporarily (Raymond, Uwizeyemungu, Bergeron, & Gauvin, 2012). In order to gain and retain new knowledge, SMEs can combine technology and lifelong learning for their own benefit in the short and long term timeframe. This marriage of lifelong learning and technology can foster the use of e-learning (Sambrook, 2003).

### **The context in Greece.**

More than 97% of the enterprises in Greece are small companies due to the strong domestic market orientation and the small market size (Hyz, 2011). Consequently, the development of Greek SMEs has high impact in Greek economy. Despite the considerable volume of research on e-learning in many countries worldwide, the evidence from Greece is

rather limited. As an economy that has been severely hit by the most recent financial crisis and moved into a period of prolonged recession, Greece presents particular research interest on how e-learning in the country's SMEs can perform in the its attempts to recover and develop.

The Greek SMEs have on average one of the lowest IT infrastructure levels in Europe (Chatzoglou, Sarigiannidis, Vraimaki, & Diamantidis, 2009). Consequently, it becomes extremely difficult for them to use their outdated technology and at the same time try to keep up with the new industrial processes brought by network technology (Chatzoglou et al., 2009 ; Tsoukatos, Psimarni-Voulgaris, Lemonakis & Vassakis, 2017). The employees' general ICT skills in Greek SMEs are relatively high, which is useful for ICT adoption (Giotopoulos, Kontolaimou, Korra & Tsakanikas, 2017). However, they lack specialized ICT skills, which appear to be more important for the engagement of SMEs in e-commerce activities and expansion of their business (Giotopoulos, Kontolaimou, Korra & Tsakanikas, 2017).

Governments from different European countries have been supportive of SMEs' development by providing funding for learning opportunities (Clarke, Thorpe, Anderson, & Gold, 2006). In the case of Greece, the "Go-digital project" , funded by the Greek Ministry of Development, and approved in 2000 by the European Commission as a part of the eEurope action plan, is an example of a learning project which aimed to help Greek SMEs to follow the e-business and e-commerce technologies (Chatzoglou et al., 2009). Despite these efforts Greek SMEs still have significant difficulties to maintain or improve their business in this new technology-driven business environment.

### **Research Questions and Model**

Taking into consideration the aforementioned literature, concerning the adoption of e-learning in SMEs, the following research question emerges focusing on the SMEs in Greece:

What is the current status of Greek SMEs in regards to e-learning?

To answer this question adequately, four sub-questions are asked:

1. What characteristics of Greek SMEs influence the learning and development, and how are those related to the use of e-learning?
2. To what extent Greek SMEs use ICT tools for learning and development, and how is this related to the use e-learning?
3. What are the attitudes of owners-managers in Greek SMEs towards learning and development?
4. What are the attitudes of owner-managers in Greek SMEs towards e-learning and how is this related with its adoption?

### **Research Design and Methods**

#### **Research Design**

The nature of this study is exploratory since it focuses on getting familiar with the situation of e-learning in SMEs and gain new insights about it in the context of Greece. Moreover, this study can be classified as a case study since descriptive research design was used. In particular, a partially mixed method study was used in order to have an in-depth description of the e-learning in Greek SMEs. Several scholars acknowledge the mixed methods research as an improved type of research method in social science (Mackenzie & Knipe, 2006). This method is the most appropriate for this study for two reasons. First, the purpose of the study is to reveal the position of Greek SMEs towards e-learning. Therefore,

quantitative data is needed in order to have a reliable insight on all the concepts of Greek SMEs related to e-learning. Second, the research is aimed to investigate the reasons why the owner-managers of Greek SMEs choose to invest or not in e-learning. Therefore, qualitative data is needed in order to support or disconfirm the quantitative results. This interdependent integration is advantageous because it can result in well-validated and substantiated findings (Creswell, 2013) regarding the e-learning in Greek SMEs.

### **Respondents**

Data have been gathered from 50 Greek companies. In particular, the owner-managers from 44 SMEs completed a business survey and the owner-managers of 6 SMEs participated in interviews. The initial sample of the survey was 620 Greek SMEs from the private sector divided equally into service companies and product companies. However, only 44 companies completed the questionnaire. Non-random sampling was used to select the respondents of the questionnaire. In specific, they were derived from the database of Greek Chambers of Commerce and Industry and from the database of the LinkedIn online social network. The criteria that were used to sample the companies from both sources were the number of employees (less than 250 employees) and the economic sector of each company (production or service sector).

Convenience sampling was also used to select the participants of the 6 interviews. The participated companies were derived from the personal network of the researcher. The number of employees and the economic sector was again the selection criteria that were used. In particular, the size of the companies varies from three to ninety two employees. Regarding the economic sector of the participated companies three are service companies and the other three are product companies. In specific, the companies are from various and rather different industries such as e-cigarette industry, career counselling, innovative

electronic solutions industry, mobile network co-operator industry, real estate industry and IT services integration industry.

### **Instrumentation**

The quantitative data were gathered by using an updated form of the questionnaire that Admiraal and Lockhorst (2009) used in their research, 'E-learning in SMEs across Europe'. Parts of the questionnaire's items have been updated by the researcher. These parts related to the use of ICT and the technology infrastructure of the company. In the business context, several new technological innovations have been used since 2009, which influences directly the types of ICT tools that are used in e-learning environments today. In regards to the structure of the questionnaire, the questions were categorized into four categories: Characteristics of the companies; Use of ICT; Attitudes towards learning and development; and Attitudes towards e-learning. In total, the questionnaire consisted 44 questions. There are demographic questions related mostly to the characteristics of SMEs, rating scale questions related the attitudes towards learning and e-learning, and multiple choice questions related to the types of ICT tools or types of e-learning. The attitudes of the owner-managers are measured on the 5-point Likert-type scale in which 1 is the most negative attitude and 5 is the most positive attitude. The type of answers are addressed to the satisfaction (1= Very dissatisfied, 5= Very satisfied), importance (1=Not important, 5= Very important) and frequency (1=Never, 5= Always).

The qualitative data was gathered from the conduction of 6 structured interviews aimed to give more insights of the Greek SMEs use of e-learning. The interviews were conducted in an online meeting between the researcher and each owner-manager of the six companies. The interviews were audio-recorded. The structure of the interview was based on the four categories of the survey but it also includes questions aimed to reveal more explanatory information. It should be notes that the interviewees participated only in the

interviews and they did not fill in the survey. The coding scheme was revised several times and its final version is provided in Appendix 1. Apart from the initial labels of the categories, sub-codes were created in order to be able to capture the whole range of information that the owner-managers provided.

### **Procedure**

In regards to the quantitative study, each company received an e-mail with an explanation of the purpose and the importance of the study along with the attached link, which was leading to the questionnaire. The questionnaire distributed to the enterprises' email was addresses via a link in order to be faster and easier for the participants to answer. Moreover, to address ethical concerns, at the beginning of the quantitative study's survey, participants were informed with an explanatory text about the purpose, the importance, and the instructions how to fill in the survey. Participants were told that the data gathered would only be used for the purposes of this research and that their participation was anonymous. To minimize the risk of non-response, two reminders were sent by e-mail. The first reminder was sent two weeks after the initial invitation and the second four weeks after the initial invitation. To reduce bias due to fatigue, the participants informed that they were allowed to stop the questionnaire and continue at a later moment. The survey was developed using Qualtrics' survey tool. No rewards were offered to persuade participants to participate. The response period for the survey covered seven consecutive weeks and started on 1<sup>st</sup> of March, 2017 and closed on 18<sup>th</sup> of April, 2017.

The interviews from the qualitative study were planned to be conducted in the Greek language via Skype calls. In this way, the interviewer and the interviewees communicated in an easier manner since they used their native language. The interviews were scheduled by the researcher who came in contact with the owner-managers of each company and arranged



an online meeting for approximately one hour. The period that was needed to gather all the data was one month, from 5<sup>th</sup> of April 2017 until 5<sup>th</sup> of May 2017.

### **Data analysis**

#### Data analysis of the quantitative study

The quantitative data was analysed with descriptive statistics using the software SPSS, in order to provide insight into the composition of the sample and information regarding the e-learning use in Greek SMEs. The data were organized into four categories according to the variables of the research sub-questions: Characteristics of SMEs, Use of ICT, Attitudes towards learning and development and Attitudes towards e-learning. In order to understand whether the rating scale questions, which were thirty 5-point Likert items, reliably measured, a Cronbach's alpha was used. Cronbach's alpha in quantitative research is used to measure the reliability based on the internal consistency of the items (Tavakol & Dennick, 2011). Cronbach's alpha was found 0.914, which indicates a high level of internal consistency for our scale with this specific sample.

#### Data analysis of the qualitative study

From the interviews, recorded data were gathered and transcript. The transcripts were translated in English language and analysed based on the conventional content analysis which derives codes from the gathered data (Elo & Kyngäs, 2008). The aim was to clarify and reveal significant information and relationships among the variables of the study by distinctive examples. First, the transcripts were read meticulously in order to comprehend the data and derive all the useful information. Second, codes were assigned to each answer of the participants. Third categorization was done by using labels on the coding scheme. According to the content of the interviews' answers and the variables of the research sub-questions, the codes were categorized in the four variables: Characteristics of SMEs, Use of ICT, Attitudes towards learning and development and Attitudes towards e-learning. To recapitulate, the

same categorization was implemented in the analysis of the quantitative study. The intention was to integrate both types of data at the level of analysis, in order to provide more trustworthy insights about the use of e-learning in Greek SMEs. To establish the validity of the interpretations of the data, after completion of the analysis, a check was conducted by another researcher. In order to ensure the reliability of the qualitative findings, Cohen's kappa was used based on agreements among ratters (Guggenmoos-Holzmann, 1996). Therefore, all the interviews were coded by another ratter by using the coding scheme. That way it is ensured that the level of the researchers' agreement is high. The results of Cohen's kappa for each category are presented in Table 3.

Table 3

*Cohen's kappa for each category*

	Attitudes towards e-learning	Use of ICT	Attitudes towards learning and development	Characteristics of SMEs
Cohen's kappa	1	0.88	0.88	0.90

## Results

The overall aim of the study is to explore the status of Greek SMEs in regards to e-learning usage. The illustration of the results starts with the first category, namely Characteristics of the SMEs. The second category is the Use of ICT, and the third category is the Attitudes of owner-managers towards learning and development. The last category is the Attitudes of owner-managers towards e-learning. Each category starts with the results from the descriptive statistics which provide information on the mean and standard deviation of scale and ordinal variables. In the second part of each category, the findings from the interviews are presented. The overall goal is to have clear insights from each category. Therefore sub-categories were created in order to include all the information that is derived from both the survey and the interviews.

### Characteristics

*Demographics.* In regards to the sex ratio, the average number of men (59%) was slightly higher than the average number of women (41%). Moreover, the average age of the employees is approximately forty years.

*Company's size/ Target market.* Twenty seven of the forty four companies who participated in the survey were small companies, who have nine or fewer employees. From the six companies who participated in the interviews, three are small-sized companies, less than ten employees and the other three are medium-sized companies, between thirty and one hundred employees. Moreover, from the qualitative results, all the participated companies have as a market target, customers from all over Greece and abroad. This means that they do not target only at the local market but they are expanding nationally and internationally.

*Company's economic sector.* The survey was distributed to an equal number of companies from both production and service sector. However, the results reveal that 80% of the respondents are companies from the service sector and only 20% are from the production sector. From the qualitative data, the six companies were categorized equally to the two economic sectors, products and service. However, two of the companies belong to both sectors since they produce a product but also provide services.

*Employees' education/ English education.* Considering the education of the employees, on average 66% of the employees of each company have a university or a college degree. In addition, the owners-managers reported that they are quite satisfied with the educational level of their employees ( $M = 3.93$ ,  $SD = 0.593$ ). The same results have been reported from the owner-managers of the companies who participated in the interviews. The average educational level of the employees is high, which indicates that they have a university or college degree. In addition to the general educational level, the level of the

English language was also examined in the interviews. The results indicate that on average there is a good level of English.

### **The Use of ICT**

*Computer / Internet/ E-mail.* The findings show that both company's e-mail address ( $M = 77\%$ ) and personal computer ( $M = 75\%$ ) are significantly used by the employees. Moreover, the use of the computer is essential ( $M = 4.77$ ,  $SD = 0.611$ ) for the everyday work of employees. The findings also reveal that the employees use Internet almost on a daily basis. ( $M = 4.42$ ,  $SD = 0.879$ ).

According to the qualitative data, all the owner-managers demonstrate that there is a high computer use in their companies. High computer use defined as essential computer usage which the company's function depends on it.

Manager A \_ Service: *"None will be in the position to think that he will not use it [the computer] because the whole function of the company relies on it."*

The overall computer knowledge and skills of the employees in these companies are at a very high level. Only one owner-manager points out that his/her employees have basic user level, which indicates basic computer knowledge and skills. Moreover, in technology-oriented companies, the employee's computer knowledge is advanced since it is a requirement.

Manager C \_ Product: *"Every employee that works in the company has to have an advanced level of computer skills. The employees who come to work in our company have to be experienced computer users. We are all power users of computer hardware, operating systems, programs, and websites."*

*ICT tools.* According to the quantitative data, all the owner-managers selected one or more ICT tools that their employees use in their daily work activity. The results showed the use of e-mail ( $M = 100\%$ ) and different search engines (e.g. Google, YouTube) ( $M = 97.7\%$ )

are essential. Then the use of bookkeeping and the use of clouds are coming next with the same score ( $M = 51.2\%$ ). The use of Presentation software (e.g. PowerPoint) scored 48.8%, the use of video conferencing scored 41.9%, the use of Internet forums scored 37.2% and in the last position is the use of CD or DVD or Blu-ray with 25.6%. Some participants mentioned other alternative ICT tools that they use in their companies such as Skype, Customer Relationship Management (CRM), mobile phone and Learning Place which is a type of e-learning environment. The use of these ICT tools in sharing and collecting information is more than often according to owner-managers. In specific, the employees of the companies tend to share more often ( $M = 4.37$ ,  $SD = 0.846$ ) information rather than collect them ( $M = 4.21$ ,  $SD = 1.013$ ).

According to qualitative data, all the companies use e-mail for their communication and different search engines. In addition to these ICT tools, social media are also playing an important role in the working process especially in advertising and marketing. In regards to the ICT tools related to employees' work activities, all the desktop applications of Microsoft Office are daily used mostly on the documentation and storing of data. However, the majority of the companies, due to the nature of their product/service and the operational needs, have advanced technological tools concerning the improvement of their communication and work processes. For example, platforms which are used by the customers and clients, software and hardware tools, internal online communication systems, technically advanced communication systems, company's Wiki (company's e-learning system) and software of customers' management (Supplier Relationship Management). Overall, all the companies are using basic ICT tools but most of them are using extra advanced ICT tools to meet the communication and work needs of the company.

Manager C \_ Product: *"We have so many IT tools that we use for our work and communication in the company. Things that we did not develop by ourselves, but we use*

*them for our benefit. Software and hardware tools. It is the nature of our job that requires this kind of technology.”*

Concerning the technical infrastructure challenges, which the companies may face, the owner-managers claim that there are various difficulties depending on the context and the nature of the company. The companies which have basic technological infrastructure are facing basic difficulties, such as low internet speed or low internet availability. On the other hand, the companies which have advanced technological infrastructure are not facing common technical problems but more complex problems regarding their systems. Another factor that should be considered for both types of companies is that they do not have an ICT representative. ICT representative is the person or a department of the company, responsible for the technical issues of the implementation and use of ICT tools. Most of the owner-managers claim that the employees themselves are responsible for the function and the maintenance of the ICT tools that they use. Overall, the findings showed that there are both significant and minor difficulties for both types of companies, which indicates that there are infrastructural challenges that should be considered.

### **Attitudes towards learning and development**

*Communication.* The findings from the quantitative study showed that the owner-managers are in overall satisfied with the internal and external communication of the company, which indicates a good environment for knowledge sharing. In specific, the internal communication ( $M = 4.40$ ,  $SD = 0.541$ ) and the communication with the customers ( $M = 4.35$ ,  $SD = 0.573$ ) have the highest scores, which tend to be rated by the owner-managers as ‘Very satisfied’. An in-depth investigation was made regarding the employees' motivation on sharing and collecting information within the company. The findings show that the employees are encouraged often to collect ( $M = 4.49$ ,  $SD = 0.631$ ) and share

information ( $M = 4.63$ ,  $SD = 0.578$ ) with their colleagues in the company and sometimes with external colleagues from other companies ( $M = 3.86$ ,  $SD = 0.833$ ).

*Stay up-to-date.* The findings reveal that the employees are often encouraged to perceive the changes in their work as challenges and not as problems ( $M = 4.14$ ,  $SD = 0.889$ ). Also, they are often encouraged to solve the problems that they are facing as a team ( $M = 4.26$ ,  $SD = 0.727$ ), not individually. The owner-managers point out that their companies give often opportunities to their employees in order to stay up-to-date on their field of expertise ( $M = 4.21$ ,  $SD = 0.773$ ) and sometimes the employees can choose what they want to learn ( $M = 3.79$ ,  $SD = 1.103$ ). Also, the owner-managers of more than half of the participated companies state that their employees are attending training sessions organized by the company ( $M = 3.28$ ,  $SD = 1.333$ ).

According to the findings from the interviews the motivation that the employees have to develop and learn depends on the company's policy. Only one of the six owner-managers stated that the company includes in its policy the development of employees by using internal training. The rest of the owner managers stated either that they do not motivate their employees to develop, or that they motivate their employees to stay up-to-date for their personal development but it is not company's policy to promote that. In the last case, the employees take the initiative to search for their own learning activities (training/course). They can request company's approval and if the learning activity is useful and cost-efficient, then they can proceed.

Interviewer: *“Is this company's policy? If it is needed and there is a suggestion from an employee to participate in a webinar, would you approve it?”*

Manager B \_ Product: *“Yeah exactly. The employees will follow it [webinar]. But we do not promote it!”*

Interviewer: *“So there are some efforts.”*

Manager B \_ Product: *“Yes, but they are not planned. It is an individual decision.”*

*Assessment of learning.* In regards to the assessment of learning, the findings from the survey show that there are efforts from the company to establish assessment processes in regards to employees' learning progress and growth. In specific, the assessment of employees' skills ( $M = 3.86$ ,  $SD = 1.037$ ), the assessment of employees' learning progress ( $M = 3.67$ ,  $SD = 1.017$ ) and the assessment of the progress of employees' growth ( $M = 3.42$ ,  $SD = 1.029$ ) have been rated as important according to the owner-managers.

However, these findings are not verified by the qualitative findings which reveal that in some companies it is unclear who is responsible for the assessment of the employees' progress. According to the qualitative findings 4 companies of the sample have their own assessment representative or department which follow a specific assessment strategy.

Manager A \_ Service: *“There is a particular person who works a lot on the assessment part of my colleagues and my employees. Lately, our next step is to create a 360 Degree Feedback with all the employees.”*

Manager C \_ Product: *“There is no assessment. The assessment that we have is from the customer and how satisfied he is. So there is no formal form of individual assessment.”*

*Budget for development.* Regarding the amount of money that the companies invest in the employees' training, the survey results show that it is dissatisfied ( $M = 2.84$ ,  $SD = 1.214$ ). The interviews verify this result since all the participated owner-managers state that there is no particular budget for employees' learning and development. In detail, they explained that in cases when a learning opportunity or a learning need appears, employees and managers examine the benefits of this learning activity and if they reach an agreement then the company provides the budget that is needed.

### **Attitudes towards e-learning**



Results showed that e-learning is not promoted by the owner-managers. In particular, the employees will be sometimes encouraged to stay up-to-date in their work by following e-courses ( $M= 3.30, SD = 1.145$ ) or any other e-learning form ( $M = 3.72, SD = 1.182$ ). However, all the companies that participated in the survey show that they use different Search Engines (e.g. Google, YouTube) as a form of e-learning. According to the findings, the combination of Search Engines and Social Media use (e.g. Twitter, Facebook) ( $M = 44.19\%$ ) is the strongest combination of e-learning. Based on all these findings, it appears that the informal types of e-learning are more developed in comparison to the formal types of e-learning. Moreover, these results are in line with the order of importance that the owner-managers chose regarding e-learning forms. First, the most important type of e-learning is the use of Search Engines ( $M = 46.34\%$ ), second is the use of e-courses ( $M = 21.95\%$ ) and third the use of blended learning ( $M = 14.63\%$ ). Social Media ( $M = 7.32\%$ ) and MOOCs ( $M = 4.88\%$ ) are in lowest position in the preference of owner-managers. A very small percentage suggest other types of online communication which enhance e-learning processes such as WebEx ( $M = 4.88\%$ )

The interviews' results reveal that the participated companies follow either traditional ways of learning such as classroom instructor training, or e-learning such as e-courses. The main differences between these two types of learnings are that the companies, which use e-learning, have high use of ICT tools and their employees have advanced and specialized computer knowledge. In these companies, the organizational and the employee performance are based on technology.

Manager C\_ Product: *“E-learning is vital to us because the subject of our work is this and it is constantly evolving so we must follow the changes. E-learning is the mean to do that and that is why it is very important to us.”*

The same companies have high-tech infrastructure and network. The facilities provide optimal, advanced technical equipment, which enables the implementation of e-learning techniques. Additionally, most of the owner-managers have a positive attitude towards the implementation and adaption of e-learning. However, there were some owner-managers who acknowledge the benefits of e-learning in the workplace but they do not believe that it will benefit their business.

Manager B\_ Service: *“I clearly believe that e-learning is useful whether it is at a personal or at the corporate level but under no circumstances, it cannot replace the presence and the live participation in a seminar.”*

Overall, all the owner-managers agreed that SMEs, which want to adopt e-learning in their companies have to deal with several challenges. First, almost one hundred percent of the sample agreed that the time that employees need to spend in e-learning is the biggest challenge that they are facing. Second, the owner’s personal attitude towards e-learning influences significantly the employees’ motivation and facilitation of e-learning. Third, the planning and management that is required in order to have an effective and sustainable e-learning implementation. Last, the budget that a company has to invest in the implementation of e-learning. In particular, the owner-managers who mentioned this challenge, specified that an e-learning transition has significant up-front costs, which could block its implementation.

### **Discussion**

The purpose of the present study was to retrieve insights on the Greek SMEs e-learning status. Thus, the aim was to examine the patterns and attitudes that the owner-managers of Greek SMEs have towards e-learning. The above aspects were investigated through the distribution of a questionnaire and the conduction of structured interviews. Overall, the status of e-learning in SMEs in Greece is low. The data analysis reveals that

Greek SMEs are using e-learning techniques but mainly informal types of e-learning bases on knowledge-sharing.

In order to identify the status of e-learning in Greek SMEs, some research sub-questions were formulated. The first sub-question was: “What characteristics of Greek SMEs influence the development of e-learning?”.

*Company's size/ Target market.* According to the results of the survey, the average size of the companies was small and the use of e-learning was rather limited. In specific, findings reveal that the small companies will not primarily focus on learning and development or invest in learning technologies. However, these companies tend to use informal forms of e-learning to enhance their internal/external communication. An interesting finding that was revealed from the interviews is that all the participated companies, regardless of their size, reported that they have not only national but also international target markets. According to the owner-managers, even though the opportunities to contribute in the export market are limited, they continue to target customers from international markets. Gatautis and Vitkauskait (2015), state that effective use of ICT can lead to increase of competitiveness. While ICT and e-learning have great potential to support SMEs towards competitiveness, and internationalization the realization of this potential and the implementation of optimal technical infrastructure is not easy (Hamburg, Brien & Engert, 2013).

*Company's economic sector.* According to the results, as it was expected, the economic sector influences the implementation of ICT tools and therefore the investment on e-learning. The survey was distributed equally to companies from both economic sectors. An interesting outcome is that most of the SMEs which participated in the survey were from the service sector. Admiraal and Lockhorst (2009) point out the different e-learning adoption that the service and product based SMEs due to the different need for ICT investment. The

service-based SMEs is more likely to invest in ICT infrastructure in comparison to product based SMEs. Thus, the SMEs from service sector have been reported significant growth in comparison to product based SMEs (Hamburg 2015).

*Employees' education.* According to the findings, the educational background of employees is not the characteristic that influences negatively the implementation and use of e-learning in SMEs in Greece. The high educational level of employees enhances the business development instead, even if there are limited resources. Chadwick and Rave (2015) reveal that individuals' motivation for personal growth plays a key role in shaping how they learn at work, and their "unique" learning processes can become institutionalized within the organization. This happens regardless of whether organizational learning has "formally" been in place or not. The interview results confirm that the owner-managers motivate their employees are to take the initiative to search and find the learning activities which will help them improve their work in the company and increase their skill set.

The second sub-question was: "To what extent Greek SMEs use ICT and how is this related to the use of e-learning?" Giotopoulos, Kontolaimou, Korra and Tsakanikas (2017), claim that the research of ICT adoption from Greek SMEs is rather limited taking into consideration that the country is dealing with the financial crisis the last decade. In this context, this study focused on the ICT tools that Greek SMEs are using and how they can be considered as indicators for e-learning use.

The results of this study revealed that Greek SMEs are using different types of ICT tools, both basic and advanced. In line with Tarutė and Gatautis (2014), it was found that establishment of effective external/internal communication is one of the most important aspects that all the Greek SMEs try to improve with Web use in different ICT platforms (PCs, mobiles, internet, etc). According to the results, the employees will use very often informal communication channels, such as web services or social media, in order to share or

collect information. Hamburg & O'Brien (2014), confirm that social media users benefit from the social interaction and information accessibility which are characteristics of the new e-learning generation.

Due to a range of business activities and the competitive market of the 21<sup>st</sup> century, there are a lot of Greek SMEs that have to use advanced technology not only to improve communication but to achieve high performance and remain competitive in the market. This study demonstrates that these SMEs have the advantage in applying e-learning activities since a well-equipped technical infrastructure and employees with advanced technical knowledge and skills. In line with these findings, this study showed that the main ICT challenges that Greek SMEs have related to e-learning use, are depending on the nature of the enterprise and the level of the technology that they use. Therefore, the overall result is that Greek SMEs use ICT tools but they still have room for improvement in their technical infrastructure and human capital in order to enable them to use formal and informal types of e-learning.

The third sub-question was: “What are the attitudes of owners-managers in Greek SMEs towards learning and development?” According to the answers of the owner-managers who participated in this study, they believe that the key to success and sustainability of their organizations is to invest in the development of human capital. However, due to limited resources (human capital and budget restrictions), it is extremely difficult for SMEs to create and implement an official and structured Learning and Development policy in order to foster the organizational learning.

A recent study (Chadwick and Raver, 2015), found that employees' personal career goals play a key role in finding relevant learning opportunities to their daily work. These learning opportunities occur even if there is no formal organizational learning strategy in place but they can become institutionalized within the organization. In line with these

findings, the current study found that the owner-managers of Greek SMEs motivate their employees to use internal and external communication channels as learning opportunities in order to interact with their peers and exchange knowledge. In addition, employees are encouraged to stay up to date by seeking and following relevant external learning activities which are relevant to their competencies and the business objectives.

In this context, e-learning is taking place in informal forms such as communication or staying up-to-date, based on employee's initiative. E-learning allows the employees to acquire new knowledge and skills in time which is vital for SMEs in order to remain ahead of the competition (Hamburg, 2015). In this study, employers encourage the employees to follow e-learning courses mainly because the company cannot offer official time for learning and development.

The last sub-question of this study was: “What are the attitudes of owner-managers in Greek SMEs towards e-learning and how is this related to its adoption?” The overall result of this study is that Greek SMEs are having mainly negative attitude towards the use of e-learning. In particular, the results reveal that the owner-managers hesitate to invest in e-learning since there are several challenges that Greek SMEs have to face such as management, implementation and maintenance of e-learning solutions.

Another outcome of this study is that the owner-managers favor the informal forms of e-learning. Admiral and Lockhorst (2009) highlight that SMEs are characterized for their informal learning culture but they support that technology can play a significant role in upgrading this culture. In line with these findings, this study showed that the owner-managers of Greek SMEs prefer to promote primarily informal types of e-learning. This is a consequence of the available technologies, the perception that peer communication is a sufficient process of knowledge sharing and the lack of official learning and development

budget. As a result, the owner-managers' preferences shape the type of the company's learning and the employees follow their leader.

### **Conclusion and Limitations**

In general, the owner-managers of Greek SMEs show negative attitudes towards e-learning. However, there are some limitations which should be taken into consideration regarding the interpretation of the findings. First, the goal of this study was to reveal the status of the e-learning in Greek SMEs. However, the size of the sample was not big enough to generalize the results. Second, the findings from the 6 interviews explained the findings of the survey to a high degree. However, a higher number of qualitative findings can bring a greater understanding of the results in future research. Last, the data analysis of the quantitative data was based on descriptive statistics aiming to demonstrate the overall picture of the e-learning in SMEs. However, a more in depth data analysis in the quantitative data could reveal the relationships between the variables and support the qualitative data. Therefore, a suggestion for further research would be to use correlation analysis for the relationship between the use of ICT and attitudes towards e-learning, and the relationship between the attitudes towards learning and development and attitudes towards e-learning.

In conclusion, it appears that the benefits of e-learning in terms of innovation, performance, internationalization and growth have been well known in all firms in general and SMEs in particular. However, the decisions and processes concerning e-learning adoption are not simple and depend on a great variety of factors related to companies' resources, organization, and business environment. Despite the considerable volume of research on e-learning use in many countries worldwide, the evidence from Greece is rather limited. This study contributed to the existing literature and provided interesting insights on the status of e-learning in Greek SMEs. As an economy that has been moved into a period of prolonged recession after the financial crisis, Greece presents particular research and policy

interest. The aim of this study was to raise these issues and produce an initial base for further research by scholars and policymakers, emphasizing the crucial role that e-learning can perform in the country's attempts to develop and remain competitive in the international markets.



## References

- Admiraal, W., & Lockhorst, D. (2009). E-Learning in small and medium-sized enterprises across Europe attitudes towards technology, learning and training. *International small business journal*, 27 (6), 743-767.
- Amara, N. B., & Atia, L. (2016). E-training and its role in human resources development. *Global Journal of Human Resource Management*, 4(1), 1-12.
- Bancheva, E., & Ivanova, M. (2015). Informal learning in the workplace. In *Private World (s)* (pp. 157-182). SensePublishers, Rotterdam
- Batra, G., Kaufmann, D., & Stone, A. H. (2003). *Investment climate around the world: Voices of the firms from the World Business Environment Survey* (Vol. 1): World Bank Publications.
- Bhatt, G. D. (2000). Exploring the relationship between information technology, infrastructure and business process re-engineering. *Business Process Management Journal*, 6(2), 139-163.
- Bora, U. J., & Ahmed, M. (2013). E-learning using cloud computing. *International Journal of Science and Modern Engineering*, 1(2), 9-12.
- Chadwick, I. C., & Raver, J. L. (2015). Motivating organizations to learn: Goal orientation and its influence on organizational learning. *Journal of management*, 41(3), 957-986.
- Chatzoglou, P. D., Sarigiannidis, L., Vraimaki, E., & Diamantidis, A. (2009). Investigating Greek employees' intention to use web-based training. *Computers & Education*, 53(3), 877-889. doi:10.1016/j.compedu.2009.05.007
- Cheng, Y.-M. (2011). Antecedents and consequences of e-learning acceptance. *Information Systems Journal*, 21(3), 269-299. doi:10.1111/j.1365-2575.2010.00356.x
- Clarke, J., Thorpe, R., Anderson, L., & Gold, J. (2006). It's all action, it's all learning: action learning in SMEs. *Journal of European Industrial Training*, 30(6), 441-455.
- Clifton, N., Huggins, R., Morgan, B., & Thompson, P. (2015). An appropriate tool for entrepreneurial learning in SMEs? The case of the 20Twenty Leadership Programme. *Local Economy*, 30(5), 534-556.
- Creswell, J. W. (2013). Research design: *Qualitative, quantitative, and mixed methods approaches*: Sage publications.
- Dagdilelis, V., Satratzemi, M., & Evangelidis, G. (2003). Implementing a nationwide system for training very small enterprises for ICT innovation: The Greek case. *Educational Technology & Society*, 6(1), 26-31.
- De Corte, E., Linn, M., Mandl, H., & Verschaffel, L. (2013). *Computer-based learning environments and problem solving* (Vol. 84): Springer Science & Business Media.
- Drigas, A., & Koukianakis, L. (2006). An open distance learning e-system to support SMEs e-enterprising. *WSEAS Transactions on Information Science and Applications*, 3(3), 526-531.
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing*, 62 (1), 107-115.
- Fillis, I., & Wagner, B. (2005). E-business development: an exploratory investigation of the small firm. *International small business journal*, 23 (6), 604-634.
- Floyde, A., Lawson, G., Shalloe, S., Eastgate, R., & D'Cruz, M. (2013). The design and implementation of knowledge management systems and e-learning for improved occupational health and safety in small to medium sized enterprises. *Safety Science*, 60, 69-76. doi:10.1016/j.ssci.2013.06.012
- Fry, K. (2001). E-learning markets and providers: some issues and prospects. *Education+ Training*, 43(4/5), 233-239.

- Gatautis, R., & Vitkauskaitė, E. (2015). eBusiness policy support framework. *Engineering Economics*, 65(5).
- Giotopoulos, I., Kontolaimou, A., Korra, E., & Tsakanikas, A. (2017). What drives ICT adoption by SMEs? Evidence from a large-scale survey in Greece. *Journal of Business Research*, 81, 60-69.
- Gros, B., & García-Peñalvo, F. J. (2016). Future trends in the design strategies and technological affordances of e-learning. Learning, Design, and Technology: *An International Compendium of Theory, Research, Practice, and Policy*, 1-23.
- Guggenmoos-Holzmann, I. (1996). The meaning of kappa: probabilistic concepts of reliability and validity revisited. *Journal of clinical epidemiology*, 49 (7), 775-782.
- Hamburg, I. (2015). Improving e-Learning in SMEs through cloud computing and scenarios. In *E-learning-instructional design, organizational strategy and management*. InTech.
- Hamburg, I., Brien, E. O., & Engert, S. (2013). Engaging SMEs in cooperation and new forms of learning. *Computer and information science*, 7(1),
- Hamburg, I., & O'Brien, E. (2014). Using strategic learning for achieving growth in SMEs. *Journal of information technology and application in education*, 3(2), 77-83.
- Hamburg, I., & Lindecke, C. (2005). Lifelong learning, e-learning and business development in small and medium enterprises. *Bo, I. (ed.): Lifelong e-learning: bringing e-learning close to lifelong learning and working life*, 79-84.
- Hyz, A. B. (2011). Small and medium enterprises (SMEs) in Greece-Barriers in access to banking services. An empirical investigation. *International Journal of Business and Social Science*, 2(2).
- Jones, P., Simmons, G., Packham, G., Beynon-Davies, P., & Pickernell, D. (2014). An exploration of the attitudes and strategic responses of sole-proprietor micro-enterprises in adopting information and communication technology. *International small business journal*, 32 (3), 285-306.
- Klimek, S. (2009). E-learning for SMEs. *Economics and Organization of Enterprise*, 3(1), 71-77.
- Lau, R. W., Yen, N. Y., Li, F., & Wah, B. (2014). Recent development in multimedia e-learning technologies. *World Wide Web*, 17(2), 189-198.
- Lee, M.-C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model. *Computers & Education*, 54(2), 506-516.
- Little, B. (2001). Achieving high performance through e-learning. *Industrial and Commercial Training*, 33(6), 203-207. doi:10.1108/eum0000000005963
- Love, J. H., & Ganotakis, P. (2013). Learning by exporting: Lessons from high-technology SMEs. *International business review*, 22 (1), 1-17.
- Lucchetti, R., & Sterlacchini, A. (2004). The adoption of ICT among SMEs: evidence from an Italian survey. *Small Business Economics*, 23(2), 151-168.
- Lukács, E. (2005). The economic role of SMEs in world economy, especially in Europe. *European integration studies*, 4(1), 3-12.
- Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in educational research*, 16 (2), 193-205.
- Manuti, A., Pastore, S., Scardigno, A. F., Giancaspro, M. L., & Morciano, D. (2015). Formal and informal learning in the workplace: a research review. *International Journal of Training and Development*, 19(1), 1-17.
- Morgan-Thomas, A. (2016). Rethinking technology in the SME context: Affordances, practices and ICTs. *International small business journal*, 34 (8), 1122-1136.

- Morgan, A., Colebourne, D., & Thomas, B. (2006). The development of ICT advisors for SME businesses: An innovative approach. *Technovation*, 26(8), 980-987. doi:10.1016/j.technovation.2005.09.001
- Papazafeiropoulou, A., Pouloudi, A., & Doukidis, G. (2002). A framework for best practices in electronic commerce awareness creation. *Business Process Management Journal*, 8(3), 233-244. doi:10.1108/14637150210428943
- Pollard, E., & Hillage, J. (2001). Exploring e-learning: Institute for Employment Studies Brighton.
- Raymond, L., Uwizeyemungu, S., Bergeron, F., & Gauvin, S. (2012). E-Learning Adoption and Assimilation in SMEs: A Research Framework. 1-4. doi:10.1109/rivf.2012.6169820
- Sadowski, B. M., Maitland, C., & van Dongen, J. (2002). Strategic use of the Internet by small-and medium-sized companies: an exploratory study. *Information economics and Policy*, 14 (1), 75-93.
- Sambrook, S. (2003). E-learning in small organisations. *Education + Training*, 45(8/9), 506-516. doi:10.1108/00400910310508892
- Sharma, S., Garg, S., & Mittal, S. (2015). Impact Analysis of ICT Teaching Aids Used for Training and Development of Employees. *Procedia-Social and Behavioral Sciences*, 182, 239-248.
- Sin Tan, K., Choy Chong, S., Lin, B., & Cyril Eze, U. (2010). Internet-based ICT adoption among SMEs: Demographic versus benefits, barriers, and adoption intention. *Journal of enterprise information management*, 23 (1), 27-55.
- Singh, S., Olugu, E. U., & Fallahpour, A. (2014). Fuzzy-based sustainable manufacturing assessment model for SMEs. *Clean Technologies and Environmental Policy*, 16(5), 847-860.
- Svensson, L., Ellström, P. E., & Åberg, C. (2004). Integrating formal and informal learning at work. *Journal of Workplace Learning*, 16(8), 479-491. doi:10.1108/13665620410566441
- Tarutè, A., & Gatautis, R. (2014). ICT impact on SMEs performance. *Procedia-Social and Behavioral Sciences*, 110, 1218-1225.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, 2, 53.
- Tsoukatos, E., Psimarni-Voulgaris, F., Lemonakis, C., & Vassakis, K. (2017). The impact of R&D and information technology on innovation performance of Greek SMEs. *Global Business and Economics Review*, 19(5), 521-535
- Wasim, J., Sharma, S. K., Khan, I. A., & Siddiqui, J. (2014). Web Based Learning.
- Welsh, E. T., Wanberg, C. R., Brown, K. G., & Simmering, M. J. (2003). E-learning: emerging uses, empirical results and future directions. *International Journal of Training and Development*, 7(4), 245-258.

## Appendix 1

## Coding scheme

Categories	Sub-Categories	Data-based Labels	Definitions	Examples
Characteristics of SMEs	Company's size	Small	The number of employees is less than 10.	<i>"Three"</i>
		Medium	The number of employees is more than 10.	<i>"At the moment, we are 85 people."</i>
	Target market	Local	The company's customers are in the local scale.	No example
		National/ International	The company's customers are in national or international scale.	<i>"We have customers in Greece and in several places abroad. The company has mainly international character, which means that we are interested more about the business abroad rather than the local customers in Greece"</i>
	Economic sector	Service	The company's outcome is services.	<i>"We are offering digital marketing services, bulk email sending and bulk messaging."</i>
		Product	The company's outcome is product.	<i>"Our products are e-cigarettes and all the general products for smoking."</i>
	Employees' education	High Education	The average number of the employees has a degree from higher education.	<i>"I would say that the 90% of the employees are at least"</i>

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				<i>university graduates.”</i>
		Low Education	The average number of the employees does not have a degree from higher education.	No example
	Employees' English education	Good English level	The average number of the employees has good English knowledge and skills.	<i>“I would say that the 97% of the employees peaks really good English.”</i>
		Low English level	The average number of the employees has low English knowledge and skills.	<i>“Unfortunately, the other two members of the company do not have adequate English skills. They neither have a diploma nor the ability to communicate with a foreign person.”</i>
<b>Technology Infrastructure of SMEs</b>	Use of Computer/Internet/E-mail	High use	The company's function depends on the computer/internet /e-mail usage.	<i>“It's not only about motivation it is a necessity. No employee thinks not using the computer or internet because the whole function of the company is relied on it.”</i>
		Low use	The company uses often the computer/internet /e-mail to cover its needs.	No example
	Computer knowledge/skills	High level	The average number of employees has high level of computer knowledge/skills.	<i>“Every employee that works in the company has to have advanced level of computer skills.”</i>

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				<i>The employees who come to work in our company have to be high experienced computer users. We are all power users of computer hardware, operating systems, programs and web sites.”</i>
		Basic level	The average number of employees has basic level of computer knowledge/skills.	<i>“They have a sufficient level of abilities to operate with a computer”</i>
	Use of ICT tools for communication and sharing information (email, streaming video,online platform, weblogs, forums, etc.).	High use	The employees use advanced ICT tools for the optimal internal and external communication of the company.	<i>“If we did not guarantee a good on-line communication we would not be able to work. For us the developers and in general for the computer software companies, the on-line community and the internet are those who create and transfer the knowledge. We have communication systems that help us to our internal communication but we also use other technical advanced systems.”</i>

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		Low use	The employees use basic forms of ICT tools for the optimal internal and external communication of the company (e-mail) or they do not use ICT tools at all.	<i>“Our communication includes mainly the use of email and phone calls especially when we are in a meeting and something comes up.”</i>
	Use of ICT tools in teh working setting (types of management systems, databases,etc.)	High use	The employees use advanced technological tools for their daily work activities in order to be effective.	<i>“In regards to the IT department, since we are employing 25 people who are ICT experts, such as developers, there are more tools. For example, JIRA, which is an IT tool for bug tracking and it is used from the people who work in IT department. Consequently, I would say that the computer and some computerized systems are exclusively the means with which we are doing our job.”</i>
		Low use	The employees use basic technological tools (e.g. Microsoft Office) for their daily work in order to be effective.	<i>“We use a lot with the PowerPoint program and the Google search engine. Occasionally we will use YouTube.”</i>

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	Infrastructure challenges (availability of network/wifi/connections, network stability, internet speed/bandwidth, etc)	High influence	The infrastructure difficulties are significant and they influence the overall performance of the company.	<i>“Yes we have problems with the internet connection. In Greece we are not so involved in this area especially in our region, where we have difficulties with the fiber optics.”</i>
		Low influence	The infrastructure difficulties are common but they do not influence directly the overall performance of the company.	<i>“Sometimes there are some issues with the quality of internet and it complicates our communication in the company but we are 90% satisfied.”</i>
<b>Attitudes towards learning and development</b>	Motivation to stay up-to-date	Yes- Policy in place	The company motivates its employees to stay up-to-date with their work and it is in company's policy to succeed that.	<i>“For the majority of the departments of the company, it is impossible for the employees to have an external training and apply this new knowledge within the company. Consequently, the majority of the trainings are organised from internal trainers or external trainers who are working for the company. The trainings are customised and focused in the company’s needs”</i>



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		Yes- No policy in place	The company motivates the employees to stay up-to-date with their work but it is not company's policy to succeed that.	<p><u>Interviewee:</u>  <i>"The employees will follow several webinars, but the company does not promote them."</i></p> <p><u>Interviewer:</u>  <i>"So there are some efforts from the employees?"</i></p> <p><u>Interviewee:</u>  <i>"Yes, but they are not organized. It is an individual decision. Certainly I would like be able to organize the development of the employees but now it cannot happen mostly due to lack of time on my part and the employees. It's also an expense."</i></p>
		No	The company does not motivate at all the employees to stay up-to-date with their work.	<p><i>"The only thing that is formally in place from the company is that employees receive in their first week of their employment, one week training related to our products."</i></p>
	Assessment of employees' progress	Assessment representative	The person or the department of the company which is responsible for the assessment of	<p><i>"There is a particular person who works on the assessment of</i></p>

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			employees work and progress.	<i>my colleagues' and my employees' progress. Our next step is to create 360 Feedback with all the employees. Yes, I can admit that assessment is an essential part of the company. "</i>
		No assessment representative	There is not a particular person responsible for the assessment of employees work and progress.	<i>"There is no assessment. The only assessment that we use is from the customers and how satisfied they are. There is no formal assessment process for the employees individually."</i>
	IT representative	Technical representative	The person or the department of the company which is responsible for the technical issues of the implementation and use of ICT tools.	<i>"Well, all these programs that I mentioned I set them up in the beginning. As a young member of the family business I was responsible for that. Finally I ended up managing all of them by myself. My expertise is on this field and I like this domain."</i>
		No technical representative	There is not a particular person responsible for the technical issues of the implementation	<i>"No. When you have a company so small it is impossible to have someone responsible only for these things."</i>

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			and use of ICT tools.	<i>Everyone contributes on everything. ”</i>
	Budget for the employees’ development	Particular budget	The company has a particular budget on learning and development of the employees	No example
		No particular budget	The company has not a particular budget on learning and development of the employees, only when is needed the company invest money on employees' development.	<i>“No there is no particular budget for the development of the employees. It depends on the employees’ needs and the willingness of the company to pay for relevant trainings.”</i>
<b>Attitudes towards e-learning</b>	Use of e-learning	Yes	Use any kind of online training or e-course	<i>“Well, in the past, there were some certifications through e-courses and these certifications could not be provided in Greece. These courses were organised by Linux, the Global Community and they were available only via e-courses. So there was this occasion in the past but it is not the policy of the company and it rarely happens. It happens mostly when there is need and in</i>

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				<i>special circumstances.”</i>
		No.	No use of online training or e-courses. Their trainings are based on the traditional classroom training.	<i>“No use of online training or e-courses. Our trainings are mostly traditional like following seminars etc.”</i>
	Attitudes towards e-learning	Positive	The managers/owners have a positive attitude towards e-learning in SMEs, either they use it or not.	<i>“Generally, SMEs’ main goal is the profit and not the loss. My opinion is that the profit is interdependent with the company’s development; it is not helpful to do nothing, to not evolve. I want to do something better for me, for my company and my employees so the company can develop and make a bigger profit. E-learning and everything similar that can make progress in the company is beneficial. The company’s expenses are very important, so if the e-learning investment exceeds our budget, I will reconsider it. The main question here is</i>

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				<i>if I do not use e-learning will the employees develop optimally? My opinion is that e-learning can contribute to my company. ”</i>
		Negative	The managers/owners have a negative attitude towards e-learning in SMEs or they think that their company is not able to implement e-learning techniques in the present.	<i>“I clearly believe that e-learning is useful whether it is on a personal or corporate level, but under no circumstances it cannot replace the presence and the live participation of a seminar. In a seminar where the trainer is there and there is interaction, among the members of a team the employees can gain meaningful, specialized knowledge. In my opinion, e-learning is very useful to some domains to give more general knowledge but if we want to focus in depth on the employees’ development, I believe that it is not so effective.”</i>

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	Challenges in the e-learning implementation	Cost	The up-front costs in both information technology and staff.	<i>“The main challenges are the cost and the time. Nevertheless, if the owner of a company believes that something is beneficial, he will find the way, the time and the money to invest on that.”</i>
		Time	The time that the limited number of employees will spend on learning.	<i>“For example we may plan an e-learning session in two weeks on Thursday at 17:00. However, at that time it may occur something urgent and we must continue our work. Time is essential in a small company. It is very important where you decide to spend it.”</i>
		Planning/Management	The planning and maintenance of e-learning techniques.	<i>“Also, a challenge can be the design, the implementation and the maintenance of e-learning. In many cases the first steps of a project are completed but because they have not been organized properly or</i>

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				<i>because they have not been supported from the company the project ends up not be successful even though it may cost a lot of money for equipment and facilities. The same applies to e-learning”</i>
		Owners/ managers support towards e-learning	Whatever the owner-managers support, the same would be supported by their employees. If the owners/managers recognize the value of e-learning then the employees will follow.	<i>“The most important problem is the owner. When the owner does not believe on it (e-learning), none of the employees will get to the process of doing it. I am saying that, because whatever we have implemented has been brought from the management level to the lower positions and this is how it works in SMEs. In SMEs if the person who is leading the company will work on that and believe in that, after a while it becomes routine.”</i>