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THESIS

ENCHACING THE PERFORMANCE OF GREEK COMPANIES

KOTSONIS NIKOLAOS

SUPERVISOR PROFESSOR: GIANNAKIS MICHAIL

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Abstract

The supply chain of each company is one of the most important parts of it as it can make the difference between success or not. Most companies do not compete only in terms of products but mainly on the performance of their supply chain they have developed.

The aim of this thesis is to explore a suitable model for Greek companies to enhance their performance and compete not only each other but with the foreign companies.

The thesis participated at a huge project of research around the world with a fix questionnaire that was sent to various companies that have logistics department around the world. This thesis deals with the Greek region and the Greek companies. Then, a statistical analysis of the responses was conducted using the SPSS and AMOS program to draw conclusions. The analysis shows what these crucial elements ensure that each supply chain can perform greatly and to advance to a core business for each business.

Credits

The team of this dissertation would like to thank the supervisor professor mr. Giannaki Michail for his help and guidance towards a plausible result. Moreover, the team would like to thank mr. Matthopoulos Petros-Panagiotis for his additional help on SPSS and AMOS program. The team would to thank the participated companies that share their inner view of the supply chain. Other one big thanks should go to the families ‘of the team members for their continued support.

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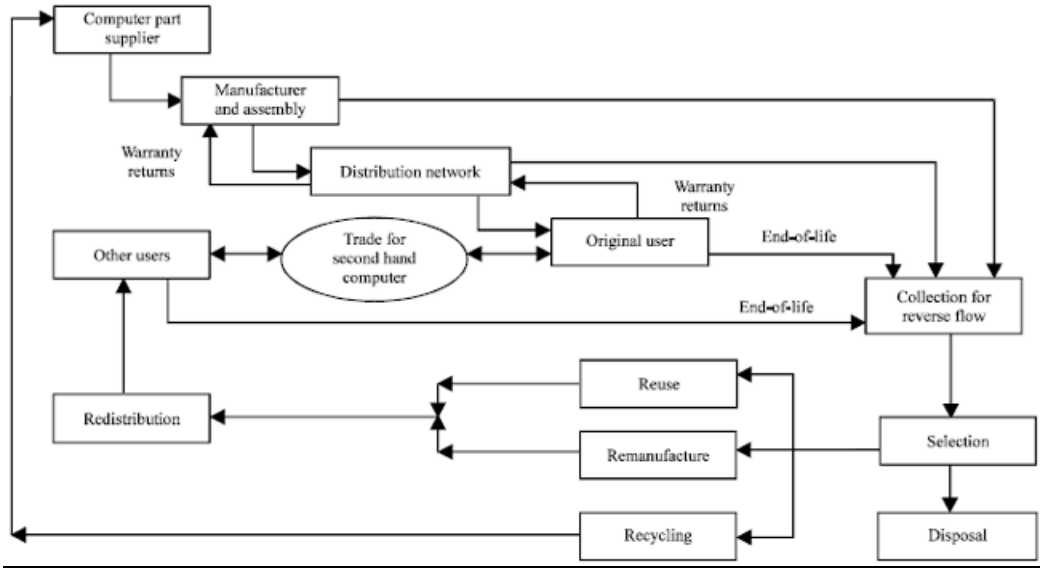
Chapter 1 Introduction

1.1. Supply Chain

In the modern era the competition between companies is increasingly fierce not only between companies operating in the same country, but also worldwide. It is common belief that companies have started to compete not only at product or quality level but also at level of their supply chain efficiency (Laios, 2010). But what is supply chain?

Supply chain is a network of organizations, people, activities, technologies and information that are linked together in order to promote a product or service from supplier to final consumer (Figure 1). That deals with the flow of products and information between the supplier and the consumer .The flow of the products follows the route from the supplier to the consumer, and the information flow the opposite path, i.e. from the consumer to the supplier. Main components of each supply chain are the suppliers, the places of production of products, storage, and distribution of products and of course the final consumer, i.e. the customer.

Figure 1.1



Suppliers are one of the most important links of the supply chain. Finding suitable suppliers for each company is paramount, as the final product directly depends on the quality and on time delivery of raw materials from suppliers. Usually, each company

establish relations with more than one supplier, as it requires raw materials of various kinds, but also because in this way reduces the various risks, from any delay in the receipt of raw materials from a supplier or from the lack of quality in top materials. Most companies also establish long term relationships with their suppliers in order to achieve maximum quality and performance.

The production areas also play a large and important role in each company, as well as the capacity and production volume of products directly on the plants and the ability of equipment or human resources available to them, to create quality products, especially within the time limits they set. Companies must follow certain safety rules and standards in the production areas and almost always make efforts to improve the plant and increasing production capacity as well as their quality.

Another very important issue in every supply chain is the storage. The management of supply chain gives great importance to this issue. In management, storage refers to the planning, organization and operation of repositories, i.e. related to the execution of work receipt, custody and registration of goods acquired by the company or by third parties of products generated by it. Particular emphasis is placed on storage policies. Appropriate policies can reduce storage costs significantly and thus reduce the cost of the final product. Otherwise, storage costs may be increased by high levels and this has an impact on the cost of the final product and the competitiveness of the company against its competitors.

The distribution of products is a complete theoretical and practical science alone. Most of the companies refer to it as logistics. Distribution refers to the physical handling and transport of finished products from storage, from different premises or from the company's factory to the end customer, i.e. the consumer. The distribution of products can be made by land, namely road with trucks or using train, by air, i.e. by air or by sea over, i.e. ships. The aim of each supply chain is to optimize the distribution network, the reduction of costs for the distribution of hundreds or thousands of products in hundreds or thousands of clients, not only in the producing country and abroad, plays an important role in the price, i.e. the cost of the product reaches the final consumer.

Finally, the final consumer, i.e. the customer is the most important link in the supply chain, as all previous functions are designed to meet the needs, and consumer requirements. Customer satisfaction and their service is the main concern of any company, as it is they who buy the company's products and therefore these that give profit to the company.

1.2 Ways to achieve competitive advantage

At this point it is important to clarify what is competitive advantage. According to Porter (1980), competitive advantage is the ability, gained the features and resources of a company to operate at a higher level in relation to other competing companies in the same industry or market (Porter, 1980).

To achieve and maintain competitive advantage in addition to the supply chain and have the company to draw up specific strategies for this purpose. The Porter (1980) identifies three main competition strategies by criteria competitive advantage through which the company competes.

• The leadership of the cost (cost leadership): has the meaning that the company competes with low costs and prices across the range of a market. This general strategy emphasizes performance when a firm is regarded as the best low-cost producer in a sector, for a given level of quality. The low cost allows businesses to sell relatively standardized products with features acceptable to many customers at the lowest possible competitive prices, which will gain a competitive advantage over other businesses, thus increasing market share.

• Diversification (differentiation): has the meaning that the company competes by offering products or services with attributes and methods, which the customer perceives as different from those of competitors and are therefore willing to accept higher prices, since due to diversity does not compare prices with those of competitors. Examples are cars produced by company as Ferrari that is totally different than the average car produced by other companies.

• Focus (focus): has the meaning that the company focuses its efforts on a specific market segment (geographic) or on a specific group of customers.

The Porter (1980) believed that if a company strictly follows one of these strategies would be able to gain and maintain competitive advantage and any attempt to combine these strategies will lead to failure, as the company would not have a clear orientation and remained in the middle of the two strategies.

But according to Yamin et al. (1999) (Yamin, et al., n.d.), a combination between the three broad strategies of Porter (1980) would give the company greater development potential competitive advantage without the business to stay between the two strategies. The case has been accepted by other scientists and theoreticians so now there are three more strategies that are a combination of existing. Those are:

• The cost leadership combined with diversification has the meaning that the company competes with low cost and prices on products that are poorly marketed and are differentiated in relation to the mass-circulation products

• The cost leadership coupled with focus has the meaning that the company focuses its efforts on a specific market segment to achieve lower costs than its competitors.

• The diversification combined with a focus has the meaning that the company focuses its efforts on a specific market segment so that it can differentiate itself from its competitors.

1.3 Strategic dimensions

As mentioned before, the supply chain is a network of enterprises that aim to connect the infrastructure of the company and its processes with competing priorities of each good or service offering to maximize the capacity of the enterprise market. In short, the aim is to develop the company a competitive advantage over other companies in the same industry. To achieve this objective the company follows specific strategies have been developed to optimize each strategic dimension of the business.

The reason why the various strategic dimensions have been developed because the supply chain is a dynamic network consisting of several parts which can constantly be altered because of the prevailing conditions. With the existence of such dimensions and trying to optimize their business trying to tie together all segments of the supply chain in order to increase its performance as a whole. Every dimension of business strategy refers to either specific practice from one part of the supply chain or by several working together. Also, in many cases more than one dimension can be mentioned in the same section of the chain and strive to improve it from a different angle. Without a strategic dimension and trying to connect with each other would be almost impossible for the company to have knowledge of what happens in the supply chain in depth and in all parts composed of. Thus, the effort to improve it, and to response and adapt to any changes would be very difficult and probably fall on deaf ears. Therefore, it is to understand the importance of these dimensions and the effort to identify them.

But what are these strategic dimensions of the supply chain and which elements consist each? In summary, the strategic dimensions of the supply chain as recorded by numerous literatures that exist on this subject are:

- quality
- the various costs
- Flexibility
- speed
- technology and production methods
- information and communication
- service and customer satisfaction
- staff
- sustainability and sustainability
- sustainability
- strategic partnerships
- the capabilities of the supply chain
- segmentation
- Risk reduction.

1.4 Purpose of research

The purpose of this thesis is the investigation of critical supply chain strategic dimensions that are essential in any business, so they are able to develop competitive advantages over other competing undertakings. For this purpose, a survey was conducted on all the dimensions in the form of questionnaires and then analyzes the results using statistical methodologies offered by specialized statistical programs.

Also, a second objective is to discover any relationships and interdependencies that exist between these dimensions, but also explore the necessary components that are necessary for the existence and improvement of dimensional strategies. With the help of these entire ultimate goal is to create a model that describes what dimensions are necessary to exist in every supply chain so that it can bring benefits to the company that sells it.

Lastly, a third objective is to discover the dimensions that can increase and evolve the performance of a Greek company between times of financial crisis.

Chapter 2 Bibliography

2.1. Introduction

Latent year's professionals over the world are trying to find new ways to make their supply chain more efficient in order to support the organizations that they are working for. Private and public sectors are looking for ways to improve in every aspect of the supply chain not only to reduce their costs but to be more effective. The truth is that the supply chain does not only contains costs or time, more things are crucial for a chain to be solid and to sustain not only in time but also from the outside multiple factors that might disrupt the usefulness for each organization. That is why this section of the paper will focus on how to dismantle this chain in smaller pieces expecting to help the reader to understand and cope with the idea that every loop of the chain is as crucial as the previous and the next one. If a loop of the chain is loose then this might disrupt the rest of the chain with a rapid fluctuation which no one could predict the results. This is why this section will provide a thought-out examination of all the loops of the supply chain from the start, vendor, to the last recipient.

Another matter that it is included in this section is the fact that the last five years in Greece there is a mass decline on productivity and the volume of the products that are circulated inside the Greek supply chain has dropped. The financial crisis that has been produced by the banking system of Greece and the political system itself gave the opportunity to the Greek supply chain to be more effective by learning from the mistakes of the past, gave the chance to use new ideas and to explore old ones and compressed the loose loops of the chain. All components of a chain want to win, the chain has a win-win philosophy where the biggest loop gains the most and the smaller one has all a cut from the pie.

2.2. Quality

The quality of the products or services given has been at the spot light the last few years since it is a key ingredient for the whole supply chain. When a product has any flaw it droves the clients away but when a company can sell a flawless product it can get the big piece of the market and even to be the regulator of the price for the whole market. Statistics have shown that most defective products include defective

components meaning that most of the times the problem is not somewhere in the middle. A defective component can destroy a good product and a sufficient supply chain that is why most organisms try to focus on quality of the services or products they are buying. They even collaborate in order to minimize any defectiveness and to improve their products by lowering the costs of the research.

But quality is a measurement that can be found anywhere. Both products and services need to have top quality in order to make a good breakthrough in the market. Many scholars have pinpointed it as the tip of the iceberg of the supply chain. (Katsikeas, 2004) Katsikea has imported quality as component of the dimension of raw materials and Fynes (Fynes B, 2005) the technical output of products. Cetinkaya has reported as components the quality of product as well as the quality of transport and his distribution (Cetinkaya, B., 2011). Conant has imported in the dimension of quality the quality of services but also the compatibility according to the international rules of safety that should be observed. (Conant, n.d.) Foster used as components of above dimension the utilization of qualitative information and data, the observation of models of safety, the utilization of techniques of control of quality but also the quality of installations of enterprise. (Foster, 2008) Nassimbeni has also pointed out that attention should be given at the source of the products as far as quality matters. (Nassimbeni, 1995)

2.3. Cost

Cost has and always be the main subject of the supply chain management and specifically the reduction of it. Cost is being connected with the whole supply chain; it is basically the base of iceberg and the start of the chain. The increase to the costs of a product means that it will get even more expensive and expensive products should be labeled with a good brand name in order for someone to buy them. But most of the products and services that the people use are not expensive, not because they not have a good brand name or they are not connected with a status but mostly these products are meant to be used by most people. Reducing your costs means that someone is making a product cheaper, meaning that the margin of profit can rise.

This dimension is not important only for the enterprises that follow strategies of competition in the costs, that is to say offering as much as possible cheaper products, but as generally speaking in the all enterprises the cost and more concretely his reduction is unbreakably connected with the improvement of efficiency but also with the viability of enterprise.

Nassimbeni connecting both cost and quality had observed that when a firm starts to reduce costs of inspection the flow rate of the supply chain increases but the fact is that when the firm has established rules about quantity then it can reduce it costs since it has reduced defective products. (Nassimbeni, 1995) Also Pemer states that costs can be found anywhere in supply chain; as an example he provides evidence from the transaction itself a corporation, depending on the size mostly, can save or expand the costs of a product or a service. The bigger the corporation the bigger the

transaction might since most corporations keep a small number of alternative suppliers and lose the chance of opportunities for better prices because of lack of trust. (Pemer F., 2014) Bamberg has placed as important component of this dimension the low cost in the process of production of a product. (Bamberg, 1989) Hart has imported as components of particular dimension the low cost in the distribution, the reduction in the variability of time of distribution, but also cheaper means of transport which remain however reliable. (Hart, 2005) Also Urban (2002) imported the low cost of raw material and that of storage, as well as the optimization of supply chain of her each company in its entirety. Steele (2010) has stated that the collaboration of the enterprise with logistics companies that have enough experience in this sector and can find immediately solutions in the various problems can also give an easy solution of reducing the overall costs. Finally the company Tompkins International that is specialized in the sector of supply chain gives particular accent in the frugal production, in the creation of products with low factors of taxation, in the reduction of spoiled products but also in the automation of processes that is involved in the distribution of products.

2.4. Flexibility

Last years the researchers have also given priority to flexibility as one of the pillars that hold the structure called supply chain. Most of them start looking the issue from various scopes; cost, time, everything matters. What most have understand and experience flexibility has a lot of scopes that can assist a corporation either to succeed and gain an strategic advantage against its competitors or to be the reason that it did not flourish against its competitors and fail to adapt in the market. The dimension of flexibility is unbreakably connected with the success or failure of the supply chain of a corporation. Flexibility was, is and will be an important factor of the supply chain and that is why a lot of researches started to try described it as the ability of a corporation to change and adapt to any upstream or downstream disruptions that might occur and to adjust. (Bourlakis M., 2014). Another common definition of flexibility is the ability and agility of the company to synchronize with the demands of its customers and to insure, in real time, that they will be fully satisfied. (Yusuf Y. Y., 2014). The Supply chain council has also given a performance based definition of what flexibility is at supply chain: flexibility is the ability of a supply chain to maintain or gain a competitive advantage over its competitors while dealing with any fluctuations that might occur. (Council, 2014).Flexibility is also considered an important factor of avoiding any risk and a way for a corporate to advance its supply chain to apply just-in-time (JIT) as De Xia pin points out correctly. (Xia D., 2011)

2.5. Agility

Agility and flexibility might look similar but the truth is that you cannot have the one without the other since many decisions need only flexibility but agility also. As it has already been stated flexibility is the ability of a company to response quickly to the changes of the business environment, on the other hand, agility is the ability to end your core business as soon as possible and always in the right quality and quantity.

Basically, agility refers to the ability to end all various activities in a short period of time. Both agility and flexibility are concerned to be central pillars of the supply chain and there are those that give the competitive advantage to multinational companies. Most researcher think of them as the golden egg of supply chain since they can provide a good shield against any risk that might occur. Honggeng Zhou describes agility as an important component of a world class logistics and to prove that he test it on the supply chain of Dell's manufacturing program. (Zhou H., 2014). Many researchers think agility as a measure of risk management and a way to counterattack any fluctuation on the chain but alone cannot bring results or protection. The combination of both flexibility and agility and the good use of information can provide a shield against any disruption. (Lavaster O., 2012). Another point of view is that a flexible chain can cultivate a really good enhancing agility that will boost the whole chain and will assist the corporate to outperform its competitors. (Ka-Leung Moon K., 2012)

2.6. Production and technology

Another important pillar of the purchasing department, even if someone cannot see the link, is production. Production is the most important part of a corporation or even better its core business. If we do not have a product we cannot have supply chain. Thus, every logistician should prioritize production. On the other hand, nowadays production and technology walk a similar path since most operations are been contacted by machinery or in the best case by a combination of a human operator and a highly advanced computer. It becomes perceptible that a disruption at the supply chain of the production could traumatize the competitive advantage of a corporation. Sometimes a small disruption might not seem like a normal event but the truth is that a disruption is a disruption and always produces negative effects on the supply chain and the production itself. Thus, it might not seem that the corporation loses its advantage over its competitors but the fact that it cannot operate under scale of economies damages the corporation at her reputation and its budget.

Most professionals in order to prevent such fluctuations to occur maintain high level stock in their warehouses. Another mistake that Greek companies are doing basically is the fact that they bind capital that they could exploit in other ways.

The value of the production as a central pillar of the production has been observed by Yusuf. (Yusuf Y. Y., 2014). The relevant relationship between production and technology has also been observed by Ngai E.W.T. in terms of reducing the energy that production lines need through the use of soft technologies. (Ngai, 2012). Karen Ka also states that if a corporation can easily replace its suppliers then the production would receive minimum fluctuation. (Ka-Leung Moon K., 2012). Jörn-Henrik Thun has pin pointed out another important aspect of why production process has been, is and will be the most important part of the supply chain by using the example of two multinational companies, Ford and Toyota that closed their manufacturing plants in the U.S. due to delayed deliveries from foreign countries. (Thun J.H., 2011)Moreover, studies have shown that in the upcoming years technology will play

a huge role in supply chain from various perspectives. (Giannakis M., 2011)Thus production and technology seems to lead the way in various aspects of the core business of any organization and to be the most important part of the supply chain since without a product or a service the start of the chain does not exists.

2.7. Communication-Information

The fact is that globalization has made information and communication an important aspect of the supply chain. Every corporation and organization has the need of a well organized communication system and network which by the correct use of it can shield itself from any disruptions or to gain a competitive advantage. Modern supply chains consist of both internal and external customers-cooperators-departments and those nee to communicate and exchange information in real time in order for flexibility and agility to flourish. The importance of the information can also be shown by the constant upgrade of the enterprise resource systems (ERP).Thus, organizations nowadays use ERP systems to exchange information in real time between them and their suppliers-customer in order to minimize costs and maximize profits. Also, communication and information are part of a well-organized supply chain and definitely provides advantages to all participants. Studies have shown that a well organize network of communication and exchange information system can decrease the possibility of occurrence of risks (Thun J.H., 2011).Gonca Tuncel has underlined the need of information by the use of petri-nets (PN), graphical technique for design of discrete event dynamic systems, can provide a mathematical approach on decision making in real time for all participants (Tuncel G., 2010). Most researchers have underlined the fact that exchanging information and have a good communication with your internal-external co-operators shed light to any vulnerability within the supply chain (Giannakis M., 2011). Moreover, researchers also propose communication agents in order for the enterprise to gain an excellent flow of information (Giannakis M., 2011).Also, Honggeng Zhou states that the weight of information does not always align with the performance of the supply chain (Zhou H., 2014)but the fact is that the better the flow of the information and the level of the communication is the better the supply chain can perform.

2.8. Customer support

Over the last one hundred years the corporations have understand that in order to achieve competitive advantage and to overcome their competitors they had to deploy a strong sense of how to please their customers after the initial sale was made. That is why they made a turn towards a new direction called customer support. A wide variety of services are provided to the customers today from the corporations that might included technical support and demonstration of a product, guaranties for products and level of support (Laios, 2010).Studies have shown that there a direct relationship with the performance of an enterprise and its supply chain. (Vickery S. K., 2003). But the same research has shown that even if the customer support has reached a high level of excellence does not prove that will have any effect on the firm's financial ledger. The fact is that it has a direct impact on supply chain than on

the financial ledger itself (Vickery S. K., 2003). Also Wantao Yu has found a significant relationship between the internal and external customers and the way they interact in order to achieve a high level of customer satisfaction (Yu W., 2013).A recent study has shown that there is a significant relation between the supply chain and customer support in a weird way. Corporations chose the cheapest supplier and the most reliable in order to achieve the higher satisfaction of their customer by minimizing their costs (Sawik, 2015).

2.9. Personnel

Important element of a company is its personnel. It is an important and expensive asset for every corporation. Highly sophisticated and skillful personnel give a competitive advantage to most corporations because it can provide solutions and insights of problems that might occur. Without good and skillful personnel a company cannot gain a competitive advantage nor can evolve to a competitive organization or leader of its target market. That is why most corporations not only try to gain access to the best practices but also to the best professionals. Moreover, they invest on constant learning of their personnel. This dimension of the supply chain is the factor that makes the chain a living organization that works, breath and lives day and night in order for the whole world to have access to commodities and necessities that the model world provides.

S. Thomas Foster has noted that human capital makes a difference when it comes to important decisions such as safe stock, risk management and other important factors of the supply chain (Foster, 2008).Yahaya Y. Yusuf also states that one major factor of the agility is the human factor that provides quick decisions and responses to market changes and fluctuations (Yusuf Y. Y., 2014). Chialin Chen points out that the lack of specialists in food supply chain and particularly at quality department alters or influences the quality of the product (Chen C., 2014). Thus it is conducted that the importance of specialists in the supply chain can provide safety, good flow of products and effectiveness.

2.10. Sustainability

Sustainable supply chain management (SCM) is “the strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals in the systematic coordination of key inter organizational business processes for improving the long term economic performance of the individual company and its supply chains” (Carter, 2008).

Sustainability is connected with the environmental and social practices and can provide a competitive advantage for the enterprises and their associated members of their supply chain if they decide to embrace such a strategy. Most common phenomena for such a strategy to exist are the small firms that gain advantages from narrowing their profit by improving their social and environmental image against major competitors of the market (Bourlakis M., 2014).

Ways to improve the sustainability of the supply are to reduce returns, fuel emissions, use of alternative power energy and others. Also Supply Chain Sustainability Guide of UN Global Compact and Business for Social Responsibility has established as elements of the sustainability the protection of a brand name of an enterprise, innovation deployment, minimizing costs of the supply chain, improvement in productivity and excellent management of risks (Sisco C., 2010). But the fact is that most corporations are not adopting and developing such practices not because they do not care or because of the high cost but for the fact that chaining a path in a corporation s sometimes difficult and there is no gains for them. It is fact that the firms that do not adopt sustainability practices are the small medium enterprises which do not have the recourses, capital and the time to collect and evaluate the information's given by the market or their supply chain (Bourlakis M., 2014).

2.11. Viability

Viability is a term that is connected to sustainability, it describe the ability of a corporation to survive within a dynamic business environment by adapting strategies that provide a better financial outcome and protection of the environment. The fact is that viability is a new aspect of the supply chain and it has not been studied thoroughly. It relates to the improvement of both the strategy and the human capital of a firm and it evolves through time and the good use of the generating k knowledge within the company itself. Thus a supply chain that does not possess the ability of vitality is a liability to any modern organization.

Babu, at his book, suggests that viability is related to practices such as flexibility, real time exchange information, predictions of demand, avoidance of the bull wing effect, minimizing risks at the supply chain, collaborations and managing of safety stocks (Augustine, 2011).

2.12. Partneships

Partnerships are playing a great roll in today's global supply chain since most corporations do not have internal suppliers but external. Moreover, most corporations outsource their production to suppliers through Asia, since labor is cheaper there, and keep only their core business. Outsourcing created a number of needs such as collaborations, exchange information in real time and providing knowledge to possible suppliers-partners.

The crisis and globalization have lead companies of the same business sector to form alliances in order to minimize costs, provide better services to their customers and to survive. That made it clear that in order to achieve high levels of excellence at the supply chain they had to adapt and deploy practices of mutual collaboration.

Another aspect of collaboration is the synergies that are created within a company's departments. The exchange of information between departments of the same company is the primitive form of collaboration between companies.

Researchers have noticed this aspect of business life from its early stages and studied it both internal and external environment of a company. Bourlakis point outs how collaboration can protect food supply chain by unpleasant outcomes such an expired product which would lead to waste of production materials (Bourlakis M., 2014). Honggeng Zhou also states that partnerships can provide a budget reduction at the transaction costs between supply partners by the use of real time ERP systems (Zhou H., 2014). Ou Tang mentions that collaboration can lead to a better handling of risk management and to ensure a profitable and safe business environment (Tang O., 2011).

2.13. Faculty

The term faculty of supply chain is reported in what it is the capability of the chain, that is to say in which parts it can send the products, with which way, in which quantities, in how much time interval and as generally speaking in anything is related with its activities. It is legitimate that this dimension it is of high importance for the chain because this one is the one that determines the abilities of the chain, what it should be improved and also, what to maintain. Literature provides components of this particular dimension that help in the recognition of faculties of the chain, how to increase it and improve it.

2.14. Integration

Integration has been introduced by Porter (Porter, 1980) by observing the linkage between the departments of an organization but also between the links of the supply chain. Basically, integration is an optimization between the links of every member of the supply chain either is an internal or external link, such as customers, suppliers and production and distribution departments. Integration is thought to be the key figure of the optimization of supply chain by improving performance as Silvestre points out and he concluded that its seems to Play significant role to achieve environmental sustainability (Silvestre, 2015).

Recent studies have shown that the higher the linkages between the links of the supply chain, more effective are the firm (Yua, et al., 2013). Moreover, integration is thought to be one aspect that provides a competitive advantage for enterprises and for any other stakeholder that might be involved in the process of supply chain. It can provide a constant flow of information, knowledge, money and products having as their main goal to maximize the value that their customer receives (Yua, et al., 2013).

Integration was proven that can also provide “pillow” of safety for most corporations in order for them to protect by the fluctuations or disturbances of the market as Li findings intricate (Li, et al., 2015).

3. Methodology

Firstly, the team has conducted a bibliographic research in order to understand the questions of the survey and their meaning for translation purposes. Then, the survey has been translated to Greek language according to the instructions. It was translated out of English language as closely to the meanings as possible, it was even word to word translation sometimes so that the meanings to kept the same. If it was possible to attribute the meaning more accurate by rephrasing it, it was made.

3.1 Translation

Secondly, the team has focused in avoiding vague language and words that would not give specific answers on the questions asked. Words and phrases that were not accurate where changed in the last manuscript in order to prevent any kind of misunderstanding. The survey was reviewed by two different people, one professional and an amateur. The professional was an English teacher whose native language is English. She corrected a lot of misunderstandings and lost meanings that the translation team has not noticed. The Amateur is a supply chain manager that has been studying and working abroad for some years and was willing to assist the whole project when the team asked for his assistance. The final decision of the manuscript that was used as questionnaire was made in association with the translation team, the reviewers and the professor in charge

The goal of the team was to present a questionnaire that will have accomplice three specific goals.

- First all questions have to be clear to the participants

The translation team wanted to give clear questions in order to be easier for the respondents to answer the questionnaire and to avoid any vagueness.

- Second to keep the same meaning as the English manuscript and

Another goal that the members of the team had to achieve was to keep the same meaning as the English manuscript since any word could change the meaning. This has been achieved easily since the Greek language has a large variety of words that can produce and approach the meaning as close as possible and even to attribute the exact meaning of the English manuscript by refreshing the questions or changing words with more appropriate.

- Final the questions are appropriated for the industries that have been chosen to participate.

The most difficult task for the team has been the matching of the questions to the industry sector of Greece since the participants were few and the sample did not have any homogeneity. That has been also achieved by using a more general language at translation.

3.2. Professionals Inner thoughts

The team has requested the help of professionals from companies that collaborate with the University of Piraeus in order to test the manuscript before using it in a bigger scale. The professionals that offered their help were the supply chain manager of Unilever in Greece, one of the senior buyers of Vivechrom, member of Akzonobel, in Greece and the senior buyer of Cretafarm.

All of them have spotted vague spots and gave their inner thoughts out in the open in order to support the team to produce a better outcome. This phase was conducted both simultaneously and separately. The first time the team has separated in three equal teams that visited the three mentioned field specialists. They have been asked to fill up the questionnaire in real time and to express their thoughts for each question they fill in.

3.2.1 Unilever

The senior buyer of Unilever said that the question one at section category characteristics referring to the involvement of major supplies was translated a bit vague. He also point out that the questions about disruption of the supply chain are very seasonable since there is so much uncertainty for the Greek economy nowadays and the fact that most of the Greek oriented companies do not get involved with their suppliers since they are afraid of the dangers that such a move might hide for their money liquidity.

3.2.2. Vivechrom

The senior buyer of Vivechrom has pointed out that most of the buyers would not reveal the annual turnover since most of them think it as a taboo even though it is published at their results if they are quoted at the Athens stock exchange or their annual results if they are not. She also commented that most of the Greek companies do not have any social practices on their agenda since their owners want to maximize their profits and that most of them do not try to find innovating ways to minimize their expenses. A comment that found the members of the team that visited her to disagree with her since many companies in Greece are trying not only to low their costs by using innovation but also they invest on it.

3.2.3 Cretafarm

The senior buyer of Cretafarm has met the members of team through a Skype call since he is located at the island of Crete and filled in the questionnaire online through

the use of a sharing screen with the team. He pointed out that most Greek companies in the food industry use the practices that are referred in the financial exposure to their suppliers since their demand is annual and want to have a constant flow of raw materials in order not to maintain a huge stock in their inventory. He also pointed out that the questions about the social and ethical mandates were not issued clearly and he would prefer more straightforward answers on these particular questions since the products of most food industries are bound by social and ethical rules.

All three of them commented that most of Greek companies use suppliers from West Europe or from Greece since they want to have quality products, a comment that was not applauded from the team members of each group since most of the products in Greece have Asian origin since they are cheap and enter in the country in large quantities. Another common comment of all was the fact that the transportation in Greece are still cheap, even though the transporters do not make use of modern technologies and do not have cargos to transfer through the country, since the Greek transporters do not incorporate the depredation of their trucks in each cargo they transfer. The group that was responsible for the senior buyer of Gretafarm pointed out that even though that such thing is true the Greek logistics do not seem to participate in a large scale at the financial grow of the country and the transportation industry of Greece. Another thing that was pointed out by the team members responsible for Vivechrom participant was the fact that because of the bad road network the transportation cost has fluctuations for most professional's forwards in Greece even if they use economies of scales. Their thoughts have been taken into consideration and correct any misleading or vague expressions that where create from the translation.

3.3 Sampling

The sampling of the industries had as prior criteria to have more than 50 employees and to have activity within the fiscal year. The sample has been formed from all over Greece and contains mostly leaders in each industry that was supposed to participate in the survey. The team interpreted the criteria and formed a database that contended the above criteria.

3.4 Purchasing categories

The team has followed the instructions of IPS in order to define the purchasing categories. The following criteria have also been followed in this part also.

- Search for homogeneous categories
- Same priorities for the specified category
- Common approach in treating the major suppliers and
- Finally the majority of the suppliers for this category should reach the 80% of the expenses.

Those criteria have given the team the following advantages:

- The gain of understanding the purchasing categories and practices for specific categories
- The responding companies would have more interest on the findings of the survey and
- The large amount of data would give the researchers a stronger analysis

3.5 Major categories

The team has defined 6 major purchasing categories that can be found in each industry or service company.

- Raw materials (I)

As raw material was defined the basic material used in the production of goods, energy, finished products or intermediate materials that are themselves feedstock for finished products and it is considerate an asset for the core business of the responding company.

- Manufacturing components and supplies (I)"

As manufacturing components the team has defined these materials that are used as spare parts for machines.

- Office equipment and supplies (I,S)

A wide range has been formed here that includes anything that is needed inside an office from assets such as tables and computers to paper and pens.

- IT services (I,S)

This category includes anything that has to do with software programs that are used from the companies to collect, store, manage and interpret data from many business activities, including product planning, cost, manufacturing or product delivery, marketing and sales, inventory management shipping and payment. (ERP, WMS, MRP).

- Logistics services (I)

As logistics services the members of the team have included anything that has to do with warehousing, distribution and forwarding. Basically, the team has included anything that is relevant with 3PL and 4PL services. It must be noted here that any actions such consultation labeled as Logistics services.

- Maintenance/cleaning/facility management services (I,S)

The maintenance, cleaning, facility management services category has been created to include a variety of data that could not fit anywhere else and basically include services that asked by financial organizations, software oriented companies and other service companies.

3.6 Select sample

The team has used the criteria mentioned above by asking the University of Piraeus to purchase a database from ICAP that included data such as:

- Number of the employees

The number of the employees was considerate crucial factor for the research since the bigger the company more chances to have a purchasing department even though that is not completely true.

- Activity last year

Another crucial factor for Greece origin was to have activity last year since the crisis has started a lot of Greek companies have gone bankrupted or moved to another country in order to survive and others have been bought by international Groups or have made strategic alliances with competitors in order to survive.

- Sector of activities

The data factor "sector of activities" is another important factor since the IPS survey was asking specific sector of activities so the team was obliged to include this one also in since it was providing a crucial information for the survey itself.

- Contact information (telephone, mails)

The contact information even thought was a vague data was also important to have been asked since the first part of the survey was a telephone approach to the possible contributors and the mails made the job of the team easier since they could send the survey faster by dispatching a single one custom mail.

- Financial turnover

The last information that was asked was the financial turnover since the Greek professionals still think it as information that cannot be reviled to someone outside the company even though their turnover is being published in their annual turnover or every quarter.

3.7 Random Sampling

Afterwards, the team has organized all of them in an excel database and used 0-1 in order to make a random sampling from the 572 companies that fulfilled the criteria mentioned above. The file has been cut into to pieces, the first 286 random companies that will be used as the prior sample and the 286 that will be used as a backup file in case there is a need for more data.

The data that were supposed to be gathered made it clear from the start of the survey that the team had to use both files since many possible participants even though they confirmed that they wanted to help did not response the questionnaire and did not even bother to open it. In other cases they did not want to help or participate at all as a part of their company policy or in fear of disclosing important information of the company that they are working for. Another problem that occurs was the fact that in many cases it was impossible to find the responsible person for purchasing since of the size of the company that has been contacted. Also a lot of the possible participants made it clear from the initial call that they would not fill it by the way they were answering on the phone call, those professionals the team decided to expel them from the survey since they were unwilling to answer in the simple questions of the phone call. They were also others that wanted the questionnaire to be dispatched to an information email; those have been expelled also since their answers might have been biased or irrelevant for the survey.

3.8 Initial contact and benefits

The team starts to make contact with those 602 random companies from telephone asking the senior buyer or someone suitable that is in charge for the purchase categories mentioned before. If the person in charge for the phone calls cannot find a contact inside the firm for various reasons (unwillingness, uninterested) or he cannot make a contact at all proceeds to the next possible candidate on the list.

After the initial contact is made and the candidate has been identified, the team proceeds to the next step where specific information are asked in order to be aware of the organization level and the purchase category that he is familiar with. The team informs the potential candidate that this is a worldwide survey on modern supply chain practices and asks him to participate. If the candidate is willing to hear more the interviewer informs him about the research. He informs him that all information is confidential and they will be used for academic purposes only. Moreover, he also underlines the fact that all the information is anonymous and no one will be able to trace back the company from which are coming from. Furthermore he informs him that when the research comes to an end the interviewee would be benefit by receiving a customized benchmarking.

Afterwards, the potential candidate is being asked questions about the level of the organization that he works in and which category is familiar with of the proposed list.

The interviewer ask him to specify the level of organization meaning that if he works for a larger business unit or his firm is a parent unit. When this is identified the candidate if he works for a parent business unit is asked some questions over the purchase category.

If the candidate is working for a larger firm he is being asked questions in order to identify the level of the organization that he is working for. Questions such as an estimation of sales, the responsibility for purchasing those categories and the estimated amount spend from his unit on this category.

3.9 Personal interview

Afterwards, the candidate was asked about the chosen category questions such as:

- How is he familiar with this category

The team aimed for people that they were familiar with a specific category but the true is that the professionals of the purchasing departments in Greece are familiar with most of the categories even before the crisis. The crisis made them even more aware of most of the categories since many of their colleagues have been dispatched from their positions in order to reduce the costs of each company.

- If the chosen category is homogeneous and if not he was asked to chose another one or sub-category

Another aim of the team was to have homogeneity in each category in order to be able to group the data more easily and use them in a more sufficient way in its statistical analysis. Another reason was that the collected data would be more useful that way for the companies that participate.

- If the company has similar priorities for this category and if not he was being asked to chose another sub-category with the same priorities

The team has also asked the participant to choose a category of products or services that they had the same priorities in order to have a clear picture of the purchase method they used and to have a better feedback for them.

- Finally, if the company has a similar approach for its major suppliers (80 %) or if it is different, the candidate was asked to choose a sub-category where there was a similar approach.

The similar approach was one of the most important goals of the team since many companies choose to treat their major suppliers different which would make the data collection more difficult and there would not be any important results to be shown or observed. Most companies in Greece use completely different approaches for every

major supplier since most of the times either they have created long life relations with them or they use more than one and treat them unequal.

Finally, the candidate was asked to give his email in order to dispatch him the questionnaire. If there was any misunderstanding about the candidate's mail, the team was calling back in order to correct any mistakes and to dispatch him the questionnaire.

3.10 Dispatching Emails and Details

Contact information were included also in the dispatched mail in case there were any questions from the participants and all the information that where considered crucial in order for the participants to validate the fact that the survey was official and on a worldwide scale. Important information that were included at the dispatched emails were the fact that the whole survey was anonymous, not traceable by anyone, not even by the team that was conducting the survey and that any information given would be use for academic purposes only. The information that was included where the emails of the responsible professor for the survey in Greece and the mails of the team members, the phone numbers of all in case of a question. This way the participants where certain that could find any person from the team that conducted the survey and they would be able to validate the fact that was an official survey conducted for academic reasons only and that would be anonymous and not traceable to their companies or themselves.

3.11 Follow ups, emails and phone calls

The team had to make follow-up calls and send reminders in order to remind the participants to fill in the questionnaire. In both cases the person in charge for each fie has been deciding which approach was more appropriate for each candidate. Participants that were familiar with the project or the teams' members have received follow-up calls in order to remind them to fill in the questionnaire. Those people could be categorized as the friendly sample of the survey since they were dedicated to assist the team to its work and they wanted the results also. On the other hand, they were those that they did it as part of a compulsory procedure and gave a bunch of excuses from the start. These people have been contacted mostly with follow-up mails that reminded them to fill in the questionnaire. Information about the project was also been included again in order to remind them that all the provided information would be anonymous and not traceable back to them or the companies that they were working for.

Chapter 4: Statistical Methods

4.1. Methodology

After the collection of questionnaires it was conducted a multivariate statistical data analysis. The decision to use statistical multivariate data analysis was needed to generate the understanding relationships in more than two variables. This analysis includes:

I. Control regularity sample
II. Validation data
III. Descriptive statistical criteria
IV. Control Affairs
V. Factor analysis
VI. Use of structural equation model

4.2. Methods of analysis

In order to analyze the data that the survey has gathered they were inserted in SPSS statistics 21. The following tests have been used to analyze the results:

- Normality test
- Cronbach ‘s Alpha
- Two-way analysis of variance and
- Factor analysis

4.3. Normality test

Whenever the researcher deals with quantitative variables it conducts normality tests. In this case the Kolmogorov – Smirnov test is being used. If the sample is small the researcher uses the Shapiro – Wilk test. The usage of those test are to validate whether the data follow normal distribution or there is an approximation. For example if the object of the study is to compare the performance in course of mathematics of boys compared to that of girls, then at first check if the distribution of populations of boys and girls from which they derive the studied samples are normal distribution or not. In this case, it is necessary to conduct two regularity tests so that the population of boys and for the population of girls.

The word normal is used to describe a symmetrical bell curve, wherein the highest frequency of the values displayed in the middle, while the lower frequencies

appearing at the ends of it (Wackerly, et al., 2008, p. 178). In several cases, especially in the social sciences the values of the dependent variable are not always normally distributed. But in large samples (over thirty cases) this does not matter (Wackerly, et al., 2008, p. 372).

4.4. Reliability test (Cronbach's Alpha)

When the researcher is using the Linkert scale to co figurate his research, it is important to see if those scales are also reliable. One of the main themes deals with the internal consistency of the scale. This refers to the degree to which the components of the scale "cooperate." There is a match that is what count. One of the most commonly used indicators of internal consistency is Cronbach's Alpha. Ideally this rate should be above 0.7. The values of this coefficient are however quite sensitive to the number of items on the scale. On small scales (scales with fewer than fifteen items) it is common to find small values of Cronbach's Alpha (0,5).

The reliability of the scale will vary depending on the sample used in the current investigation. For this reason it is necessary to check the reliability of the scale in relation to the particular sample. If the range contains some elements with negative terms you must be reversed before the validation of the data.

4.5. Two-way analysis of variance

The multivariate statistical data analysis can be used to find and interpret relationships between variables for grouping and all dimensions of the problem, to predict new values for modeling in many dimensions and then to quantify unobservable quantities (Siardos, 2004). This statistical analysis applied analysis of variance of two factors. This means that there are two independent variables and the analysis examines the relationship that develops between those two separately and among those two and a third one that is dependent.

4.6. Factor analysis

The factor analysis is the oldest and the best known statistical method to investigate the relationships between sets of observable and latent variables. Specifically, the method examines the covariance between the observable variables, in order to collect information on the underlying, latent structures, i.e. factors. There are two main types of factors analysis: exploratory and confirmatory factor analysis.

4.6.1. Exploratory analysis

The exploratory factor analysis created by Charles Spearman in the early last century and is used in the initial stages of research to investigate and concise description of a set of variables through their aggregation. The application of exploratory factor analysis is indicated when the observable variables relate to latent structures, ie the factors are unknown or uncertain. This approach is considered exploratory because

the researcher has no prior knowledge of how observable variables can serve as a measure of factors. The model resulting from the exploratory factor analysis shows the connections between observable variables and factors, called loadings and model correlations between factors. But it provides the opportunity to describe the dependency relationships between actors, ie the pattern of regressions. This model is called measurement model.

The steps in the analysis are the following factors:

• Choose and measurement of a set of variables

• Creation of a correlation matrix

• Select the method of rotation

• Interpretation of the arising factors

The factor analysis strongly influenced by the quality of the data, therefore the following must apply:

• The variables should be correlated well (r> 0.20)

• But do not correlate too (r <0.80)

• Should relations be straight, there should be no outliers

• The variables should be measured on the scale equal dimensions

• The total number of variables to be analyzed should be 3-5 times more than the alleged agents

Finally, the method of extracting factors varies from case to case. There are seven methods of extraction but those that are most commonly used are Maximum Likelihood and principal component analysis (Principal components analysis). These two techniques are very similar and often used by researchers interchangeably. The maximum likelihood analysis is used to the statistical significance of factor loadings, calculate correlations among factors and compute confidence intervals for these parameters. ML is the best choice when data are normally distributed because “it allows for the computation of a wide range of indexes of the goodness of fit of the model [and] permits statistical significance testing of factor loadings and correlations among factors and the computation of confidence intervals”. (Fabrigar, et al., 1999)The principal component analysis is intended to investigate all existing variation, i.e. common, unique and error, to extract the largest percentage of the fluctuation of the least possible factors (Finch, 1997).

4.6.2 Confirmatory Analysis

A confirmatory factor analysis is applied when the researcher wants to test the hypothesis that there is certain standard relation between observable variables and factors. In this approach, the model that describes the pattern of relationships will be checked out on the basis of existing knowledge or the relevant research experience. This model is called complete it consists of both a measurement model, illustrating the connections between the observable and the latent variables, and correlations between the latter, and by a model construction relations, depicting links, i.e. associations and relationships dependence between themselves latent variables (Raykov & Marcoulides, 2006).

The structural equation models identified as a family of statistical techniques and analyze that give relationships between variables following a confirmatory factor analysis. They were created because the statistical models exist, such as exploratory factor analysis did not allow solving complex problems and could not give satisfactory results in the analysis of qualitative variables (Weston & Core, 2006).

The SEM is usually used as a confirmatory process various assumptions, because they only calculate their estimates of the factors of the model (such as variations and covariance's of factors to calculate the variability of residues and errors), but consider and how to customize extent the data. According to Byrne (1998a) the structural equation model is a statistical methodology that adopts a confirmatory method to multivariate analysis a model that relates some observations or measurements.

This thesis used the AMOS package is popular statistical software packages used in the process of analyzing structural equation models. The AMOS (Analysis of moment structures) is a more modern package, which because of its friendly graphical user environment; it is more receptive to the public and allows an easy understanding of SEM.

Chapter 5: Analysis – results presentation

5.1. Regularity audit of the sample

Initially the sample normality checks all the criteria of the survey. Table 5.1.1 of the Annex provides the results of the normality test. What interests us is the Shapiro-Wilk statistic analysis and in particular the prices of Sig column. These values are less than 0.5 therefore the observed variables do not violate the assumption of normality (Pallant, 2013)but which is common in small samples (around fifty respondents). Therefore this does not create any problem to our research.

5.2. Reliability test Cronbach‘s Alpha

Below is a sample of reliability analysis of the fifty five questionnaires. For this purpose was used as indicator of the internal consistency Cronbach's Alpha. It is generally accepted that the value of the index Cronbach's Alpha must be greater than 0.7. Table 5.2.1 observe that Cronbach's Alpha of the fifty five elements is greater than 0.7. Therefore research is credible. Therefore, the response received was serious and questionnaires were not in luck. Therefore the sample is trustworthy.

Table 5.2.1

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,936	,936	190

5.3. Two-way analysis of variance

In this chapter assumptions will be made which stem from the questionnaire of the research. More specifically, using two-factor analysis of variance will study how some ingredients dimensional strategies related to the size of the undertaking and the size of the department of the enterprise.

The reason why the hypothesis testing is done is to show the relationship of the dependent variable with the independent. As independent variables have been chosen the size of the undertaking and the size of the supply chain department but every time these variables are going to be tested by pairs. Dependent is the variable that the researcher wants to check every time.

On this chapter seven hypothesis are been tested:

- The view that the possession of better information between the buyer and the supplier does not depend on the years of experience of the respondent and the size of the department(H1)
- The view that following academic research does not depends on the years of experience of the respondent and the size of the department(H2)
- The view that the major suppliers contribute to cost/quality improvements does not depend on the years of experience of the respondent and the size of the department (H3)
- The view that same goals between buyer and supplier does not depend on the years of experience of the respondent and the size of the department(H4)
- The view that research for potential suppliers does not depend on the years of experience of the respondent and the size of the department(H5)
- The view that the low inventory stock does not depend on the years of experience of the respondent and the size of the department(H6)
- The view that the enforcement of a code of conduct does not depend on the years of experience of the respondent and the size of the department(H7)

5.3.1 The first case dealt with two-factor analysis of variance is as follows (H1)

- The view that the possession of better information between the buyer and the supplier does not depend on the years of experience of the respondent and the size of the department(null hypothesis)
- The view that the possession of better information between the buyer and the supplier depends on the years of experience of the respondent and the size of the department(alternative hypothesis)

Table 5.3.1

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Possession_of_information_regarding _the_supply_relationship

F	df1	df2	Sig.
6,196	13	316	,000

What interests the researcher at the Levene's test (Table 5.3.1) is the value of Sig. which must be greater than 0.05 to conclude that the assumption of homogeneity of variance has not been broken. A strict control has been conducted at 0.01 level of significant and it can easily be noticed that the case is being violated.

The most important table is the AN.O.VA. analysis (table 5.3.2) ,Tests of Between-Subjects Effects. This table gives a large number of information about the assumptions (H).

Table 5.3.2

Tests of Between-Subjects Effects

Dependent Variable: Possession_of_information_regarding_the_supply_relationship

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	347,778[a]	13	26,752	14,094	,000	,367[a]
Intercept	268,896	1	268,896	141,669	,000	,310
Experience	135,452	5	27,090	14,273	,000	,184
Department	37,977	4	9,494	5,002	,001	,060
Experience * Department	79,288	4	19,822	10,443	,000	,117
Error	599,786	316	1,898			
Total	3846,000	330				

Corrected Total	947,564	329				

a. R Squared =, 367 (Adjusted R Squared =, 341)

The Levene's Test of Equality of Error Variances is used to keep a check dispersions and do not want to be statistically significant. If it means that there is no homogeneity of variance between the samples and report the results of Equal variances not assumed.

What interests the researcher at the Levene‘s test is the value of Sig. which must be greater than 0.05 to conclude that the assumption of homogeneity of variance has not been broken. In order to conduct the Levene’s test the years of experience and the size of the department had been arranged to scale of five and ten respectively. It is noticeable that in this case the assumption of homogeneity is not broken. The most important table is the AN.O.VA. analysis at the table 5.3.2 above, Tests of Between-Subjects Effects. This table gives a large number of information about our assumptions (H).

Table 5.3.2 presents the relationship between prices Sig column and the column source. Specifically, if the value Sig. is less than or equal to 0.01 then there is no significant effect of this variable on the dependent variable under study (rejection of the null hypothesis and acceptance of the alternative hypothesis).Otherwise, i.e. if the value Sig. greater than 0.01 there is no significant effect of this variable on the dependent variable under study.

Based on the results of table 5.3.2, the values of both Sig. variables seem to have a significant effect on the dependent variable «better possession of information” as their both bellow 0.01.

In the column Partial Eta Squared see the values that our independent variables. As shown, both variables, “experience” and “department” have values of 0.184 and 0.06 respectively which means (according to Cohen's criterion where 0.01 represents little effect, 0.06 to moderate impact and 0.14 to great effect) that experience over the years helps to possess better information and the size of the departments has a moderate impact on it.

Another point that is being studied is the interaction between the two independent variables on the dependent variable. Conclusion for it is extracted from the line “Experience * Department” Table 5.3.2. The value of Sig. is less than 0.01 so there is a significant effect of the years of experience with the size of the supply chain

department. The effect seems to have a little significance as the price at Partial Eta Squared column is 0.117 which is close to the 0.01 of the Cohen‘s criteria.

From Table 5.3.3 of Annex (Multiple Comparisons), the values that will be consider where the difference in the categories of firm size lies. Tukey Honestly Significant Difference Test has been conducted which commonly used Test. is looking into the Sig column. Values less than or equal to 0.01 are searched. This will mean that there is a significant difference between the various sizes of experience of each professional that answered the questionnaire. This can also be understood from the column Mean Difference of the table where there is a significant difference by an asterisk.

In particular it is noticed that there is a significant difference between professionals with experience two to five years with those that are over 30 (Sig. 0.000) . Moreover it is noticeable that as the years of experience are reaching the second scale, six to ten years of experience; the professional is at his pick of possession of better information since most of the values of the Sig. are bellow 0.01. Another thing worth mentioning is the fact that as the professional is gain more experience does not gain equally amount of information. Lastly, the fact that the last category of professionals that are over thirty years of experience seem to have a good grasp of information was expected.

5.3.2 The second hypothesis that is been investigated comes as follows (H2):

- The view that following academic research does not depends on the years of experience of the respondent and the size of the department(null hypothesis)
- The view that following academic research does depends on the years of experience of the respondent and the size of the department (alternative hypothesis)

Table 5.3.4

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Academic_research_on_purchasing

F	df1	df2	Sig.
11,351	13	311	,000

In this case also the assumption of homogeneity is not broken so the researcher can proceed to the next step of the analysis.

Table 5.3.5

Tests of Between-Subjects Effects

Dependent Variable: Academic_research_on_purchasing

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	186,014[a]	13	14,309	9,379	,000	,282[a]
Intercept	1196,975	1	1196,975	784,546	,000	,716
Experience	80,982	5	16,196	10,616	,000	,146
Department	28,910	4	7,227	4,737	,001	,057
Experience * Department	46,255	4	11,564	7,579	,000	,089
Error	474,490	311	1,526			
Total	4800,460	325				
Corrected Total	660,504	324				

a. R Squared = ,282 (Adjusted R Squared = ,252)

Based on the results of table 5.3.5, the values of both Sig. variables seem to have a significant effect on the dependent variable «whether the professional follow academic research on purchasing" as their both bellow 0.01.

According the results of Table 5.3.5 it can be concluded that since both of the values of the Sig. are bellow 0.01 that both stating the fact that all professionals and their departments are following the innovations that come from academic research.

The Partial Eta Square pin points the fact that the dependent variable "Academic research on purchasing has small to mediate significance on the independent variable "experience" and almost no significance for the "department" variable according to the Cohen's criteria.

One more element that needs to be studied is the relationship of "experience" and "department". The column Sig. shows that their no significant since it is bellow 0.01

on the other hand the partial eta square shows a great relevance since its output is beyond 0.14.

At the table 5.3.6 of the annex it can be conducted from the column Sig. that the professionals that follow the academic researches' are those that bellow at the third category (eleven to fifteen years of experience) which is a surprising thing. Another thing that is worth mentioned is the fact that the professionals at the end of their carrier are not interested at all for academic researches as the column Sig. clearly pin points.

5.3.3 Next in line, the hypothesis that is demonstrated bellow will be examined (H3):

- The view that the major suppliers contribute to cost/quality improvements does not depend on the years of experience of the respondent and the size of the department (null hypothesis)
- The view that the major suppliers contribute to cost/quality improvements does depend on the years of experience of the respondent and the size of the department (alternative hypothesis)

Table 5.3.7

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Contribution_to_cost_quality_improvement_by_suppliers

F	df1	df2	Sig.
7,114	13	310	,000

As the above table shows the Levene's test allows the researcher to move on his analysis since the assumption is been broken, he will conduct a striker analysis of 0.01

Table 5.3.8

Tests of Between-Subjects Effects

Dependent Variable: Contribution_to_cost_quality_improvement_by_suppliers

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	134,657[a]	13	10,358	5,873	,000	,198[a]
Intercept	748,527	1	748,527	424,379	,000	,578
Experience	100,468	5	20,094	11,392	,000	,155
Department	6,166	4	1,542	,874	,480	,011
Experience * Department	92,144	4	23,036	13,060	,000	,144
Error	546,784	310	1,764			
Total	4706,495	324				
Corrected Total	681,441	323				

a. R Squared = ,198 (Adjusted R Squared = ,164)

Table 5.3.8 shows that the size of department depends greatly with the dependent variable "contribution to cost quality improvement by major suppliers" since the output of the Sig. column is greater than 0.01. On the other hand the experience of the supply chain manager or more specific the person's that answered the questionnaire seems to be completely relevant with the dependent variable.

What is relevant though is that the column Partial Eta Square shows that there is medium effect of the experience of the manager with the dependent variable. An observation that can easily drove the researcher to think that in order to have major suppliers to contribute to such a move an experienced manager is needed. On the other hand the size of the department shows little effect on such a situation.

The next thing that is tested is the relationship of both independent variables. The Sig. column shows that there is no significance or little since it is bellow 0.01. But the Partial

Eta Square shows that the effect of a combination of both experience and size of department has a great effect on moves similar to the dependent variable.

Table 5.3.9 pin points the multiple comparisons. The results show that there is no significant effect since all the outputs are well beyond 0.01.

5.3.4 The next hypothesis that will be examined by the two-way analysis variance will be (H4):

- The view that same goals between buyer and supplier does not depend on the years of experience of the respondent and the size of the department (null hypothesis)
- The view that same goals between buyer and supplier does depend on the years of experience of the respondent and the size of the department (alternative hypothesis)

Table 5.3.10

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Sharing_the_same_goals_in_our_relationships

F	df1	df2	Sig.
13,340	13	312	,000

As the above table shows the Levene's test allows the researcher to move on his analysis since the assumption is been broken, he will conduct a striker analysis of 0.01

Table 5.3.11

Tests of Between-Subjects Effects

Dependent Variable: Sharing_the_same_goals_in_our_relationships

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	103,585[a]	13	7,968	7,372	,000	,235[a]
Intercept	1019,140	1	1019,140	942,854	,000	,751
Experience	32,983	5	6,597	6,103	,000	,089
Department	33,117	4	8,279	7,660	,000	,089

Experience * Department	39,141	4	9,785	9,053	,000	,104
Error	337,244	312	1,081			
Total	5024,971	326				
Corrected Total	440,828	325				

Table 5.3.11 pin points the fact that there is a relationship between experience and department and sharing goals with a supplier since both have values of Sig. below 0.01. A thing that can easily explained by the fact in order to share goals with a supplier means that an experience manager should be in charge and to own a department large enough so he can easily co-ordinate both sides of the supply chain.

The column Partial Eta Square(Table 5.3.11) presents that there is a great effect regarding the relationship that is been established between those. Seems that sharing goals is been greatly affected by the size of the supply chain departments and years of experience.

On the other hand both independent variables are greatly significant to the dependent variable as it is been showed by the column Sig. The Partial Eta Square shows that the effect that those have on the dependent variable is medium. Leading to the conclusion that collaborations with joint goals can exist even if those are to medium level.

Table 5.3.12 of the annex points out some interesting findings that are surprising. It can be noticed that there is a difference between the first and four category of experience when someone would expect to find differences between the first and last one.

5.3.5 The next hypothesis that will be examined by the two-way analysis variance will be (H5):

- The view that research for potential suppliers does not depend on the years of experience of the respondent and the size of the department (null hypothesis)
- The view that research for potential suppliers does depend on the years of experience of the respondent and the size of the department (alternative hypothesis)

Table 5.3.13

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Research_into_potential_suppliers_for_this_category

F	df1	df2	Sig.
10,034	13	312	,000

As the above table shows the Levene's test allows the researcher to move on his analysis since the assumption is been broken, he will conduct a striker analysis of 0.01

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Table 5.3.14

Tests of Between-Subjects Effects

Dependent Variable: Research_into_potential_suppliers_for_this_category

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	151,627[a]	13	11,664	7,590	,000	,240[a]
Intercept	1913,219	1	1913,219	1244,998	,000	,800
Experience	48,196	5	9,639	6,273	,000	,091
Department	6,970	4	1,743	1,134	,340	,014
Experience * Department	36,668	4	9,167	5,965	,000	,071
Error	479,458	312	1,537			
Total	8489,961	326				
Corrected Total	631,085	325				

a. R Squared =, 240 (Adjusted R Squared =, 209)

Table 5.3.14 provides evidence about the relationship of the dependent variable research potential buyers and the independent experience and department. The column Sig. shows a significant relationship between the variable experience and the research of suppliers since the value is below 0.01. On the other hand the size of the supply chain department are completely irrelevant with the research of potential buyers since its value is beyond 0.01<0.340.

The column Partial Era Square (table 5.3.14) provides evidence that there is a small to medium effect between the variable department and the research of potential suppliers but since it is near 0.01 it is not certain whether the effect that is been produced could influence the business itself. It is clearly though that experience plays

a basic role on the procedure of finding new potential suppliers since its value is beyond second criteria of the proposed Cohen's scale (0.06<0.091).

The combination of experience and department shows to be irrelevant with the procedure of finding new suppliers since its value of Sig. is below 0.01. But its value of Partial Era Square of the same table (table 5.3.14) shows a medium relationship between them. A finding that seems to provide evidence that a combination could provide a good backup in finding new suppliers.

Table 5.3.15 of the annex provides the Multiple Comparisons providing differences between the scales of variable experience. The biggest differences are showed up between scales one and four.

5.3.6 Next in line, the hypothesis that is demonstrated bellow will be examined (H6):

- The view that the low inventory stock does not depend on the years of experience of the respondent and the size of the department (null hypothesis)
- The view that the low inventory stock does depend on the years of experience of the respondent and the size of the department alternative hypothesis)

Table 5.3.16

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Low_inventory_levels

F	df1	df2	Sig.
8,309	13	313	,000

As the above table shows the Levene's test allows the researcher to move on his analysis since the assumption is been broken, he will conduct a striker analysis of 0.01

Table 5.3.17

Tests of Between-Subjects Effects

Dependent Variable: Low_inventory_levels

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	35,567[a]	13	2,736	2,640	,002	,099[a]

Intercept	1678,537	1	1678,537	1619,869	,000	,838
Experience	13,418	5	2,684	2,590	,026	,040
Department	2,611	4	,653	,630	,642	,008
Experience * Department	9,660	4	2,415	2,331	,056	,029
Error	324,336	313	1,036			
Total	8126,411	327				
Corrected Total	359,903	326				

a. R Squared = ,099 (Adjusted R Squared = ,061)

Table 5.3.17 shows that both of the independent variables do not have any relationship the dependent variable. As a matter of fact they are both irrelevant. On the contrast of the belief that they would probably have a great significance and leverage on the dependent variable.

On the other hand the column Partial Eta Square shows that there is medium effect by the experience of the manager on how he controls the inventory of the corporation. But the department plays little or no role at the level of the inventory, since its value is below 0.01 (0.008). The above value of Partial Eta Square lead to the conclusion that low inventory is being is affected by the experience of the manager.

The combination of the independent variables show that they are irrelevant (Sig.: 0.056>0.01) to the fact of a corporation possesses low inventory. The column Partial Eta Square also shows that there is little effect on inventory since its value is a bit over 0.01 and not even closely to the next criteria of Cohen's scale.

Also from Partial Eta Squared column we can conclude that because there is little effect on both variables no significant difference between the various sizes of business and competitive strategies therefore follow the table multiple comparisons omitted from the Annex.

5.3.7 The last hypothesis that is been test is (H7):

- The view that the enforcement of a code of conduct does not depend on the years of experience of the respondent and the size of the department(null hypothesis)
- The view that the enforcement of a code of conduct does depend on the years of experience of the respondent and the size of the department (alternative hypothesis)

Table 5.3.18

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Enforcement_of_a_code_of_conduct_for_suppliers

F	df1	df2	Sig.
8,946	13	311	,000

As the above table shows the Levene's test allows the researcher to move on his analysis since the assumption is been broken, he will conduct a striker analysis of 0.01

Table 5.3.19

Tests of Between-Subjects Effects

Dependent Variable: Enforcement_of_a_code_of_conduct_for_suppliers

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	135,967[a]	13	10,459	7,403	,000	,236[a]
Intercept	1641,989	1	1641,989	1162,182	,000	,789
Experience	47,087	5	9,417	6,666	,000	,097
Department	1,596	4	,399	,282	,889	,004
Experience * Department	74,016	4	18,504	13,097	,000	,144
Error	439,396	311	1,413			
Total	7467,779	325				
Corrected Total	575,363	324				

a. R Squared =, 236 (Adjusted R Squared =, 204)

The column of Sig. shows that there is a experience is relevant to the enforcement of a code of ethics to the suppliers since its value is below 0.01. On the other hand the department is completely irrelevant to enforcement since its value is well beyond 0.01(0.889).

Partial Eta Square provides evidence that experience has a medium effect on enforce sing ethics on suppliers (0.06<0.097). On the other hand department has little effect on this situation.

The combination of both experience and department shows that they are completely irrelevant with the enforcement of ethics but they have major effect on doing so as a whole if they try such a project.

Table 5.3.20 of annex provides evidence of the difference between the experiences of the managers that answered the questionnaire. The biggest difference are watched at the six scale (26-30) which leads to the conclusion that as the experience of a manager sums up his ethical resolve also pills up.

In conclusion, the various assumptions developed by the method of analysis of variance of two factors, can provide evidence that both the experience of the manager and the size of the supply chain department is an important factor for various aspects of a business. The hypothesis that has been developed above showed clearly that the experience of a manager plays a significant role on imposing rules and giving guidelines to both his colleagues and suppliers. On the other hand it seems that the size of the department does not play a significant role on imposing rules and guidelines. But it a fact that the manager is just a person without a good sized department he would not be able to operate properly. So as the hypothesis has shown the combination in most cases is the proper road for a business to follow in order to have a good supply chain that works properly.

5.4 Factor analysis

This chapter will deal with the factor analysis of the variables that have been categorized by the questionnaire that the managers have answered. That is, the first step of the analysis that will be done in part by dimension aiming to reduce the existing variables based on the factors that will result in each dimension. Essentially, that would become a grouping of variable factors generally characterize these variables. The analysis that will be done in each dimension based on factors that have emerged will provide the final analysis. So it will provide the most important factors-dimensions in the supply chain in order to create the proposed model of supply chain.

The factor analysis is useful in data analysis because:

- It studies the relationship between a large numbers of interrelated variables through the clustering of these factors. After grouping the variables of each factor, they correlate with each other more than variables belonging to each factor. Contrast agents have very small and zero correlation coefficient.
- The factor analysis is useful in data analysis because:
- Interprets each factor according to the importance of variables
- Collects many variables creating few factors each of which calculates the score.
- The variables should be quantitative in any measurement range. It can also be variables that express satisfaction or desire long as there is a numerical scale in which low-priced small express satisfaction or desire and high prices largely satisfaction or desire (can happen and vice versa).Below are the results of the factor analysis.

5.4.1 Purchasing Department Characteristics

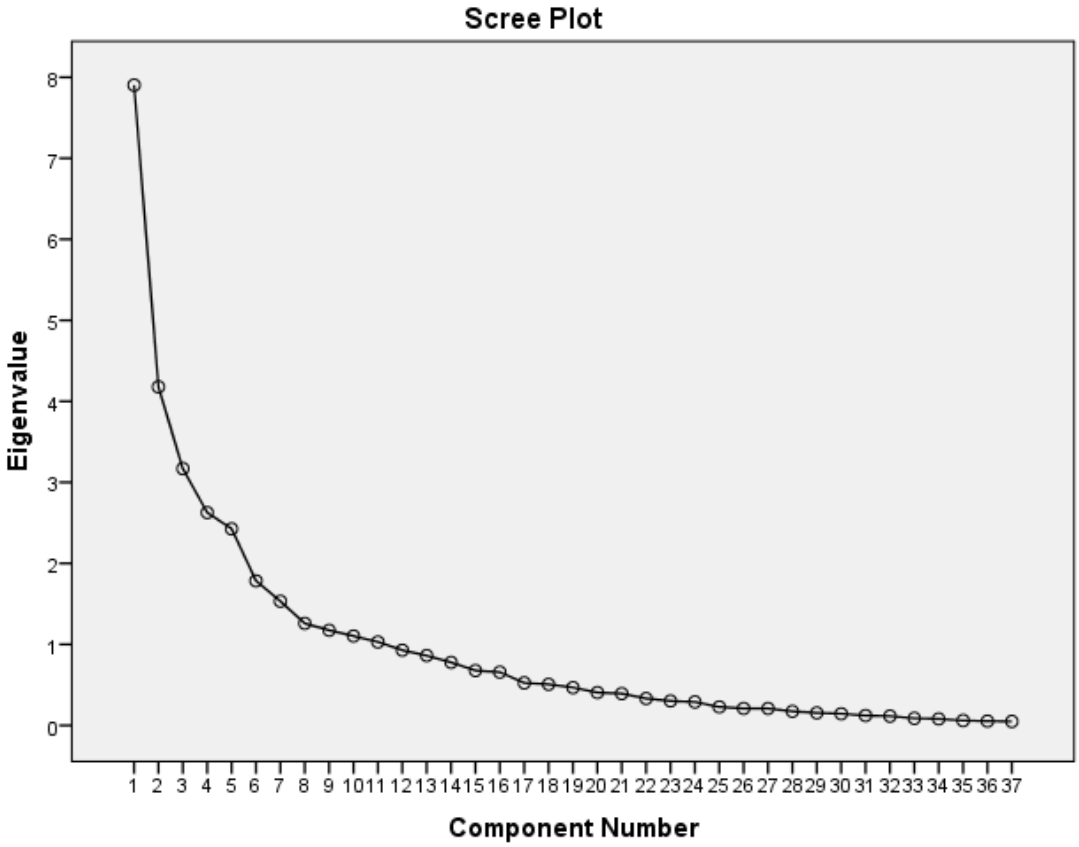
Table 5.4.1.1
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,656
Bartlett's Test of Sphericity	Approx. Chi-Square	8307,699
	Df	666
	Sig.	,000

The above table is an important part of the analysis factors. Here the value of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) is what interests the researcher, an indicator which refers to the adequacy of the sample. The value of the index must be greater than 0.6, requirement covered as shown in the table. As it showed at table 5.4.1.1 the KMO value is at 0.656 making the sample adequate. A second element that is been checked at the above table is the index Bartlett's Test of Sphericity which evaluates whether the correlations between variables authorize the analysis of factors, particularly the value of Sig. The value of this index should be less than or equal to 0.05. As it was been observed that covered the second limitation with respect to the second indicator so the factor analysis can be applied.

Table 5.4.1.2 of Annex determines how many elements (factors) will distract. Using the criterion Kaiser only elements with eigenvalue greater than or equal to 1 remain for further research, that only data with eigenvalue over 1. The eigenvalue represents the overall variation due to this factor (factor).

To deduce how many components (components) follow the above criterion we look in Table 5.4.1.2 and look at the columns initial eigenvalue-total. Eleven components meet this criterion. These eleven criteria reflect to 76,187% of the variance (column initial eigenvalue- cumulative) .The choice of eleven factors and verified by the following diagram showing that only the first eleven factors are above the unit.



At this point the criteria that make up the eleven factors are been looked for according to the criterion Kaiser. Below the table 5.4.1.3 provides this information at the vertical axis of the criteria and the horizontal axis the eleven agents.

Table 5.4.1.3

Component Matrix[a]

	Component										
	1	2	3	4	5	6	7	8	9	10	11
Employees_record_and_store_newly_acquired_knowledge	,682		-,174			,227	,320			,242	-,296
Employees_hardly_share_practical_experience	-,679	,246	,154	-,108	,198			,153		-,166	-,103
We_slow_recognize_shifts_in_our_company_customers_markets	-,668	,189	,153	,154	,138		,191		,204	-,145	,189
New_opportunities_to_serve_our_clients_are_quickly_understood	,653		-,124	-,393		-,276				,220	
External_market_demands_in_terms_of_new_products_and_services	,641				,542	-,123	,212	,101	-,154		
Recognizes_the_value_of_new_external_ideas_to_existing_knowledge	,611			-,409	,186	-,210		,327	,162		-,133
Certain_procedures_are_becoming_a_norm_within_our_industry	,610			,422	-,249	-,135	-,200	,178	,126		,219

Difficulty_contributing_to_new_products_and_services	-,606			,347	,314	,300		,178		,149	
Academic_research_on_purchasing	,602			,381	-,450			-,174	,110	-,104	-,165
Common_language_regarding_our_companys_products	,589	,124	-,208	-,359		,228	-,231	,161	-,101	-,160	,143
Parent_company_sets_strict_guidelines_for_purchasing_procedures	,564		-,320	-,162		,331	,171		-,147	,131	,288
We_constantly_consider_how_to_better_exploit_knowledge	,563		,273	-,304	,356	,336	-,210		,236	-,225	
Employees_in_our_industry_are_trained_to_use_similar_procedures	,552	-,249	-,162	,459	-,250			-,118	-,139		,179
Frequent_government_inspections_onpractices_to_comply_with_laws	,537	,332		,423		,119	-,162		-,208	-,343	
Clear_division_of_roles_and_responsibilities	,534	-,200	,163	-,360	,115	,164	-,150	-,394	,313	-,208	

Government_regulation_impacts_our_purchasing_decision_making	,532	,387	-,336	,389	,190				-,170	-,212	-,119
Meets_to_discuss_consequences_of_market_trends	,523	-,168				,430	,157	,422		,190	
We_are_slow_to_grasp_opportunities_of_external_knowledge	-,520	,218		-,134		-,170	,385	,132		-,142	,327
Internal_customers_are_not_listened_by_our_department	-,439	,115	,385	,106	-,102	,352				-,101	-,217
Benchmark_the_practices_and_performance_of_our_main_and_peers	,121	,692	,373					-,118	-,162	,104	-,155
Regulations_imposed_on_industry_have_also_impact_procedures		,680	-,398		-,109		-,209	-,166	,176		-,205
Imitate_practices_of_competitors_that_serve_the_same_clients	,233	,673		,297				-,195	-,207		,152
Attention_to_tools_that_appear_to_benefit_our_peers	,364	,651	,440		-,124	-,194	,188			,101	,116

Attention_to_the_tools_used_by_competitors	,405	,597	,493		-,176		,112		,172		
Adopt_certain_practices_or_initiatives	-,170	,590	-,482	,139	,331		-,125		,156	,164	
if_our_firm_does_not_meet_their_requests_to_adopt_practices	-,223	,523	-,445	,193	,318	-,285		-,151	,226	,191	-,156
Use_certain_operating_practices_mandated_by_them	-,229	,483	-,386	-,226	,298	,358				,148	,277
Implemented_procedures_in_response_to_what_competitors_do	,425	,453	,483	-,125	-,163		,277		,118	-,123	,117
Employees_use_tools_they_learned_during_their_education	,150		,458	,233		-,158	-,427	,277	,254	,322	-,112
Employees_regularly_approach_external_third_parties	,202		,419		,296		-,325		-,236	,412	,182
Procedures_are_influenced_by_exhibitions	,132	-,121	-,349	,473	-,168		-,108	,339	,457		,198
We_understand_quickly_the_demands_of_our_clients	,456	-,102	-,230		,530	-,387		,159		-,297	

We_collect_industry_information_through_informal_means	,215	-,448		,231	,485	-,109	,223	-,343	,194		,111
We_rarely_visit_other_departments_in_our_company	-,300		,334	,371	,445	,213	-,178			-,160	-,226
Special_meetings_with_customers_to_acquire_new_knowledge	,277	-,256	,336	,362	,407	-,160	,387		,225		
Employees_use_the_tools_advocated_by_the_national_association	,215		-,273	,134	-,144	,493	,351		,297		-,260
Interactions_withheadquarters_to_acquire_new_knowledge	,331	-,240	,306	,102		,200	-,300	-,379			,161

Extraction Method: Principal Component Analysis.[a]
a. 11 components extracted.

For a more rigorous analysis a rotation of factors (rotation) will be conducted. Orthogonal rotation has been chosen based on the theory that the factors that will be reproduced there will be independent to each other.

It is noticeable from the table 5.4.1.4 that after the rotation, the variation of some factors has changed. For example, the first factor was 21.360% variation while after the variation 10.460%. A second important piece of information is that while changing the variation to some factors, the total variance is constant and equal to 76.187%.

Table 5.4.1.4

Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3,870	10,460	10,460
2	3,564	9,633	20,093
3	3,461	9,354	29,447
4	3,094	8,362	37,809
5	2,775	7,499	45,308
6	2,478	6,696	52,004
7	2,418	6,534	58,538
8	2,156	5,826	64,364
9	1,523	4,117	68,480
10	1,445	3,905	72,386
11	1,406	3,801	76,187

Extraction Method: Principal Component Analysis.

Table 5.4.1.5

Rotated Component Matrix[a]

	Component										
	1	2	3	4	5	6	7	8	9	10	11
Attention_to_tools_that_appear_to_benefit_our_peers	,898		,156								

Attention_to_the_tools_used_by_competitors	,890					,167				,101	
Implemented_procedures_in_response_to_what_competitors_do	,840			-,162		,151	,112				
Benchmark_the_practices_and_performance_of_our_main_and_peers	,694	,108	-,124	,238					,141	,110	-,331
Imitate_practices_of_competitors_that_serve_the_same_clients	,579	,374	-,162	,338					,148	-,276	
Academic_research_on_purchasing	,216	,746	,217			,133	,163		-,216	,161	,105
Employees_in_our_industry_are_trained_to_use_similar_procedures		,712	,294	-,158			,111	,200	,140		,205
Frequent_government_inspections_onpractices_to_comply_with_laws	,280	,664	-,177	,129	,395	,121	,108	-,134		-,121	
Certain_procedures_are_becoming_a_norm_within_our_industry	,150	,608	,244		,151				,106	,131	,507

Government_regulation_impacts_our_purchasing_decision_making	,212	,568		,351	,505		,207			-,160	
Employees_hardly_share_practical_experience		-,489	-,470	,156		-,150	-,332	-,155	-,118		
We_are_slow_to_grasp_opportunities_of_external_knowledge	,167	-,468				-,374	-,286		-,221	-,325	,136
We_rarely_visit_other_departments_in_our_company			-,773		,156			,118	,164	,160	
New_opportunities_to_serve_our_clients_are_quickly_understood			,723		,315	,176	,195			,156	
Difficulty_contributing_to_new_products_and_services	-,247	-,271	-,659		-,172	-,236		,143	,206		,131
Internal_customers_are_not_listened_by_our_department	,146	-,158	-,583	-,113	-,329			-,124			-,130
We_slow_recognize_shifts_in_our_company_customers_markets		-,368	-,519	,158	-,273	-,148	-,262	,154	-,142	-,182	,124
Adopt_certain_practices_or_initiatives			-,104	,877						-,142	,100

if_our_firm_does_not_meet_their_requests_to_adopt_practices				,859		-,247	-,148	,135	-,109	,121	
Regulations_imposed_on_industry_have_also_impact_procedures	,199		,146	,735				-,366	-,173		
Use_certain_operating_practices_mandated_by_them		-,377		,635			,124	-,268	,176	-,354	,152
We_understand_quickly_the_demands_of_our_clients	-,120	,122	,187		,824	,105		,220			
External_market_demands_in_terms_of_new_products_and_services	,147	,133	,160		,669		,312	,374	,177		-,132
Recognizes_the_value_of_new_external_ideas_to_existing_knowledge	,273	-,131	,417		,582	,259	,181			,264	
Common_language_regarding_our_companys_products			,322		,407	,401	,236	-,381	,131	-,216	,113
Clear_division_of_roles_and_responsibilities			,263	-,107		,834		,143	-,110		-,129

We_constantly_consider_how_to_better_exploit_knowledge	,233				,354	,786	,203		,142		
Interactions_withheadquarters_to_acquire_new_knowledge		,274		-,149	-,142	,571		,221	,301		
Employees_record_and_store_newly_acquired_knowledge	,107	,231	,345		,201	,110	,716	,136			-,184
Meets_to_discuss_consequences_of_market_trends		,119		-,270	,229		,716		,237		,197
Employees_use_the_tools_advocated_by_the_national_association		,134		,116	-,178		,667		-,376		,128
Special_meetings_with_customers_to_acquire_new_knowledge	,148			-,162	,177		,134	,816			
We_collect_industry_information_through_informal_means	-,214				,128	,230		,798			
Employees_regularly_approach_external_third_parties	,164					,148		,121	,763	,135	-,110

Employees_use_tools_they_learned_during_their_education	,237								,350	,702	,249
Parent_company_sets_strict_guidelines_for_purchasing_procedures		,188	,427			,181	,456		,157	-,464	
Procedures_are_influenced_by_exhibitions	-,167	,285		,120			,106		-,167	,112	,777

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 23 iterations.

5.4.2 Category characteristics

Table 5.4.2.1

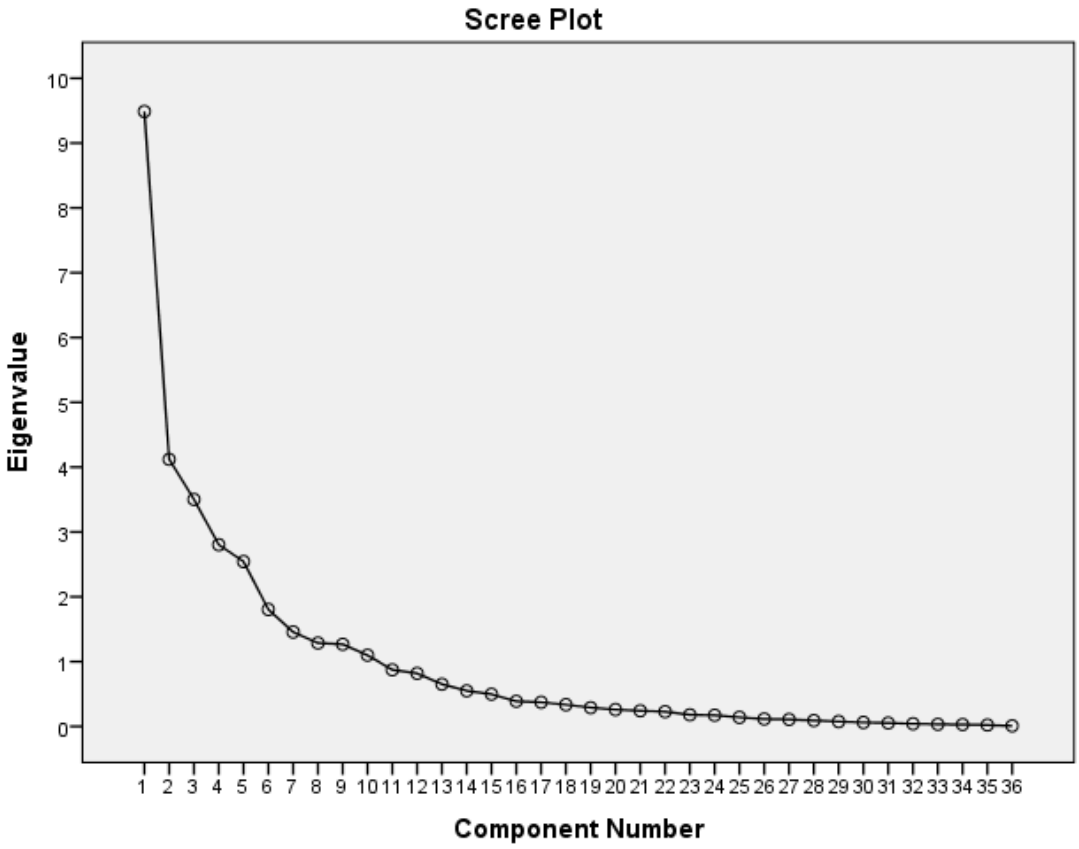
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,638
Bartlett's Test of Sphericity	Approx. Chi-Square	12845,616
	df	630
	Sig.	,000

The value of KMO index should be greater than 0.6, a requirement which is covered as shown in Table 5.4.2.1. Also the index Bartlett's Test of Sphericity must have the Sig. value less than or equal to 0.05. The second limitation is been covered so the conduction of factor analysis is possible.

Table 5.4.2.2 of Annex determines how many elements (factors) will be extracted. Using the criterion Kaiser only elements with eigenvalue greater than or equal to 1 remain for further research, that only data with eigenvalue over 1. The eigenvalue represents the total variance due to this factor (factor).

To deduce how many components (components) follow the above criterion the researcher checks the columns initial eigenvalue at table 5.4.2.2. it is observed that only ten components meet this criterion. These ten criteria belong to the 81,578% of the variance (column initial eigenvalue- cumulative) .The choice of the ten factors can be verified also by the following diagram which shows that only the first ten are above the unit.



Below at Table 5.4.2.3 the vertical axis shows the criteria of the factors and the horizontal axis the ten agents.

Table 5.4.2.3

Component Matrix[a]

	Component									
	1	2	3	4	5	6	7	8	9	10

Fluctuationing_at_specifications_required_by_internal_customers	,746	-,215		-,100	-,224	-,133	,266	,193	-,120	-,266
Understanding_of_what_can_be_achieved_in_this_relationship	,695	-,164		,256	-,199	-,300	,319	,255	-,173	-,114
Fluctuationing_in_the_volume_required_by_internal_customers	,695	-,207			-,267	-,251	,377	,203		-,147
The_uncertainty_of_suppliers_accuracy_in_delivering_products	,689		-,224	-,377				-,124	,313	-,159
The_uncertainty_of_suppliers_meeting_requirements	,684		-,337	-,376	-,127			-,202	,189	,100
Major_suppliers_abandoning_us__non_recoverable_investments	,683		-,291	-,413	-,127			-,176	,215	,165
Fluctuationing_at_the_mix_required_by_internal_customers	,681	-,238	,209			,264		,141	-,196	-,225
Major_suppliers_investment_in_dedicated_facilities_to_us	,674		-,314	-,120	-,407	,142		,108		,247
Major_suppliers_abandoning_our_company_difficulty_in_redeploying	,671		-,338		-,373	,121		,111	-,149	,208

Our_investment_in_dedicated_facilities_to_suppliers	,667	-,128		,149	,124		-,340		,327	-,191
The_category_spending_compared_to_other_categories_is	,664	,120	,440	,168			-,133	-,287	,109	-,223
The_uncertainty_of_prices_from_suppliers_for_this_category_is	,657		,397	,160				-,349	-,184	-,112
Dedicated_personnel_specified_for_our_company	,608	-,227	-,415		-,309		-,219		-,135	
The_uncertainty_of_suppliers_timeliness_in_delivering_products	,591	-,112	,167	-,470	,180			-,179	,186	
Experience_an_interruption_in_the_supply_from_suppliers	,587	,176	,386	-,222	,312	,237	-,129		-,266	
Our_investment_in_dedicated_personnel_specific_to_suppliers	,562			,413	,109	-,317	-,236		,303	-,120
Dropping_a_supplier_redeploying_would_be_difficult	,553	-,128		,297			,336	-,413		,266
Life_cycles_are_short_for_this_category	,515	-,105		,422	,115	-,151		,183	,288	,286

Non_recoverable_investments_abandoning_a_major_supplier	,486	-,293	,116	,378		,221	,307	-,230		,209
Major_suppliers_of_this_category_lack_integrity	,472	,460		,292	,156	-,340	-,280		-,241	
Sharing_the_same_goals_in_our_relationships	-,159	,755	-,203	,372	-,209	,155	,116	-,125		-,161
Losses_in_sales_if_suppliers_failed_to_supply_this_category	-,145	,708	-,316	,321	-,220	,125	,159	-,173	-,150	
Support_each_other_goals		,701	-,454	,113	-,113	,217		-,187		-,217
Compatible_goals	,351	,685	-,265	,131	-,129	,145	-,243	,272		
Many_other_companies_buy_this_category	,463	,494	,157	-,434	,103				-,245	
Suppliers_inability_would_jeopardize_our_business_performance		,453	,659	-,119	-,211	-,203			,168	,112
Major_suppliers_of_this_category_are_open_in_dealing_with_us	,313	,213	-,644		,341	-,106		,358		
An_interruption_from_suppliers_would_raise_internal_costs	,160	,517	,630	-,170	-,284			,198	,247	

Worries_of_unspecified_products_from_supplier		,577	,592	-,108	-,189		,206	,123	,181	
Demand_from_internal_customers_is_difficult_to_forecast	,296	,123	-,120	,653	,321		,160	,132	,247	,251
Suppliers_have_tried_to_deceive_us_on_several_occasions	,222	,255		-,284	,725	-,217	,227			
Compatible_views_on_how_to_achieve_our_goals	,230	,440	-,193	-,277	,643		,333			
This_category_is_often_unavailable_from_suppliers	,377	-,134	,258	,327	,512	,328			-,118	-,287
New_products_for_this_category_are_frequently_developed	,458				,154	,652		,264	,117	
There_are_few_alternative_suppliers_for_this_category	,517					-,554	-,276	-,193	-,266	,110
Certain_of_the_performance_potential_for_the_product	,374	,228	,297			,291	-,392	,170	-,246	,421

Extraction Method: Principal Component Analysis.[a]
a. 10 components extracted.

A rotation of factors (rotation) will be conducted in order to have a more vigorous analysis. Orthogonal rotation has been chosen based on the theory that the factors resulting in will be independent to each other.

It is noticeable from the table 5.4.2.4 that after the rotation, the variation of some factors has changed. For example, the first factor was 26,355% variation while after the variation 13,256%. A second important piece of information is that while changing the variation to some factors, the total variance is constant and equal to 81,578%.

Table 5.4.2.4

Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4,772	13,256	13,256
2	3,567	9,909	23,165
3	3,427	9,520	32,685
4	3,317	9,215	41,899
5	3,215	8,930	50,829
6	2,676	7,433	58,262
7	2,636	7,321	65,584
8	2,131	5,918	71,502
9	1,949	5,414	76,916
10	1,678	4,662	81,578

Extraction Method: Principal Component Analysis.

The loadings of each factor are showed at table 5.4.2.5. The value refers to the loading of each criterion; the relevant factor is the weight of each variable in each factor.

Table 5.4.2.5

Rotated Component Matrix[a]

	Component									
	1	2	3	4	5	6	7	8	9	10
Major_suppliers_abandoning_us__non_recoverable_investments	,879	,161				,130			,142	,111
The_uncertainty_of_suppliers_meeting_requirements	,874	,148				,109		,104		
The_uncertainty_of_suppliers_accuracy_in_delivering_products	,806	,182			,224	,222	,111			-,138
The_uncertainty_of_suppliers_timeliness_in_delivering_products	,616		-,340	,165	,371	,209		,109		
Major_suppliers_investment_in_dedicated_facilities_to_us	,609	,498	,107						,145	,403

Major_suppliers_abandoning_our_company_difficulty_in_redeploying	,570	,516	,117	-,143					,125	,398
Dedicated_personnel_specified_for_our_company	,526	,434		-,364		-,211		,310		,128
Understanding_of_what_can_be_achieved_in_this_relationship		,864			,146		,258	,196	,181	
Fluctuationing_in_the_volume_required_by_internal_customers	,234	,849	-,119	,115	,113		,146		,165	
Fluctuationing_at_specifications_required_by_internal_customers	,363	,805	-,122		,256					
Sharing_the_same_goals_in_our_relationships	-,152		,916	,158						
Losses_in_sales_if_suppliers_failed_to_supply_this_category	-,108		,901		-,160					
Support_each_other_goals	,199	-,139	,879			,108				
Compatible_goals	,241	,108	,672	,136	,141		,263		-,333	,322
An_interruption_from_suppliers_would_raise_internal_costs				,935					-,103	

Worries_of_unspecified_products_from_supplier			,162	,886						
Suppliers_inability_would_jeopardize_our_business_performance				,872				,123		
This_category_is_often_unavailable_from_suppliers	-,183			-,137	,784	,197	,246		,150	
Fluctuationing_at_the_mix_required_by_internal_customers	,247	,442	-,171		,638					,216
Experience_an_interruption_in_the_supply_from_suppliers	,235		-,118	,243	,602	,335		,191	,146	,387
The_category_spending_compared_to_other_categories_is	,288	,155		,382	,593	-,176	,177	,335	,251	
New_products_for_this_category_are_frequently_developed	,212	,118			,571		,245	-,453	,107	,322
The_uncertainty_of_prices_from_suppliers_for_this_category_is	,173	,251		,254	,539			,376	,446	
Compatible_views_on_how_to_achieve_our_goals	,131		,146			,930				

Suppliers_have_tried_to_deceive_us_on_several_occasions					,105	,882		,145		
Major_suppliers_of_this_category_are_open_in_dealing_with_us	,309	,176	,221	-,335	-,102	,545	,351		-,326	
Many_other_companies_buy_this_category	,328	,132	,113	,386	,194	,460	-,206	,256	-,110	,305
Demand_from_internal_customers_is_difficult_to_forecast	-,137		,200			,195	,768		,328	
Life_cycles_are_short_for_this_category	,104	,192	-,149				,734	,127	,191	,166
Our_investment_in_dedicated_personnel_specific_to_suppliers	,215	,155			,223		,666	,419		-,157
Our_investment_in_dedicated_facilities_to_suppliers	,416	,136	-,119		,463		,531	,203		
There_are_few_alternative_suppliers_for_this_category	,175	,232				,103	,167	,794		,110
Major_suppliers_of_this_category_lack_integrity		,121	,323		,144	,247	,318	,664		,233
Dropping_a_supplier_redeploying_would_be_difficult	,271	,163			,130		,265		,762	

Non_recoverable_investments_abandoning_a_major_supplier		,273		-,106	,256		,209	,705	,111
Certain_of_the_performance_potential_for_the_product				,229	,273		,112	,151	,783

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 12 iterations.

5.4.3 Emphasis of purchasing management

Table 5.4.3.1

KMO and Bartlett's Test

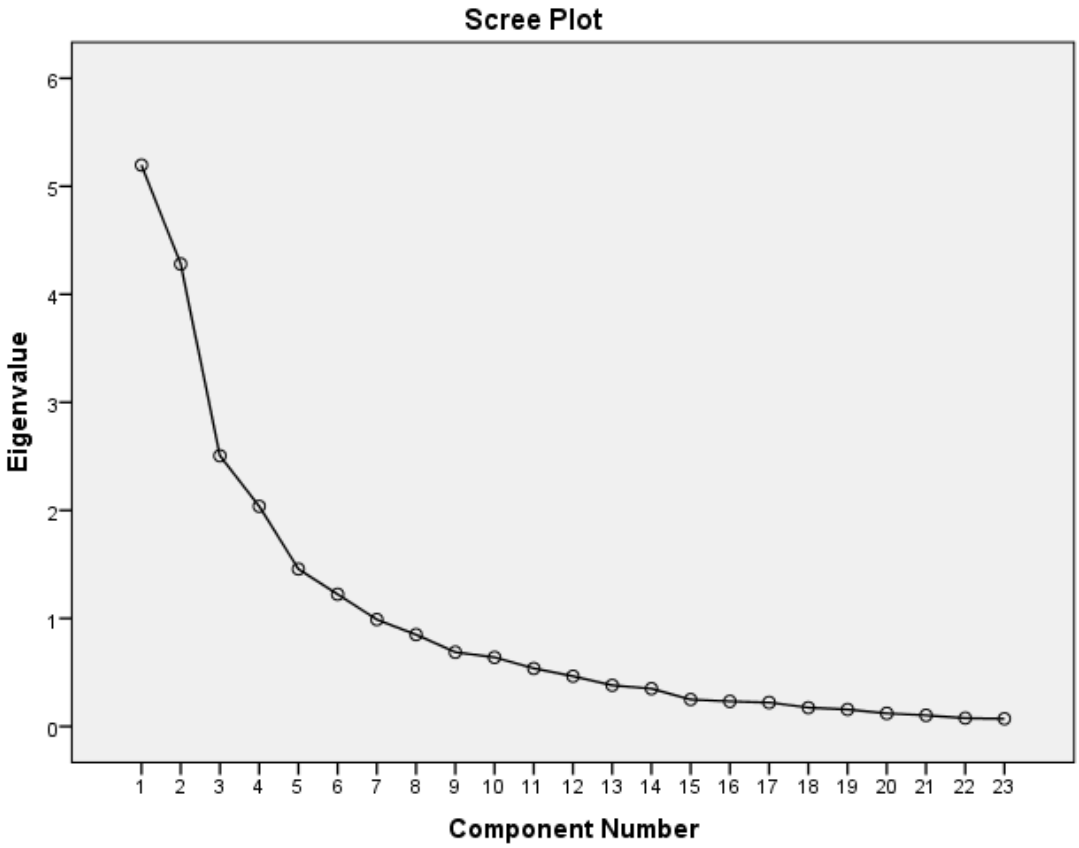
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,708
Bartlett's Test of Sphericity	Approx. Chi-Square	5206,998
	df	253
	Sig.	,000

The value of KMO index should be greater than 0.6, a requirement which is covered as shown in Table 5.4.3.1. Also the index Bartlett's Test of Sphericity must have the Sig. value less than or equal to 0.05. The second limitation is been covered so the conduction of factor analysis is possible.

Table 5.4.3.2 of Annex determines how many elements (factors) will be extracted. Using the criterion Kaiser only elements with eigenvalue greater than or equal to 1 remain for further research, that only data with eigenvalue over 1. The eigenvalue represents the total variance due to this factor (factor).

To deduce how many components (components) follow the above criterion the researcher checks the columns initial eigenvalue at table 5.4.3.2. it is observed that

only six components meet this criterion. These six criteria belong to the 72.607% of the variance (column initial eigenvalue- cumulative) .The choice of the six factors can be verified also by the following diagram which shows that only the first six are above the unit.



Below at Table 5.4.3.3 the vertical axis shows the criteria of the factors and the horizontal axis the six agents.

Table 5.4.3.3.

Component Matrix[a]

	Component					
	1	2	3	4	5	6
Short_delivery_times_by_suppliers	,657	,475	,442	-,164		-,135
Fit_between_purchasing_specifications_and_purchased_products	,632		-,606		,195	,121
Durability_of_purchased_products_or_services	,629	,334	-,601			
Short_internal_order_processing_times	,570	,206	,326	-,111	-,348	-,126
Fulfilment_of_agreed_schedules_by_suppliers	,559	,441	,484	-,272		-,113
Supplier_rate_of_introduction_of_new_products	,554	-,539	,144			,278
Productivity_of_purchasing_resources	,533	-,146		-,376	-,284	,257
Low_cost_of_purchases	,530	,331	,364	-,117	-,410	
Ethical_and_social_mandates_than_required_in_host_countries	,473	,351	,339		,379	-,392
Labour_productivity_in_the_purchasing_department	,410		-,105	-,225	,369	,104
Widening_the_range_of_product_options_offered_by_our_suppliers		,714	,162	,482		,224
Purchased_products_environmentally_undesirable_substance	,309	-,604	,234	,285	,199	-,105

Supplier_ability_to_meet_agreed_environmental_performance_goals	,437	-,595		,181		,143
Reliability_of_purchased_products_or_services	,377	,593	-,382	,231		-,256
Enforcement_of_a_code_of_conduct_for_suppliers	,520	-,583	,213	,202	,228	-,252
Supplier_flexibility_to_adapt_capacity_to_our_needs	-,180	,543	,278	,491	,129	,351
Ensuring_that_purchased_products_contain_green_attributes	,440	-,475	,142	,351	-,184	
Efficacy_of_suppliers_in_attending_to_our_complaints	,566	,117	-,629	,112	,244	
Capability_of_customization_of_the_products		,568	,259	,568	,139	,208
Independent_audits_of_ethical_performance_of_suppliers	,429	-,525	,132	,544		-,103
Features_and_functionality_of_purchased_products_or_services	,540	,242	-,295	,287	-,550	
Fulfilment_of_agreed_delivery_terms_by_supplies	,395	,185	,101	-,418	,455	,413
Low_inventory_levels	,431			-,114	-,115	,525

Extraction Method: Principal Component Analysis.[a]
a. 6 components extracted.

A rotation of factors (rotation) will be conducted in order to have a more vigorous analysis. Orthogonal rotation has been chosen based on the theory that the factors resulting in will be independent to each other. (Table 5.4.3.4)

Table 5.4.3.4

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
Independent_audits_of_ethical_performance_of_suppliers	,869		,116		-,120	
Enforcement_of_a_code_of_conduct_for_suppliers	,830	,146		-,228	,144	-,162
Purchased_products_environmentally_undesirable_substance	,780			-,107		-,101
Ensuring_that_purchased_products_contain_green_attributes	,710				-,167	,250
Supplier_ability_to_meet_agreed_environmental_performance_goals	,709			-,167		,282
Supplier_rate_of_introduction_of_new_products	,691			-,140	,238	,379
Short_delivery_times_by_suppliers		,877	,154	,163	,284	
Fulfilment_of_agreed_schedules_by_suppliers		,859			,284	
Low_cost_of_purchases		,768			-,119	,300
Short_internal_order_processing_times	,120	,742	,102		-,113	,187
Ethical_and_social_mandates_than_required_in_host_countries	,109	,633	,173	,112	,354	-,426
Durability_of_purchased_products_or_services		,175	,906			,121

Efficacy_of_suppliers_in_attending_to_our_complaints	,127		,861		,217	
Fit_between_purchasing_specifications_and_purchased_products	,135		,827		,287	,210
Reliability_of_purchased_products_or_services	-,195	,281	,741	,232	-,145	-,150
Features_and_functionality_of_purchased_products_or_services		,321	,613		-,458	,342
Supplier_flexibility_to_adapt_capacity_to_our_needs	-,135			,871		
Capability_of_customization_of_the_products		,121		,865		
Widening_the_range_of_product_options_offered_by_our_suppliers	-,235	,135	,109	,860		
Fulfilment_of_agreed_delivery_terms_by_supplies		,234			,782	,269
Labour_productivity_in_the_purchasing_department	,113	,108	,256	-,121	,517	
Low_inventory_levels	,154		,154		,218	,630
Productivity_of_purchasing_resources	,120	,340	,116	-,330	,130	,570

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 7 iterations.

It is noticeable from the table 5.4.2.5 that after the rotation, the variation of some factors has changed. For example, the first factor was 22.594% variation while after the variation 16.438%. A second important piece of information is that while

changing the variation to some factors, the total variance is constant and equal to 72.607%.

Table 5.4.2.5

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3,781	16,438	16,438
2	3,518	15,294	31,732
3	3,397	14,768	46,500
4	2,611	11,353	57,853
5	1,754	7,625	65,478
6	1,640	7,129	72,607

Extraction Method: Principal Component Analysis.

5.4.4 Category practices

Table 5.4.4.1

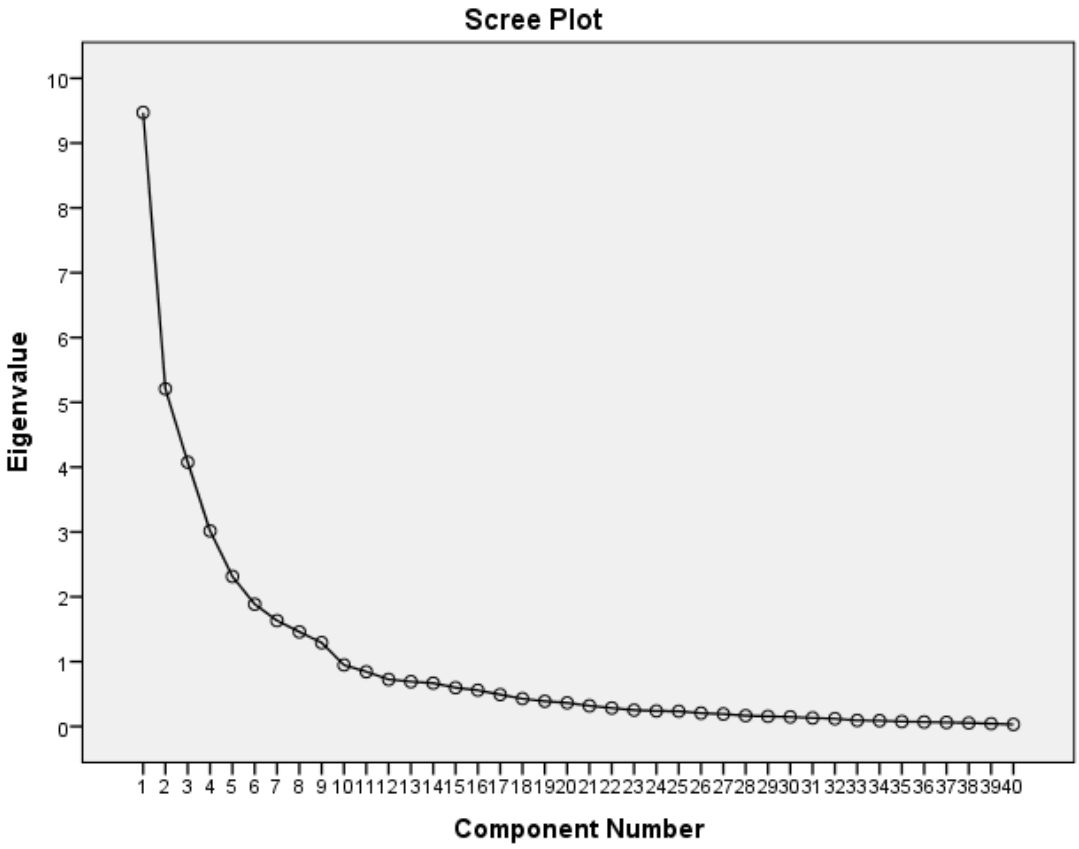
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,702
Bartlett's Test of Sphericity	Approx. Chi-Square	11988,944
	df	780
	Sig.	,000

The value of KMO index should be greater than 0.6, a requirement which is covered as shown in Table 5.4.4.1. Also the index Bartlett's Test of Sphericity must have the Sig. value less than or equal to 0.05. the second limitation is been covered so the conduction of factor analysis is possible.

Table 5.4.4.2 of Annex determines how many elements (factors) will be extracted. Using the criterion Kaiser only elements with eigenvalue greater than or equal to 1 remain for further research, that only data with eigenvalue over 1. The eigenvalue represents the total variance due to this factor (factor).

To deduce how many components (components) follow the above criterion the researcher checks the columns initial eigenvalue at table 5.4.4.2. it is observed that only nine components meet this criterion. These nine criteria belong to the 75.882% of the variance (column initial eigenvalue- cumulative) .The choice of the nine factors can be verified also by the following diagram which shows that only the first ten are above the unit.



Below at Table 5.4.4.3 the vertical axis shows the criteria of the factors and the horizontal axis the nine agents.

Table 5.4.4.3

Component Matrix[a]

	Component								
	1	2	3	4	5	6	7	8	9

Suppliers_adhere_to_certain_ethical_and_social_standards	,673	,422			-,167	-,135	,332		-,130
Emphasis_on_information_exchange_among_departments	,672	-,304	,132						,140
Suppliers_report_all_supply_disruptions_irrespectively	,662	-,201	,386	-,124	-,190		-,141	-,323	
Multiple_sources_of_supply_for_this_category	,640	-,417	,176	-,309		,266		-,149	
Capacity_exists_to_deal_with_unplanned_increases_in_demand	,623	-,465	,201	-,302		,197	-,204		
Assessment_of_both_our_own_risks_and_risks_of_major_suppliers	,615	-,359	-,116		,316	-,182	,156		,260
Individuals_responsible_for_the_management_of_such_risks	,603	-,493	-,230		,279	-,102		,143	,151
We_monitor_product_quality_for_suppliers	,598	-,499	,104	-,235	-,300			,134	
Environmental_training_and_information_to_major_suppliers	,598	,459	-,141		-,189	-,242	,220	-,162	,133
Category_strategy_is_frequently_reviewed_and_revised	,596	-,398			,302	-,240			

Suppliers_processes_are_required_to_meet_ethical_objectives	,593	,273		,269	-,431	-,248		,152	
Suppliers_are_selected_using_ethical_social_critiria	,588	,360	-,108	-,173	-,136	-,102	,377	-,114	
Contracts_with_suppliers_rewards_for_respecting_delivery_times	,586	-,463	-,183		,186		-,128	,333	,181
Audit_suppliers_on_ethical_social_dimensions	,576	,238		,433	-,341	-,124		,287	
Training_and_information_to_suppliers_on_ethics_responsibility	,570	,558	-,205			-,152	,328		
Selection_using_criteria_that_include_environmental_dimensions	,548	,339	-,121	-,477	,131		-,153	,127	
We_evaluate_the_procedures_used_by_major_suppliers	,538	,207	-,284		,309			-,178	-,509
Monitor_delivery_timeliness_for_suppliers	,516	-,434			-,467			,153	-,159
Supply_continuity_contingency_plans_for_this_category	,504	-,343	,330	,132				-,339	-,228
Monitoring_of_developments_that_might_promote_such_disruptions	,484	-,260		-,330	-,256	,287	,247	-,394	

Regular_audits_into_internal_operations_of_suppliers	,468	,284	,347	,173		-,117	-,401	-,176	-,274
Audit_major_suppliers_on_environmental_dimensions	,441	,576	-,160	-,353			-,296	,194	
Suppliers_are_adhered_to_certain_environmental_standards	,458	,558	-,287	-,132	,149	,111			-,168
Systematic_identification_of_sources_for_such_disruptions	,444	-,506	-,325	,108		,250		,209	-,104
Options_and_futures	,451	,484	-,249	-,299	,272	,118		,194	-,147
Regular_site_visits_to_premises_of_suppliers	,188	,450	-,257		,345	,272			,424
Research_into_potential_suppliers_for_this_category	-,119	,211	,825	-,122		,127	,197	,126	
Supplier_selection_for_this_category		,213	,806		,113	,251	,210	,223	
Supplier_involvement_in_product_design		,230	,802		,103		,270	,209	
Negotiation_and_contracting_for_this_category	,129	,226	,781					,216	,176
Vendor_managed_inventory_Consignment_stock	,334	,378	,451	,211	,250		-,329	-,143	-,221
Joint_venture_with_a_supplier	,356		-,207	,750		,303			,144

Improving_payment_terms_for_suppliers	,429			,688		,349			
Suppliers_hold_inventory_for_us_to_prevent_stockouts	,359	,253		,546	,122	,390		-,131	,143
Our_category_strategy_is_based_on_existing_capabilities	,341	-,185			,715			,111	-,114
Minority_interests_in_a_supplier	,296	,424		-,383		,567			
Responsiveness_within_us_to_meet_other_departments_needs	,471		,186		,363	-,481	,293		
Purchased_products_are_designed_to_meet_environmental_objectives	,461	,205			-,281	-,161	-,556	,195	,164
Strategy_is_clearly_communicated_to_all_category_personnel	,367		,267	,312	,126	-,389	-,212	-,390	,221
Share_cost_information_with_major_suppliers	,220	-,341		,404		,102	,138	,324	-,446

Extraction Method: Principal Component Analysis.[a]
a. 9 components extracted.

A rotation of factors (rotation) will be conducted in order to have a more vigorous analysis. Orthogonal rotation has been chosen based on the theory that the factors resulting in will be independent to each other. (Table 5.4.4.4)

Table 5.4.4.4

Rotated Component Matrix[a]

	Component								
	1	2	3	4	5	6	7	8	9
Multiple_sources_of_supply_for_this_category	,833		,273	,140					
Capacity_exists_to_deal_with_unplanned_increases_in_demand	,815	-,112	,317	,124				,149	
Monitoring_of_developments_that_might_promote_such_disruptions	,776	,240			-,149			-,265	-,104
We_monitor_product_quality_for_suppliers	,767	,137	,275				-,116	,185	,221
Suppliers_report_all_supply_disruptions_irrespectively	,746	,148			,159		,429		
Monitor_delivery_timeliness_for_suppliers	,693	,128		-,104				,290	,373
Emphasis_on_information_exchange_among_departments	,599	,126	,379			,125	,131	,211	
Environmental_training_and_information_to_major_suppliers		,791		,211		,157	,143	,144	-,161

Training_and_information_to_suppliers_on_ethics_responsibility		,789		,406		,129			
Suppliers_adhere_to_certain_ethical_and_social_standards	,141	,787		,319		,142	,100		,172
Suppliers_are_selected_using_ethical_social_critiria	,227	,742		,291					-,107
Suppliers_processes_are_required_to_meet_ethical_objectives	,159	,589				,225	,183	,539	,149
Audit_suppliers_on_ethical_social_dimensions		,528				,388	,104	,469	,354
Individuals_responsible_for_the_management_of_such_risks	,365		,761		-,227			,103	
Assessment_of_both_our_own_risks_and_risks_of_major_suppliers	,318	,226	,757						
Category_strategy_is_frequently_reviewed_and_revised	,309	,126	,732				,141		
Contracts_with_suppliers_rewards_for_respecting_delivery_times	,366		,692	,110	-,127	,176	-,143	,264	,146
Our_category_strategy_is_based_on_existing_capabilities		-,188	,688	,229	,117	,101	,270	-,181	,129

Responsiveness_within_us_to_meet_other_departments_needs		,441	,589		,157	-,178	,293	-,166	
Systematic_identification_of_sources_for_such_disruptions	,396		,429		-,269	,285	-,213		,385
Options_and_futures		,285	,162	,790					
Suppliers_are_adhered_to_certain_environmental_standards		,340		,723		,129	,132		
Selection_using_criteria_that_include_environmental_dimensions	,224	,228	,183	,721		-,119		,178	-,145
Minority_interests_in_a_supplier	,292		-,258	,711	,150	,153			-,211
Audit_major_suppliers_on_environmental_dimensions		,329		,694		-,155	,118	,424	
We_evaluate_the_procedures_used_by_major_suppliers		,290	,203	,521	-,258	,129	,401	-,271	,291
Supplier_selection_for_this_category					,917				
Supplier_involvement_in_product_design		,111			,913				
Research_into_potential_suppliers_for_this_category			-,138		,876	-,144		-,125	

Negotiation_and_contracting_for_this_category					,798		,203	,280	
Joint_venture_with_a_supplier		,112	,101	-,107	-,129	,869		,145	,156
Improving_payment_terms_for_suppliers		,165				,855	,152		,122
Suppliers_hold_inventory_for_us_to_prevent_stockouts		,145		,163		,791	,140		
Regular_audits_into_internal_operations_of_suppliers	,136	,143		,194	,172	,105	,726	,283	
Vendor_managed_inventory_Consignment_stock				,282	,370	,194	,692		
Strategy_is_clearly_communicated_to_all_category_personnel		,204	,301	-,260		,161	,593	,167	-,323
Supply_continuity_contingency_plans_for_this_category	,483		,281	-,176			,510	-,170	,144
Purchased_products_are_designed_to_meet_environmental_objectives	,159	,129		,249			,198	,757	
Share_cost_information_with_major_suppliers	,102		,202	-,130		,249			,728
Regular_site_visits_to_premises_of_suppliers	-,208		,134	,454		,444			-,462

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 11 iterations.

It is noticeable from the table 5.4.4.5 that after the rotation, the variation of some factors has changed. For example, the first factor was 23.679% variation while after the variation 12.948%. A second important piece of information is that while changing the variation to some factors, the total variance is constant and equal to 75.882%.

Table 5.4.4.5

Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	5,179	12,948	12,948
2	4,110	10,274	23,222
3	4,042	10,105	33,327
4	4,004	10,010	43,337
5	3,646	9,115	52,453
6	3,044	7,611	60,064
7	2,509	6,271	66,335
8	2,098	5,244	71,579
9	1,721	4,303	75,882

5.4.5 Category performance

Table 5.4.5.1

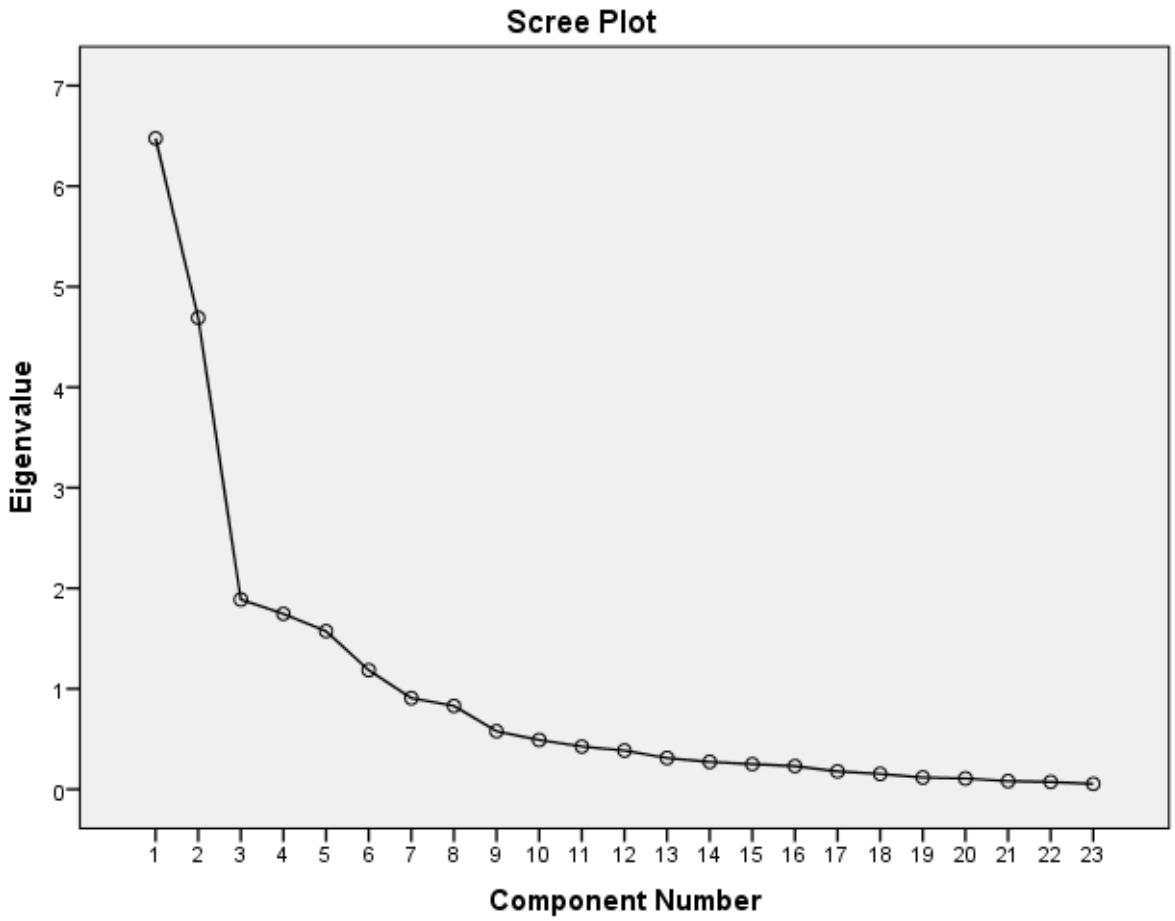
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,737
Bartlett's Test of Sphericity	Approx. Chi-Square	6068,964
	df	253
	Sig.	,000

The value of KMO index should be greater than 0.6, a requirement which is covered as shown in Table 5.4.5.1. Also the index Bartlett's Test of Sphericity must have the Sig. value less than or equal to 0.05. The second limitation is been covered so the conduction of factor analysis is possible.

Table 5.4.5.2 of Annex determines how many elements (factors) will be extracted. Using the criterion Kaiser only elements with eigenvalue greater than or equal to 1 remain for further research, that only data with eigenvalue over 1. The eigenvalue represents the total variance due to this factor (factor).

To deduce how many components (components) follow the above criterion the researcher checks the columns initial eigenvalue at table 5.4.5.2. It is observed that only six components meet this criterion. These six criteria belong to the 76.338% of the variance (column initial eigenvalue- cumulative) .The choice of the six factors can be verified also by the following diagram which shows that only the first six are above the unit.



Below at Table 5.4.5.3 the vertical axis shows the criteria of the factors and the horizontal axis the six agents.

Table 5.4.5.3

Component Matrix[a]

	Component					
	1	2	3	4	5	6
Short_delivery_times_by_suppliers2	,802	,185	-,215	,167		-,254
Fulfilment_of_agreed_schedules_by_suppliers2	,764	,249		,231		-,334
Short_internal_order_processing_times2	,748	,170	-,287			-,380
Low_inventory_levels2	,726	,279		-,325	,162	
Durability_of_purchased_products_or_services2	,719	-,148	,272	,365	-,338	
Fulfilment_of_agreed_delivery_terms_by_suppliers2	,690	,246			,127	
Efficacy_of_suppliers_in_attending_to_our_complaints2	,680	,219	-,110	-,469	-,113	,139
Labour_productivity_in_the_purchasing_department2	,671	,206	-,180	-,332	-,198	,311
Purchasing_specifications_and_purchased_products	,670	,191	,311		-,329	-,116
Reliability_of_purchased_products_or_services2	,659	-,277	,200	,327	-,234	,336
Features_and_functionality_of_purchased_products_or_services2	,614	-,208	,294	,325	-,267	-,123

Supplier_flexibility_to_adapt_capacity_to_our_needs2	,539	-,461	,120	,140	,357	,301
Supplier_rate_of_introduction_of_new_products2	-,114	,714	-,313	,393		
Independent_audits_of_ethical_performance_of_suppliers2	-,200	,712	,503		,108	-,182
Ethical_and_social_mandates_than_required_in_host_countries2	-,227	,704	,518	-,105		-,192
Products_do_not_contain_environmentally_undesirable_substance2		,679	,455		-,157	,181
Supplier_ability_to_meet_agreed_environmental_performance_goals2	-,136	,672	-,277	,481	,153	
Enforcement_of_a_code_of_conduct_for_suppliers2		,653	,386		,150	,254
Ensuring_that_purchased_products_contain_green_attributes2		,639	-,167	,508	,209	,283
Supplier_capability_to_customized_changes_in_products2	,333	-,402	,341		,628	
Widening_the_range_of_product_versions_offered2	,458	-,461	,215		,564	,149
Low_cost_of_purchases2	,306	,330	-,218	-,352	,369	-,154
Productivity_of_purchasing_resources2	,405	,448	-,305	-,246		,460

Extraction Method: Principal Component Analysis.[a]

a. 6 components extracted.

A rotation of factors (rotation) will be conducted in order to have a more vigorous analysis. Orthogonal rotation has been chosen based on the theory that the factors resulting in will be independent to each other. (Table 5.4.5.4)

Table 5.4.5.4

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
Short_internal_order_processing_times2	,862	-,128	,140	,201		
Fulfilment_of_agreed_schedules_by_suppliers2	,797		,375		,181	
Short_delivery_times_by_suppliers2	,790	-,114	,326	,188	,169	,103
Low_inventory_levels2	,604	,244	,103	,487	-,118	,240
Fulfilment_of_agreed_delivery_terms_by_suppliers2	,586		,241	,304	,154	,199
Low_cost_of_purchases2	,526	,132	-,375	,288		,124
Ethical_and_social_mandates_than_required_in_host_countries2		,893	-,148	-,126	,106	-,152
Independent_audits_of_ethical_performance_of_suppliers2		,881	-,134	-,120	,140	-,134
Products_do_not_contain_environmentally_undesirable_substance2	-,108	,769	,121	,211	,181	-,196
Enforcement_of_a_code_of_conduct_for_suppliers2		,716		,260	,280	
Durability_of_purchased_products_or_services2	,284		,865			,135

Reliability_of_purchased_products_or_services2		-,188	,792	,259		,307
Features_and_functionality_of_purchased_products_or_services2	,292		,754		-,136	,145
Purchasing_specifications_and_purchased_products	,436	,274	,580	,256	-,188	
Productivity_of_purchasing_resources2	,172			,790	,269	
Labour_productivity_in_the_purchasing_department2	,329		,219	,781		
Efficacy_of_suppliers_in_attending_to_our_complaints2	,454		,112	,716	-,196	
Ensuring_that_purchased_products_contain_green_attributes2		,226			,873	
Supplier_ability_to_meet_agreed_environmental_performance_goals2		,185	-,105		,852	-,178
Supplier_rate_of_introduction_of_new_products2	,190	,199	-,140		,780	-,281
Widening_the_range_of_product_versions_offered2	,133	-,158	,137		-,137	,856
Supplier_capability_to_customized_changes_in_products2	,152			-,154	-,193	,836
Supplier_flexibility_to_adapt_capacity_to_our_needs2		-,271	,310	,164		,741

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 9 iterations.

5.4.6 Aggregated Factor analysis

Based on forty two factors obtained from path analysis that has been performed on each dimension of the initial questionnaire. In short this is the final stage of this analysis and its outcome is what will lead to the creation of the model. That is based on the results that will emerge from this final path analysis will proceed to create the model is that these results are the proposed benchmark.

Table 5.4.6.1

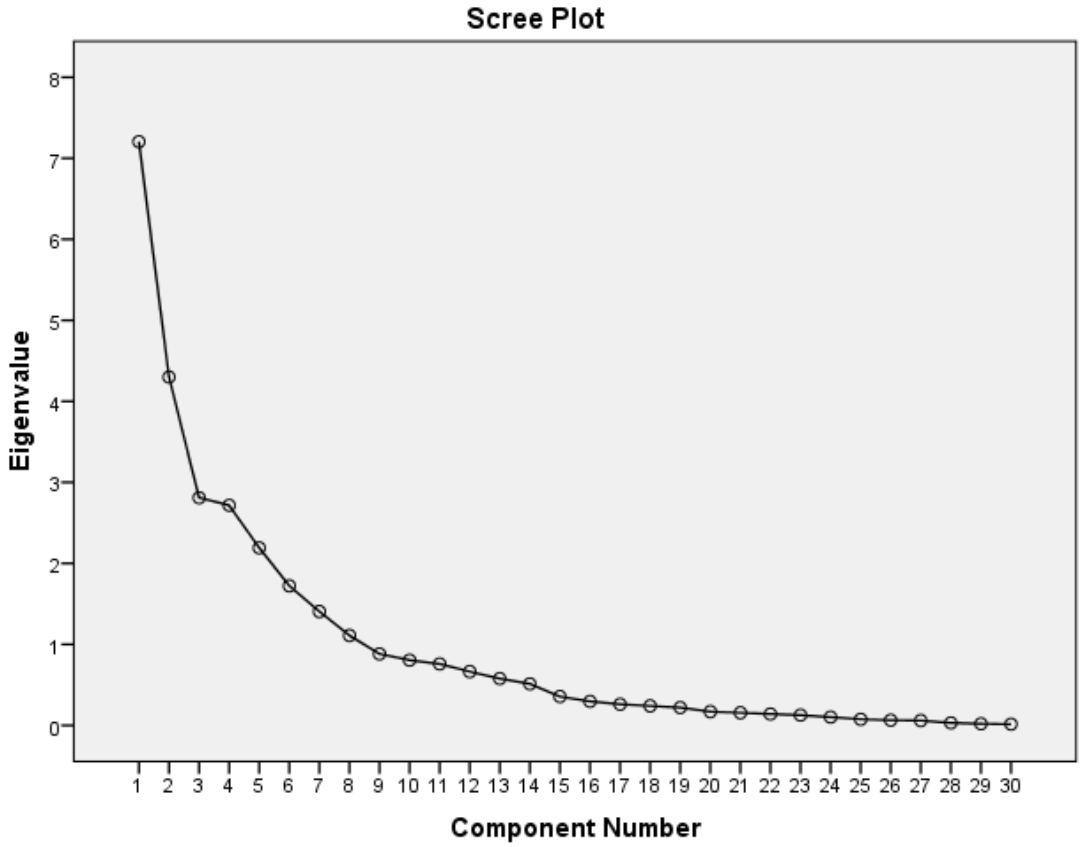
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,630
Bartlett's Test of Sphericity	Approx. Chi-Square	990,407
	Df	300
	Sig.	,000

The value of KMO index should be greater than 0.6, a requirement which is covered as shown in Table 5.4.6.1. Also the index Bartlett's Test of Sphericity must have the Sig. value less than or equal to 0.05. the second limitation is been covered so the conduction of factor analysis is possible.

Table 5.4.6.2 of Annex determines how many elements (factors) will be extracted. Using the criterion Kaiser only elements with eigenvalue greater than or equal to 1 remain for further research, that only data with eigenvalue over 1. The eigenvalue represents the total variance due to this factor (factor).

To deduce how many components (components) follow the above criterion the researcher checks the columns initial eigenvalue at table 5.4.6.2. it is observed that only seven components meet this criterion. These seven criteria belong to the 74.506% of the variance (column initial eigenvalue- cumulative) .The choice of the seven factors can be verified also by the following diagram which shows that only the first seven are above the unit.



Below at Table 5.4.6.3 the vertical axis shows the criteria of the factors and the horizontal axis the seven agents.

Table 5.4.6.3

Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
PerfQ18	,787						
FinacQ8	,758						
FinacQ5	,752						
FinacQ6	,723						
PMprio14	,721						
PerfQ19	,718						
PMprio17	,718						
PMprio13	,672						
PMprio16	,665						
PMprio15	,661						
PMprio18	,633						
PMprio11	-,632						
PerfQ16	-,583						
PMprio10	-,534						
PerfQ12		,768					
PerfQ13		,738					
PerfQ11		,710					
PerfQ14		,709					
PMprio19		,652					
PMprio20		,593					
IntegQ1c		,547					

PMprio12			,618				
InfoQ4b		-,511		,634			
InfoQ4c				,633			
InfoQ4d				,592			
InfoQ4a				,554			
InfoQ3f					,588		
InfoQ2a					,561		
IntegQ2c						-,731	
IntegQ2b						-,718	

Extraction Method: Principal Component Analysis.
a. 7 components extracted.

A rotation of factors (rotation) will be conducted in order to have a more vigorous analysis. Orthogonal rotation has been chosen based on the theory that the factors resulting in will be independent to each other. (Table 5.4.6.4)

Table 5.4.6.4

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
PMprio14	,799						
PMprio15	,787						
PMprio18	,764						
PMprio17	,755						
FinacQ8	,747						
PMprio13	,745						
PerfQ18	,711						
PMprio16	,705						
PerfQ19	,637						
FinacQ5	,623						
FinacQ6	,605						
PerfQ12		,921					
PerfQ13		,894					
PerfQ11		,883					
PerfQ14		,761					
PMprio12			,891				
PMprio10			,888				
PMprio11			,876				
PerfQ16			,744				
InfoQ4b				,892			
InfoQ4c				,794			
InfoQ4d				,771			

InfoQ4a				,737			
PMprio19					,830		
IntegQ1c					,793		
PMprio20					,664		
InfoQ3f						,785	
InfoQ2a						,697	
IntegQ2c							,905
IntegQ2b							,899

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

5.5 Structural equation model

The structural equations, a block composed of rectangles and circles, or deficiencies linked together by single or double arrows. The rectangles represent the observed or measured variables and shortcomings hidden or latent variables. More specifically, the single arrows are used to determine the causal model where the variable in the tail of the arrow causes the variable to the point. The bidirectional arrows are used to indicate the co variances or correlations between the factors, no causal explanation.

Statistics arrows represent the regression coefficients or loadings factors, while the bi-directional arrows show the co variances between factors. Associated with each observable variable is an error term, which accounts for measurement error and shows the adequacy of the model to measure the relevant factor. Furthermore, connected to each hidden variable is a term balance (residual), which represents the error in predicting the endogenous factors from exogenous factors. As all error conditions and other account variables that are not defined in the model, the form of the circle or ellipse.

This confirmatory factor analysis was performed in order to confirm the final exploratory factor analysis was based on the second questionnaire. According to the exploratory factor analysis found seven factors, which are the following, and relate to:

- Factor 1: Financial exposure

- Factor 2: Durability-reliability
- Factor 3: Evolvement
- Factor 4: Integration
- Factor 5: Information sharing
- Factor 6: Codes
- Factor 7: Productivity

The factor 1 as can be seen from Table 5.4.6.4 of the previous subchapter consists of nine variables. Factors two consist of seven variables. Factors three and six consist of four variables each. Factor four consists of four variables, six of five and seven by two.

Figure 5.5.1 shows the representation of the model structure which consists of 7 factors and the variables derived from the exploratory factor analysis.

Running this model resulted values for all elements of the model. These values are the standard estimates of the confirmatory factor analysis. Also the resulting values whether the upcoming model is well adapted to the provided data or not. Figure 5.5.6.2 shows the standardized estimates of the confirmatory factor analysis for the original model.

Figure 5.5.1

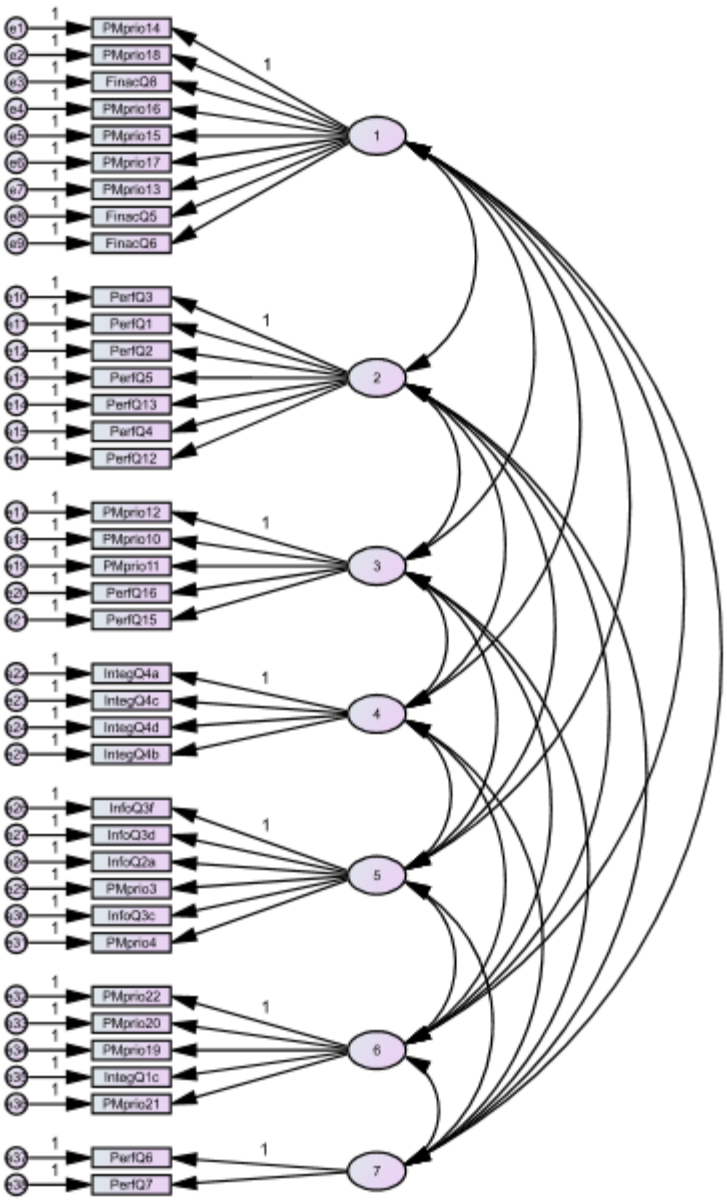
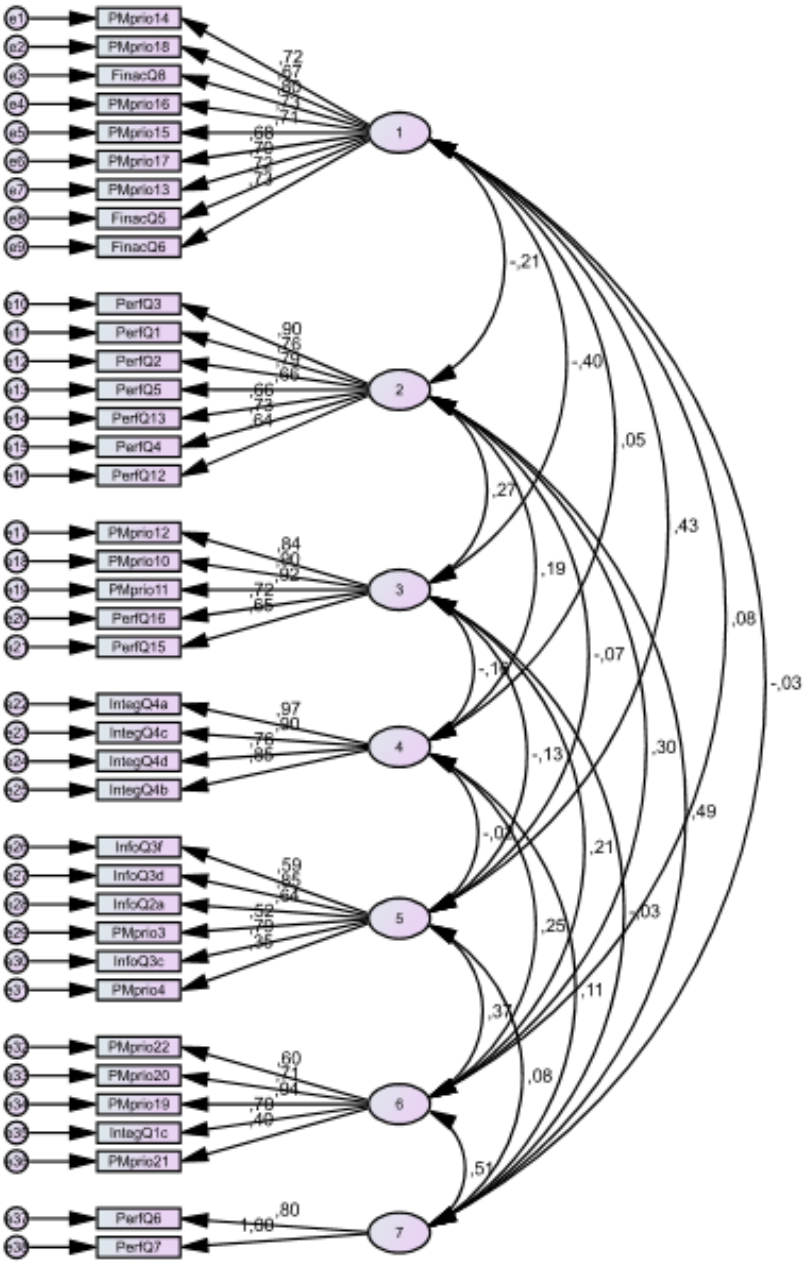

PMprio14
PMprio18
FinacQ8
PMprio16
PMprio15
PMprio17
PMprio13
FinacQ5
FinacQ6
PerfQ3
PerfQ1
PerfQ2
PerfQ5
PerfQ13
PerfQ4
PerfQ12
PMprio12
PMprio10
PMprio11
PerfQ16
PerfQ15
IntegQ4a
IntegQ4c
IntegQ4d
IntegQ4b
InfoQ3f
InfoQ3d
InfoQ2a
PMprio3
InfoQ3c
PMprio4
PMprio22
PMprio20
PMprio19
IntegQ1c
PMprio21
PerfQ6
PerfQ7
1
2
3
4
5
6
7

Figure 5.5.2


PMprio14
PMprio18
FinacQ8
PMprio16
PMprio15
PMprio17
PMprio13
FinacQ5
FinacQ6
PerfQ3
PerfQ1
PerfQ2
PerfQ5
PerfQ13
PerfQ4
PerfQ12
PMprio12
PMprio10
PMprio11
PerfQ16
PerfQ15
IntegQ4a
IntegQ4c
IntegQ4d
IntegQ4b
InfoQ3f
InfoQ3d
InfoQ2a
PMprio3
InfoQ3c
PMprio4
PMprio22
PMprio20
PMprio19
IntegQ1c
PMprio21
PerfQ6
PerfQ7
1
2
3
4
5
6
7

According to the index of the root mean square of the estimation error (RMSEA) model is a perfect fit for value 0. For values from 0.01 to 0.05 has very good adjustment for values from 0.05 to 0.08 has good fit and for values greater than 0.1 is mismatch. Table 5.5.1 shows the value of RMSEA index for that model. The price is higher than 0.1 so we need to modify the model to have a good fit.

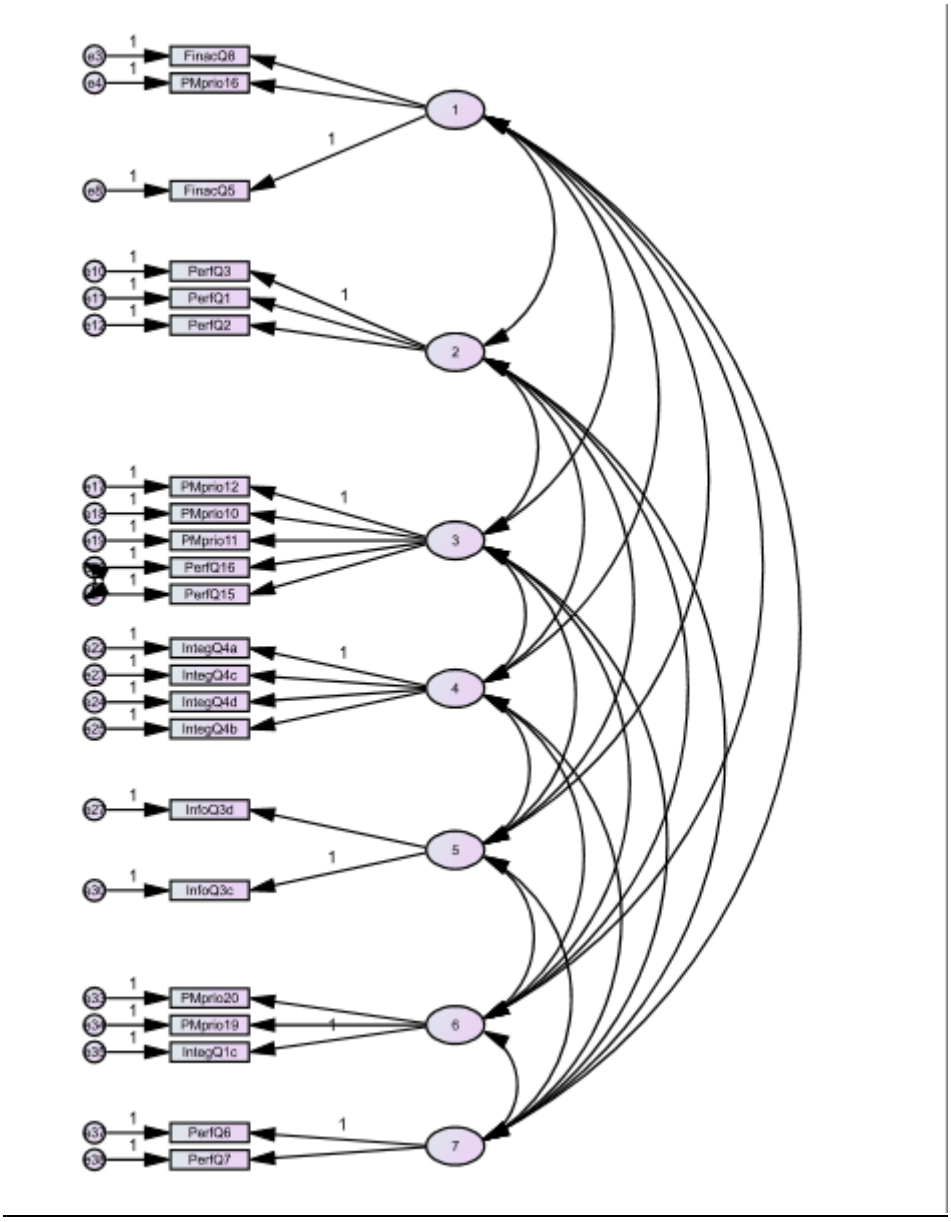
Table 5.5.1

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,1	,1	,2	,0
Independence model	,2	,2	,2	,0

As observed in the final model of the confirmatory factor analysis, the factor one profitability is left with three variables and so does two also from the original nine seven respectively. On the other hand seven and three has not changed at all. Factors four, five and six were also decreased to fewer variables as it is presented by the figure 5.5.3

Figure 5.5.3


FinacQ6
PMprio16
FinacQ5
PerfQ3
PerfQ1
PerfQ2
PMprio12
PMprio10
PMprio11
PerfQ16
PerfQ15
IntegQ4a
IntegQ4c
IntegQ4d
IntegQ4b
InfoQ3d
InfoQ3c
PMprio20
PMprio19
IntegQ1c
PerfQ6
PerfQ7
1
2
3
4
5
6
7

The standardized assessments of the model are showed at Figure 5.5.4. Arrows with prices starting at factors and lead to the variables (criteria) represent the standardized regression weights (loadings criteria to the agents). The double arrows that unite all the factors together represent the co variances among the seven factors. Also, prices near rectangles (criteria) represent the multiple correlation coefficients raised squared. That describes the amount of fluctuation of the criteria is explained by each factor.

Figure 5.5.4

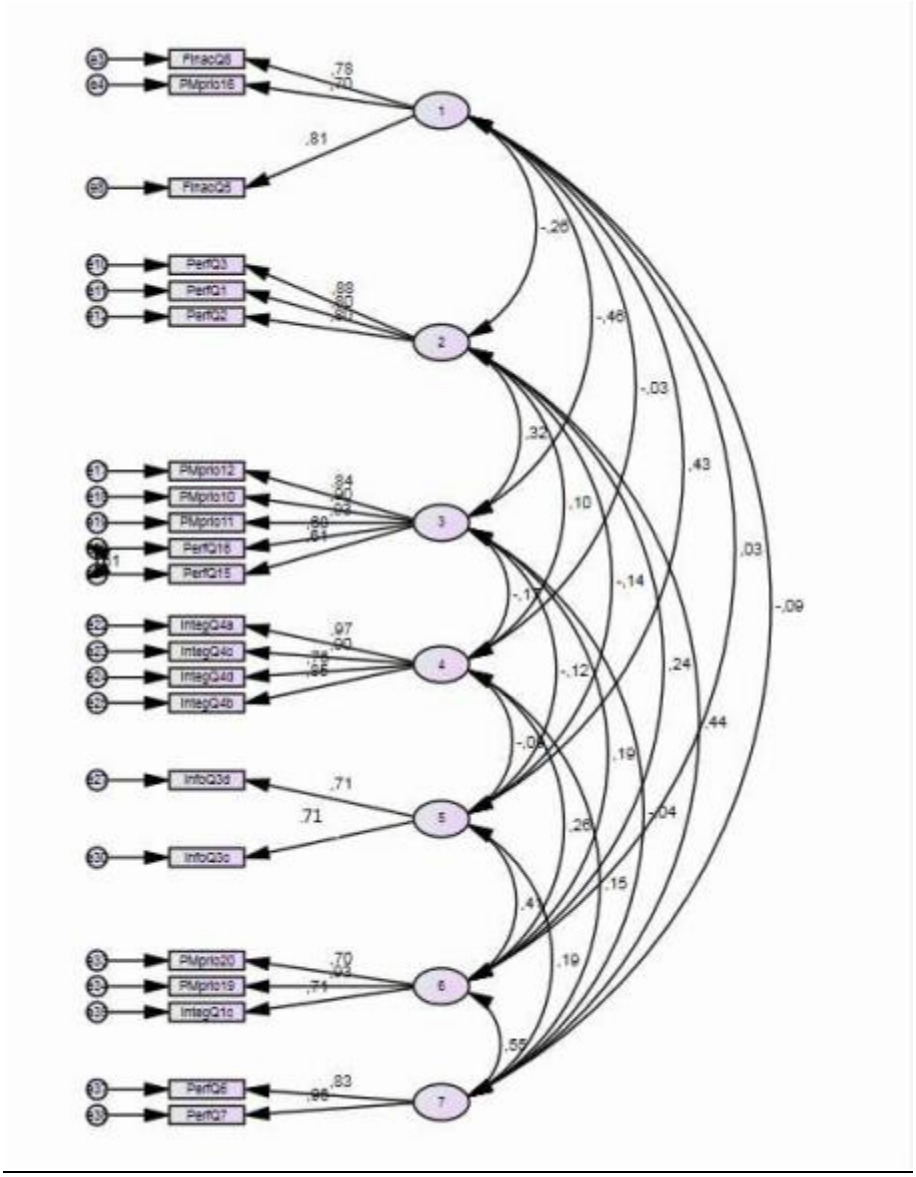


Table 5.5.2 shows the basic comparison with the final model. The most important is the CFI index is index adjustment. Also shown in Table 5.5.3, the RMSEA index also adjustment index. The range of the comparative suitability index (CFI) in the range of

0 (meaning no adjustment) to 1 (which means excellent adaptation). The CFI values above 0.9 indicate a very good fit.

Table 5.5.2

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.866	.826	.915	.888	.914
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Table 5.5.3

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.086	.075	.098	.000
Independence model	.258	.249	.267	.000

The price index is 0.914 CFI and RMSEA index is 0.086. As we can see from the above two tables the values of the indices are within acceptable limits so we conclude that the adaptation of our model to our data is very good.

Table 5.5.4 shows the regression weights for standard estimation of our model.

Table 5.5.4

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
FinacQ8	<---	1	,8
PMprio16	<---	1	,7
FinacQ5	<---	1	,8
PerfQ3	<---	2	,9
PerfQ1	<---	2	,8
PerfQ2	<---	2	,8
PMprio12	<---	3	,8
PMprio10	<---	3	,9
PMprio11	<---	3	,9
PerfQ16	<---	3	,7
PerfQ15	<---	3	,6
IntegQ4a	<---	4	,9
IntegQ4c	<---	4	,9
IntegQ4d	<---	4	,8

			Estimate
IntegQ4b	<---	4	,8
InfoQ3d	<---	5	,7
InfoQ3c	<---	5	,7
PMprio20	<---	6	,7
PMprio19	<---	6	,9
IntegQ1c	<---	6	,7
PerfQ6	<---	7	,8
PerfQ7	<---	7	,9

Table 5.5.5 shows the co variances factors and Table 5.5.6 correlations

Table 5.5.5

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
1	<-->	2	-,2	,2	-1,5	,1	par_16
1	<-->	3	-,6	,2	-2,5	,0	par_17
1	<-->	4	,0	,2	-,2	,8	par_18
1	<-->	5	,6	,2	2,5	,0	par_19
1	<-->	6	,0	,2	,2	,8	par_20
1	<-->	7	-,1	,2	-,6	,6	par_21
2	<-->	3	,3	,2	1,9	,1	par_22
2	<-->	4	,1	,2	,7	,5	par_23
2	<-->	5	-,1	,2	-,9	,4	par_24
2	<-->	6	,2	,1	1,4	,2	par_25
2	<-->	7	,4	,1	2,5	,0	par_26
3	<-->	4	-,2	,2	-1,1	,3	par_27

			Estimate	S.E.	C.R.	P	Label
3	<-->	5	-,2	,2	-,8	,4	par_28
3	<-->	6	,2	,2	1,2	,2	par_29
3	<-->	7	,0	,2	-,3	,8	par_30
4	<-->	5	-,1	,2	-,6	,5	par_31
4	<-->	6	,3	,2	1,6	,1	par_32
4	<-->	7	,2	,2	1,0	,3	par_33
5	<-->	6	,4	,2	2,4	,0	par_34
5	<-->	7	,2	,2	1,2	,2	par_35
6	<-->	7	,5	,2	2,7	,0	par_36
e20	<-->	e21	1,0	,3	3,5	***	par_37

Table 5.5.6

Correlations: (Group number 1 - Default model)

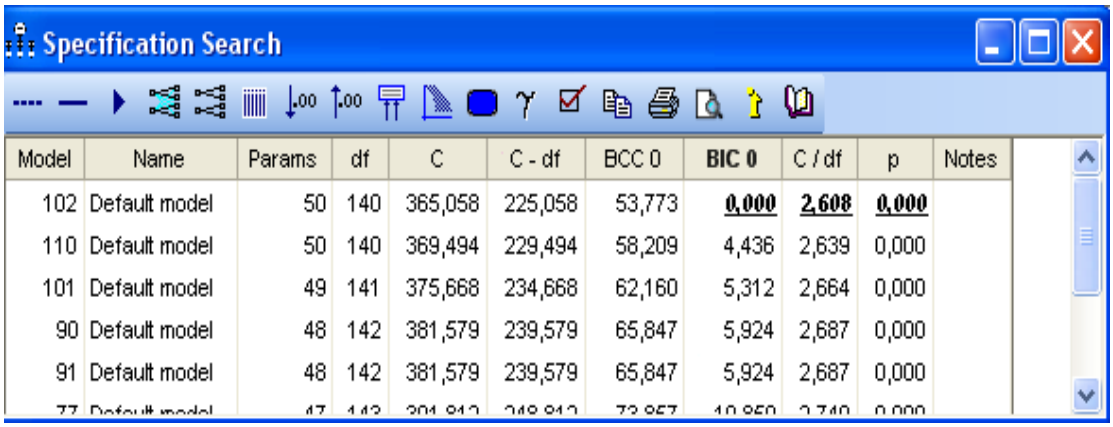
			Estimate
1	<-->	2	-,3
1	<-->	3	-,5
1	<-->	4	,0
1	<-->	5	,4
1	<-->	6	,0
1	<-->	7	-,1
2	<-->	3	,3
2	<-->	4	,1
2	<-->	5	-,1
2	<-->	6	,2
2	<-->	7	,4
3	<-->	4	-,2
3	<-->	5	-,1
3	<-->	6	,2

			Estimate
3	<-->	7	,0
4	<-->	5	-,1
4	<-->	6	,3
4	<-->	7	,2
5	<-->	6	,4
5	<-->	7	,2
6	<-->	7	,6
e20	<-->	e21	,6

The next and final step will be the determination of the final SEM model for competitive advantages with proper use and application of supply chain performance. By using the search specifications (specification search) of AMOS the model will reach the best fit criteria. To do this initially define a model in which all other factors result in factor 1 and simultaneously starting factor 3, factor 6 and factor 7 are joined all together. The program will now run all possible paths provide the model with the best results.

Table 5.5.7 pin points that the model number 102 has the best value in the BIC criterion and criterion C / df. Figure 5.5.5 shows the format that has the particular model is the recommended model for the supply chain.

Table 5.5.7



Model	Name	Params	df	C	C - df	BCC 0	BIC 0	C / df	p	Notes
102	Default model	50	140	365,058	225,058	53,773	**0,000**	**2,608**	**0,000**	
110	Default model	50	140	369,494	229,494	58,209	4,436	2,639	0,000	
101	Default model	49	141	375,668	234,668	62,160	5,312	2,664	0,000	
90	Default model	48	142	381,579	239,579	65,847	5,924	2,687	0,000	
91	Default model	48	142	381,579	239,579	65,847	5,924	2,687	0,000	

Figure 5.5.5

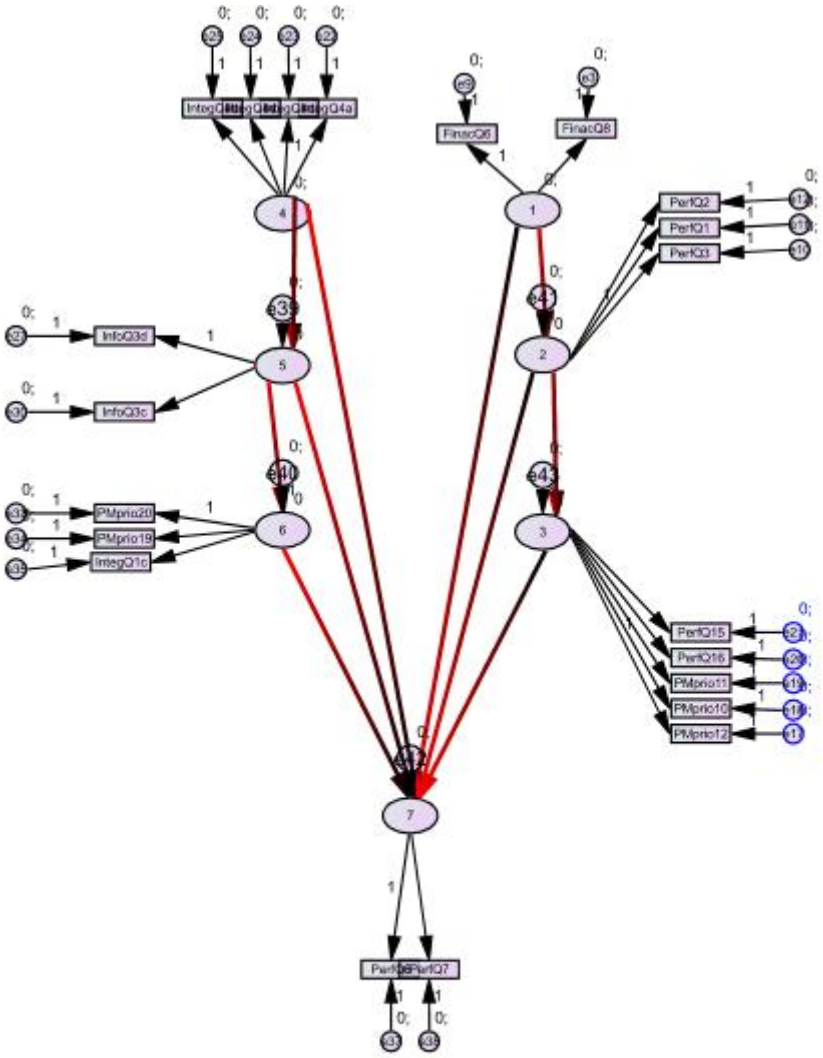
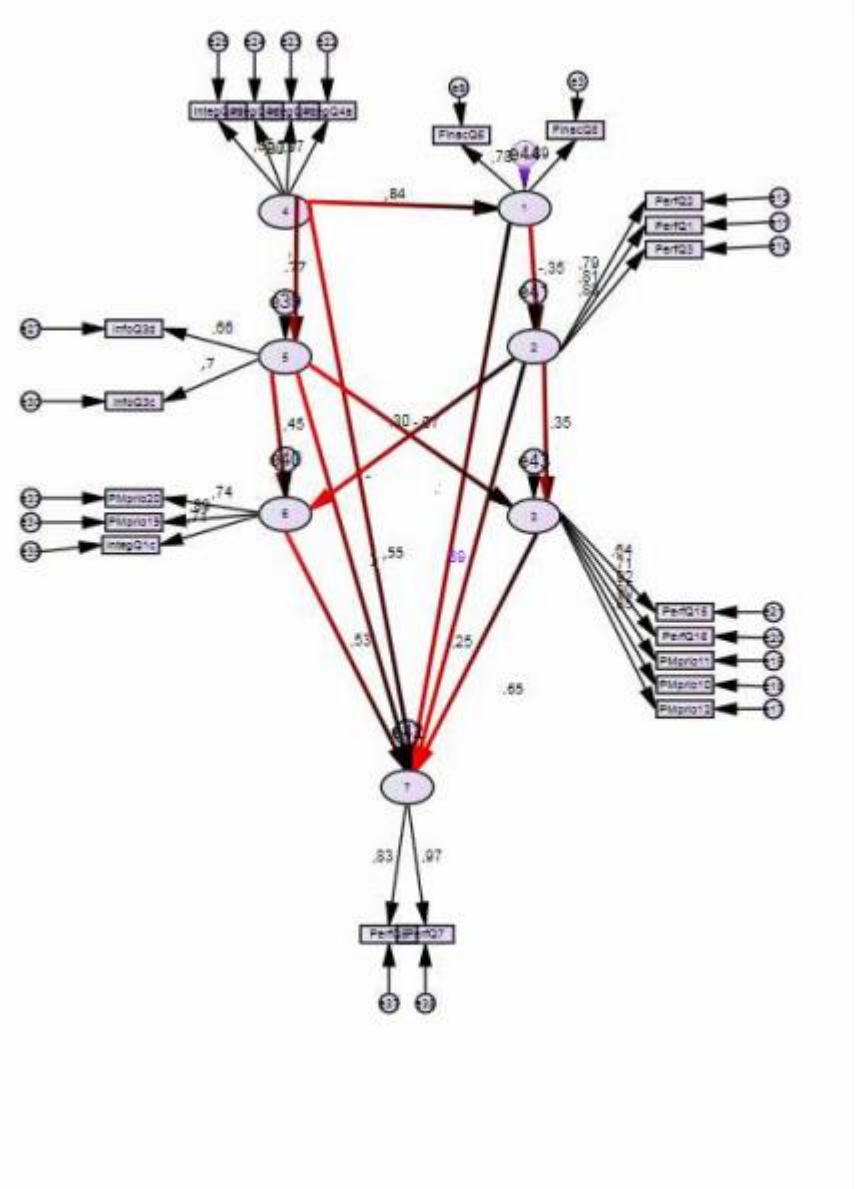

FinacQ6
FinacQ8
PerfQ2
PerfQ1
PerfQ3
InfoQ3d
InfoQ3c
PMprio20
PMprio19
IntegQ1c
PerfQ15
PerfQ16
PMprio11
PMprio10
PMprio12
PerfQ7

Figure 5.5.6.6 shows the standardized estimates of the proposed model for the supply chain.

Figure 5.5.6



Chapter 6: Conclusions

6.1 Discussion over findings

The aim of this thesis was to investigate the Greek supply chain and to develop competitive advantages over the existing strategies in order to enhance performance. So the results has shown that performance in Greek region is been enhanced by various things on its way to perfection.

To achieve this goal initially a large theoretical framework was created around the dimensions of the supply chain, based on the literature, consisting of a large number of dimensions and criteria that evaluate the aspects of the supply chain worldwide. Then a questionnaire was created by a group of people and distributed across the globe in order to evaluate the supply chain worldwide and to achieve a better knowledge for the co-operating managers. When a satisfactory number of questionnaires was achieved, the data were imputed in the statistical package SPSS (version 21)-AMOS.

The results of the treatment gave answers to a series of theoretical assumptions that had been made and revealed critical criteria and dimensions that must be present in any supply chain in order to achieve a high level of performance.

The results of the seven cases that had been preceded with the method of the analysis of variance of two factors will be presented.

- The view that the possession of better information between the buyer and the supplier does not depend on the years of experience of the respondent and the size of the department(H1)

The results of the analysis showed that possession of better information dependent on the years of experience of the manager and that the size of the department has a medium impact on such an action. A logical and valid conclusion since as the manager has more experience he has a better network to gather information and more colleagues that could provide him with excellent information. On the other hand the fact that size of the department does not play a significant role is something

remarkable and noticeable since the more people cooperates the more information can be acquired.

- The view that following academic research does not depends on the years of experience of the respondent and the size of the department(H2)

Its seems that the second hypothesis led to an astonishing result since professionals do not interested must for academic research even if they are willing to participate. A fact that leads to the conclusion that academic research should have more practical use for the supply chain managers than they have today. Important also is the fact that big sized departments do not have any use for academic research since the results have shown no significance between them.

- The view that the major suppliers contribute to cost/quality improvements does not depend on the years of experience of the respondent and the size of the department (H3)

The findings have shown that the size of the department plays significant role on improving cost quality issues. A finding that leads to the conclusion that the bigger the size of the supply chain department the bigger the need for downsizing costs and present better quality products to your customers. On the other hand an experienced manager does not play significant role on such an action. As it was expected big sized companies with big supply chain departments are interested to such actions and lead their suppliers to evolve with them.

- The view that same goals between buyer and supplier does not depend on the years of experience of the respondent and the size of the department (H4)

As it was expected on this assumption both our variables had great significant on sharing goals with the suppliers. The fact is that large corporations always share goals with their supplier since teamwork always pays out. Even further the size of the department helps to coordinate such actions between corporations and under the umbrella of an experienced manager such actions always provide the same results.

- The view that research for potential suppliers does not depend on the years of experience of the respondent and the size of the department (H5)

Here the unexpected happened. The fact that the size of the department is irrelevant with the research of potential suppliers is a remarkable thing. It was expected that the bigger the size more potentials are created to find new suppliers and to create strong relationships with them. On the other hand, as it was expected, an experienced manager is a useful tool on such a difficult task since he is able to use his connection network to find the most trustworthy suppliers and to build a long term relationship with them.

- The view that the low inventory stock does not depend on the years of experience of the respondent and the size of the department(H6)

It has been show that the size of the department does not play any role on the low inventory stock of the Greek corporations. It seems that Greek companies make great use of their capital by using Just in Time procedures. That can be easily concluded by the fact that the experience of the manager pays a significant role. It would be easily understand that manager responsible for the stock needs a great experience in order to avoid wrong use of the capital of the corporation and to avoid having back fire orders and dissatisfied customers.

- The view that the enforcement of a code of conduct does not depend on the years of experience of the respondent and the size of the department(H7)

On this hypothesis it was tested if the experience and the size plays significant role on imposing code of conduct. Results have shown that both cases play little role on such an action. The fact is that the experience of the managers plays a little role but does not seem to be a great one. A finding that it was surprising since there is a code of ethics that supplier managers should follow in order to achieve perfection at their work. Moreover it is common belief that socialization between people always helps people not to impose but to use and pass codes on their interaction easier. But it seems that it does not matter if the department is big or small in order to impose rules that are connected with the society.

Following the discussion of the conclusions referring to the results obtained by processing the data using the method of factors analysis (factor analysis) by the use of the SPSS and AMOS program. The purpose of this analysis was to establish a small comprehensive model consisting of the most important dimensions and parameters for creating a successful supply chain will be able to provide competitive advantages in business. So, after the analysis of a large number of variables and dimensions, seven critical factors-dimensions were emerged and those are the ones that are need in order to have high performance.

These seven factors emerged from the AMOS program through the use of two adjustment indicators, the comparative suitability index (CFI) and the index of the root mean square of the estimation error (RMSEA). For both indicators the values of our model were within the permissible limits. The seven critical factors-dimensions are:

- Factor 1: Financial exposure
- Factor 2: Durability-reliability
- Factor 3: Evolvement
- Factor 4: Integration
- Factor 5: Information sharing

- Factor 6: Codes
- Factor 7: Productivity

The first factor demonstrates that the best two practices of financial exposure in order to achieve high performance in Greek region are vendor management and reverse factoring. Mostly the research has shown that vendor management is a good strategy for Greek companies to achieve high performance. Many companies do use that in order to prevent any stock outs. This research not only implies that all Greek companies should use it but also to enhance it in order to achieve high quality in their supply chain. In order to do something like that, the companies could proceed to more synergies so they could have safe stocks and to better quality products and components. Another important aspect of this could be the fact that new synergies could provide financial safety and seamless row of products or information.

Reverser factoring is another aspect of financial exposure that could assist Greek companies to achieve their goals and high performance. It is true that reverse factoring could provide a good founding for the smaller companies. Even though those most Greek companies do not use reverser factoring, research has shown that it is a great tool for them to achieve high quality services and to proceed to high performance.

The second refers to the products that the suppliers are delivering to the companies and what it is important in order to achieve high quality. The second factor pinpoints only the fact that Greek companies should provide high quality products or to be more specific to add value to their products and services. It is common to see Greek products not having any add value. Most of Greek companies see the market as it was years ago and that should change in order to achieve high performance. It is correct to say that Greek companies are trying to achieve high quality products such as the German production activity.

The third one has to do with the evolution of the products or services. It seems that Greek companies try to evolve or need to do that in order to achieve high quality and performance.

The four refers to integration between companies and how this can affect their long term relationship. The fact is that Greek companies do not seem to try integration even thought that research has shown that it can provide a good business model for their involvement at the global environment.

Factor five has to do with the information that are been shared between the companies in order to achieve various results and targets. Basically most Greek companies do not share information with each other but the professionals do. That should change in order to achieve a high quality performance and to achieve a better standing at global environment.

Six is relevant with the codes that are been set up either by the public opinion or companies themselves. Another aspect of the research is the codes or the norms that are applied. The Greek companies do not seem to pay attention to the norms or regulations opposed to them. But the fact is that following those norms could provide a high quality of performance.

Lastly, the seven refers to the productivity of the department and its people since when it comes to supply chain departments people are the assets of the company and not the machinery. Even thought Greek companies are trying to evolve at this part it seems that the old generations still culminate. The research has shown that new professionals are trying to evolve the productivity of their department and to add value to their productivity.

The proposed supply chain model as it emerged from the analysis using the AMOS program shown in Figure 5.5.6.The figure shows how the factors are connected to each other. It is noticeable that most of the factors have positive correlation between them.

The start point of the model is factor four "integration". It has positive affection on both financial exposure and information sharing. Fact that helps enhance the performance since it can minimize all possible problems that might occur. On the other hand it seems to be negative correlated with productivity.

Moving on to factor financial exposure which is positive correlated with durability-reliability and productivity. It seems that financial exposure to suppliers can enhance those two sensitive sections of the company and to reach high performance as a whole supply chain.

Durability-reliability seems to have positive effect on productivity, evolvement and codes. It seems that if quality is achieved new paths for the supply chain can be opened including the use of codes and the evolvement of the products themselves.

Information sharing on the hand provides good positive effect on imposing codes and enhancing productivity. It seems that the more information a company shares can achieve better productivity and to impose similar codes and rules to all its suppliers.

Ending codes and evolvement also are positive correlated with productivity meaning that rules and evolution of products and services can enhance supply chain productivity.

The model could provide a good benchmarking for Greek companies in order to coach their own model of performance and to achieve higher level of performance. Even thought research might not have any practical application on Greek business, Greek companies should use it as a tool in order to improve their overall performance. The fact that a conceptual model could be created is evidence that it could be used in reality and has practical usage. Greek companies should start

thinking a way to emerge thought-out the crisis by using more advance tools and innovations.

Research also provides insight for managers in order to improve their status against the new data that are been starting to arise throughout Europe and especially in Greek region. Moreover research shows that managers should not change field because the accumulation of knowledge and experience could take years and deprive them with a better usage of their experience.

Research also connects theory with business practices since it provides a good benchmarking for Greek companies in order to involve and participate at global environment. It provides a way for them to change completely their culture towards founding and improving their integration towards a common future.

Understanding how Greek companies are being influenced by global changes gave the opportunity to provide them with a model that is workable and easily applicable to a market that is rapidly chaining.

6.2 Limitations and disadvantages of the research

Although there was an extensive try to reach as many companies as possible as the target group, many did not response at all. One important limitation is that the number of companies surveyed is relatively small for the existing number of enterprises that exist in Greece and have a supply chain. Moreover most of them do not know or use any of the practices that were refers at the questionnaire.

A second limitation was the fact that there is no knowledge of the managers that answered the questionnaire even thought it was tried by the team to have senior managers fill in the questionnaire, it cannot be certain that those had the adequate knowledge to answer it.

Finally, the fact that the questionnaire was answered at a trouble financial time for Greece could easily change the results and the practices that the managers follow in order to survive in such crisis. Moreover it is believed that because of the capital controls imposed at Greece that time can easily changed the methods that the managers change in order to achieve high performance at their supply chain.

6.3 Suggestions for future research

Future research can be done more in this area is directly linked to the aforementioned limitations. That could become a much more extensive research on all businesses located in our country and have a logistics department so that the conclusions do not be questionable in any way. Moreover the same research it should be conducted in

more stable conditions for the economy life of Greece in order to demonstrate how Greek companies are facing such crisis.

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Annex

Table 5.1.1

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Our_company_has_very_modern_working_facilities	,173	15	,200*	,909	15	,132
Our_company_has_excellent_catering_facilities	,201	15	,105	,940	15	,386
Interactions_withheadquarters_to_acquire_new_knowledge	,213	15	,066	,919	15	,184
We_collect_industry_information_through_informal_means	,239	15	,021	,892	15	,072
We_rarely_visit_other_departments_in_our_company	,258	15	,008	,881	15	,049
Special_meetings_with_customers_to_acquire_new_knowledge	,203	15	,099	,929	15	,262
Employees_regularly_approach_external_third_parties	,209	15	,076	,910	15	,134
We_slow_recongnize_shifts_in_our_company_customers_markets	,272	15	,004	,870	15	,034
New_opportunities_to_serve_our_clients_are_quickly_understood	,225	15	,040	,881	15	,050
We_understand_quickly_the_demands_of_our_clients	,222	15	,045	,916	15	,165
External_market_demands_in_terms_of_new_products_and_services	,276	15	,003	,872	15	,037
Employees_record_and_store_newly_acquired_knowledge	,221	15	,047	,946	15	,470
Recognizes_the_value_of_new_external_ideas_to_existing_knowledge	,297	15	,001	,860	15	,024
Employees_hardly_share_practical_experience	,261	15	,007	,835	15	,011
We_are_slow_to_grasp_opportunities_of_external_knowledge	,281	15	,002	,881	15	,049

Meets_to_discuss_consequences_of_market_trends	,168	15	,200*	,943	15	,420
Internal_customers_are_not_listened_by_our_department	,273	15	,004	,829	15	,009
Clear_division_of_roles_and_responsibilities	,284	15	,002	,796	15	,003
We_constantly_consider_how_to_better_exploit_knowledge	,258	15	,008	,881	15	,049
Difficulty_contributing_to_new_products_and_services	,270	15	,004	,876	15	,042
Common_language_regarding_our_companys_products	,297	15	,001	,865	15	,028
Use_certain_operating_practices_mandated_by_them	,244	15	,017	,866	15	,030
Adopt_certain_practices_or_initiatives	,300	15	,001	,873	15	,038
if_our_firm_does_not_meet_their_requests_to_adopt_practices	,158	15	,200*	,908	15	,128
Regulations_imposed_on_industry_have_also_impact_procedures	,208	15	,080	,900	15	,096
Government_regulation_impacts_our_purchasing_decision_making	,194	15	,133	,843	15	,014
Frequent_government_inspections_onpractices_to_comply_with_laws	,213	15	,067	,919	15	,188
Parent_company_sets_strict_guidelines_for_purchasing_procedures	,284	15	,002	,802	15	,004
Implemented_procedures_in_response_to_what_competitors_do	,218	15	,052	,845	15	,015
Attention_to_the_tools_used_by_competitors	,192	15	,141	,903	15	,107
Attention_to_tools_that_appear_to_benefit_our_peers	,194	15	,133	,905	15	,113
Imitate_practices_of_competitors_that_serve_the_same_clients	,205	15	,091	,882	15	,052
Benchmark_the_practices_and_performance_of_our_main_and_peers	,297	15	,001	,865	15	,028
Employees_use_tools_they_learned_during_their_education	,324	15	,000	,830	15	,009
Employees_use_the_tools_advocated_by_the_national_association	,206	15	,087	,867	15	,030
Employees_in_our_industry_are_trained_to_use_similar_procedures	,278	15	,003	,836	15	,011

Academic_research_on_purchasing	,179	15	,200*	,908	15	,126
Procedures_are_influenced_by_exhibitions	,206	15	,087	,905	15	,113
Certain_procedures_are_becoming_a_norm_within_our_industry	,214	15	,063	,930	15	,276
Our_investment_in_dedicated_personnel_specific_to_suppliers	,258	15	,008	,881	15	,049
Our_investment_in_dedicated_facilities_to_suppliers	,257	15	,009	,871	15	,035
Dropping_a_supplier_redeploying_would_be_difficult	,214	15	,063	,925	15	,227
Non_recoverable_investments_abandoning_a_major_supplier	,255	15	,010	,791	15	,003
Dedicated_personnel_specified_for_our_company	,255	15	,009	,871	15	,035
Suppliers_investment_in_dedicated_personnel_specific_to_us	,281	15	,002	,865	15	,029
Major_suppliers_investment_in_dedicated_facilities_to_us	,274	15	,003	,796	15	,003
Major_suppliers_abandoning_our_company_difficulty_in_redeploying	,300	15	,001	,837	15	,011
Major_suppliers_abandoning_us__non_recoverable_investments	,191	15	,147	,924	15	,220
The_uncertainty_of_suppliers_meeting_requirements	,205	15	,090	,854	15	,020
The_uncertainty_of_suppliers_quality_in_delivered_products	,195	15	,128	,896	15	,082
The_uncertainty_of_suppliers_accuracy_in_delivering_products	,270	15	,004	,882	15	,050
The_uncertainty_of_suppliers_timeliness_in_delivering_products	,193	15	,138	,888	15	,063
The_uncertainty_of_prices_from_suppliers_for_this_category_is	,208	15	,081	,932	15	,293
The_category_spending_compared_to_other_categories_is	,232	15	,029	,846	15	,015
The_impact_of_this_category_on_the_company_product_quality_is	,227	15	,036	,842	15	,014
The_impact_of_this_category_on_the_company_business_growth_is	,407	15	,000	,725	15	,000

Possession_of_information_regarding_the_supply_relationship	,288	15	,002	,816	15	,006
Certain_of_the_performance_potential_for_the_product	,287	15	,002	,847	15	,016
Familiar_technically_with_the_work_needed_to_make_this_product	,184	15	,183	,867	15	,030
Understands_impacts_of_external_factors_on_supplier_activities	,427	15	,000	,592	15	,000
Understanding_of_what_can_be_achieved_in_this_relationship	,473	15	,000	,525	15	,000
Fluctuationing_in_the_volume_required_by_internal_customers	,283	15	,002	,801	15	,004
Fluctuationing_at_specifications_required_by_internal_customers	,301	15	,001	,722	15	,000
Fluctuationing_at_the_mix_required_by_internal_customers	,269	15	,005	,841	15	,013
Demand_from_internal_customers_is_difficult_to_forecast	,334	15	,000	,705	15	,000
The_technology_changes_frequently_for_this_category	,242	15	,018	,782	15	,002
Life_cycles_are_short_for_this_category	,140	15	,200*	,945	15	,445
New_products_for_this_category_are_frequently_developed	,200	15	,107	,900	15	,094
This_category_is_often_unavailable_from_suppliers	,206	15	,086	,908	15	,125
There_are_few_alternative_suppliers_for_this_category	,173	15	,200*	,897	15	,084
Many_other_companies_buy_this_category	,221	15	,048	,865	15	,029
Experience_an_interruption_in_the_supply_from_suppliers	,282	15	,002	,885	15	,057
Probability_that_suppliers_will_fail_to_supply_this_category	,234	15	,026	,903	15	,107
Worries_of_unspecified_products_from_supplier	,213	15	,066	,919	15	,184
An_interruption_from_suppliers_would_raise_internal_costs	,282	15	,002	,885	15	,057
Suppliers_inability_would_jeopardize_our_business_performance	,235	15	,026	,895	15	,079

Losses_in_sales_if_suppliers_failed_to_supply_this_category	,205	15	,091	,882	15	,052
Sharing_the_same_goals_in_our_relationships	,282	15	,002	,885	15	,057
Compatible_goals	,205	15	,090	,854	15	,020
Support_each_other_goals	,160	15	,200*	,944	15	,442
Compatible_views_on_how_to_achieve_our_goals	,288	15	,002	,858	15	,022
Suppliers_have_tried_to_deceive_us_on_several_occasions	,250	15	,012	,850	15	,017
Suppliers_of_this_category_act_to_benefit_at_our_expense	,149	15	,200*	,936	15	,333
Major_suppliers_of_this_category_are_open_in_dealing_with_us	,211	15	,072	,886	15	,057
Major_suppliers_of_this_category_lack_integrity	,253	15	,011	,868	15	,031
Features_and_functionality_of_purchased_products_or_services	,180	15	,200*	,881	15	,049
Durability_of_purchased_products_or_services	,216	15	,057	,850	15	,017
Reliability_of_purchased_products_or_services	,277	15	,003	,823	15	,007
Fit_between_purchasing_specifications_and_purchased_products	,286	15	,002	,840	15	,013
Efficacy_of_suppliers_in_attending_to_our_complaints	,212	15	,068	,817	15	,006
Labour_productivity_in_the_purchasing_department	,274	15	,003	,796	15	,003
Productivity_of_purchasing_resources	,328	15	,000	,803	15	,004
Low_cost_of_purchases	,296	15	,001	,754	15	,001
Low_inventory_levels	,358	15	,000	,785	15	,002
Short_internal_order_processing_times	,260	15	,007	,864	15	,028
Short_delivery_times_by_suppliers	,202	15	,101	,885	15	,056
Fulfilment_of_agreed_schedules_by_suppliers	,219	15	,052	,888	15	,063
Fulfilment_of_agreed_delivery_terms_by_supplies	,234	15	,027	,891	15	,070
Supplier_flexibility_to_adapt_capacity_to_our_needs	,234	15	,027	,840	15	,012
Widening_the_range_of_product_options_offered_by_our_suppliers	,150	15	,200*	,960	15	,692

Capability_of_customization_of_the_products	,253	15	,011	,899	15	,091
Supplier_rate_of_introduction_of_new_products	,283	15	,002	,822	15	,007
Supplier_ability_to_meet_agreed_environmental_performance_goals	,329	15	,000	,825	15	,008
Ensuring_that_purchased_products_contain_green_attributes	,329	15	,000	,825	15	,008
Purchased_products_environmentally_undesirable_substance	,206	15	,087	,836	15	,011
Enforcement_of_a_code_of_conduct_for_suppliers	,318	15	,000	,787	15	,002
Independent_audits_of_ethical_performance_of_suppliers	,188	15	,161	,924	15	,224
Ethical_and_social_mandates_than_required_in_host_countries	,212	15	,069	,917	15	,175
Strategy_is_aligned_with_the_overall_purchasing_strategy	,192	15	,141	,926	15	,235
Defined_strategic_objectives_for_the_purchase_category	,214	15	,062	,859	15	,023
Our_category_strategy_is_based_on_existing_capabilities	,237	15	,023	,912	15	,143
Strategy_is_clearly_communicated_to_all_category_personnel	,305	15	,001	,833	15	,010
Category_strategy_is_frequently_reviewed_and_revised	,352	15	,000	,809	15	,005
Responsiveness_within_us_to_meet_other_departments_needs	,228	15	,034	,896	15	,082
Integrated_information_system_across_functional_areas	,203	15	,099	,929	15	,262
Emphasis_on_information_exchange_among_departments	,200	15	,110	,868	15	,032
Joint_planning_with_major_customers_to_anticipate_demand	,253	15	,011	,889	15	,064
Customers_directly_inform_our_procurement_processes	,317	15	,000	,838	15	,012
Direct_involvement_in_the_formulation_of_specifications	,165	15	,200*	,916	15	,169
Share_cost_information_with_major_suppliers	,264	15	,006	,817	15	,006

Cost_information_sharing_with_suppliers_in_this_category	,294	15	,001	,902	15	,100
Contribution_to_cost_quality_improvement_by_suppliers	,279	15	,003	,895	15	,079
Real_time_production_schedule_information_with_suppliers	,336	15	,000	,830	15	,009
Supplier_involvement_in_product_design	,234	15	,026	,844	15	,014
Research_into_potential_suppliers_for_this_category	,194	15	,133	,843	15	,014
Supplier_selection_for_this_category	,269	15	,005	,774	15	,002
Negotiation_and_contracting_for_this_category	,206	15	,087	,776	15	,002
Supplier_evaluation_and_follow_up_for_this_category	,234	15	,027	,891	15	,070
We_monitor_product_quality_for_suppliers	,228	15	,034	,896	15	,082
Monitor_delivery_timeliness_for_suppliers	,336	15	,000	,757	15	,001
Monitor_order_accuracy_for_suppliers_of_this_category	,306	15	,001	,846	15	,015
We_evaluate_the_procedures_used_by_major_suppliers	,212	15	,069	,897	15	,087
Regular_audits_into_internal_operations_of_suppliers	,199	15	,114	,892	15	,071
Regular_site_visits_to_premises_of_suppliers	,226	15	,037	,896	15	,082
The_contract_drawn_up_with_suppliers_rewards_quality	,207	15	,082	,936	15	,331
Contracts_with_suppliers_rewards_reduction_in_delivery_time	,172	15	,200*	,925	15	,230
Contracts_with_suppliers_rewards_for_respecting_delivery_times	,314	15	,000	,868	15	,032
Systematic_identification_of_sources_for_such_disruptions	,138	15	,200*	,949	15	,509
Assessment_of_both_our_own_risks_and_risks_of_major_suppliers	,211	15	,071	,908	15	,126
Individuals_responsible_for_the_management_of_such_risks	,167	15	,200*	,931	15	,279
Monitoring_of_developments_that_might_promote_such_disruptions	,248	15	,014	,876	15	,041
Multiple_sources_of_supply_for_this_category	,259	15	,008	,842	15	,014

Capacity_exists_to_deal_with_unplanned_increases_in_demand	,214	15	,063	,930	15	,276
Supply_continuity_contingency_plans_for_this_category	,246	15	,015	,903	15	,106
Suppliers_report_all_supply_disruptions_irrespectively	,199	15	,114	,892	15	,071
Suppliers_hold_inventory_for_us_to_prevent_stockouts	,209	15	,076	,881	15	,050
Acquisition_of_a_supplier	,217	15	,056	,863	15	,027
Joint_venture_with_a_supplier	,314	15	,000	,786	15	,002
Minority_interests_in_a_supplier	,200	15	,111	,867	15	,030
Improving_payment_terms_for_suppliers	,314	15	,000	,776	15	,002
Loans_to_suppliers	,339	15	,000	,707	15	,000
Reverse_factoring	,367	15	,000	,720	15	,000
Profit_and_revenue_sharing_with_suppliers	,225	15	,040	,902	15	,104
Vendor_managed_inventory_Consignment_stock	,197	15	,121	,869	15	,033
Options_and_futures	,253	15	,011	,897	15	,084
Selection_using_criteria_that_include_environmental_dimensions	,373	15	,000	,769	15	,001
Suppliers_are_adhered_to_certain_environmental_standards	,297	15	,001	,803	15	,004
Audit_major_suppliers_on_environmental_dimensions	,363	15	,000	,793	15	,003
Purchased_products_are_designed_to_meet_environmental_objectives	,235	15	,025	,902	15	,104
Suppliers_are_involved_in_environmental_research_and_development	,199	15	,114	,850	15	,018
Environmental_training_and_information_to_major_suppliers	,255	15	,009	,871	15	,035
Suppliers_are_selected_using_ethical_social_critiria	,216	15	,059	,870	15	,034
Suppliers_adhere_to_certain_ethical_and_social_standards	,282	15	,002	,854	15	,020
Audit_suppliers_on_ethical_social_dimensions	,199	15	,115	,878	15	,045
Training_and_information_to_suppliers_on_ethics_responsibility	,257	15	,009	,886	15	,059

Suppliers_processes_are_required_to_meet_ethical_objectives	,169	15	,200*	,906	15	,116
Suppliers_are_involved_in_dialogue_for_ethical_issues	,343	15	,000	,771	15	,002
Features_and_functionality_of_purchased_products_or_services2	,252	15	,011	,855	15	,020
Durability_of_purchased_products_or_services2	,287	15	,002	,783	15	,002
Reliability_of_purchased_products_or_services2	,326	15	,000	,749	15	,001
Purchasing_specifications_and_purchased_products	,242	15	,018	,828	15	,009
Efficacy_of_suppliers_in_attending_to_our_complaints2	,276	15	,003	,816	15	,006
Labour_productivity_in_the_purchasing_department2	,276	15	,003	,816	15	,006
Productivity_of_purchasing_resources2	,412	15	,000	,629	15	,000
Low_cost_of_purchases2	,332	15	,000	,829	15	,009
Low_inventory_levels2	,322	15	,000	,768	15	,001
Short_internal_order_processing_times2	,382	15	,000	,620	15	,000
Short_delivery_times_by_suppliers2	,345	15	,000	,709	15	,000
Fulfilment_of_agreed_schedules_by_suppliers2	,470	15	,000	,520	15	,000
Fulfilment_of_agreed_delivery_terms_by_suppliers2	,345	15	,000	,709	15	,000
Supplier_flexibility_to_adapt_capacity_to_our_needs2	,212	15	,069	,917	15	,175
Widening_the_range_of_product_versions_offered2	,369	15	,000	,792	15	,003
Supplier_capability_to_customized_changes_in_products2	,257	15	,009	,898	15	,088
Supplier_rate_of_introduction_of_new_products2	,287	15	,002	,783	15	,002
Supplier_ability_to_meet_agreed_environmental_performance_goals2	,251	15	,012	,798	15	,003
Ensuring_that_purchased_products_contain_green_attributes2	,270	15	,004	,839	15	,012
Products_do_not_contain_environmentally_undesirable_substance2	,336	15	,000	,710	15	,000

Enforcement_of_a_code_of_conduct_for_suppliers2	,361	15	,000	,731	15	,001
Independent_audits_of_ethical_performance_of_suppliers2	,353	15	,000	,728	15	,001
Ethical_and_social_mandates_than_required_in_host_countries2	,353	15	,000	,728	15	,001

Table 5.3.3

Multiple Comparisons

Dependent Variable:
Possession_of_information_regarding_the_supply_relationship
Tukey HSD

(I) Experience	(J) Experience	Mean Difference (I-J)	Std. Error	Sig.	99% Confidence Interval	99% Confidence Interval
					Lower Bound	Upper Bound
1,00	2,00	-,47	,193	,146	-1,13	,18
	3,00	,94*	,241	,002	,12	1,76*
	4,00	-,56	,224	,129	-1,32	,20
	6,00	,94	,420	,223	-,49	2,37
	7,00	2,94*	,579	,000	,98	4,91*
2,00	1,00	,47	,193	,146	-,18	1,13
	3,00	1,41*	,241	,000	,59	2,23*
	4,00	-,09	,224	,999	-,85	,67
	6,00	1,41	,420	,011	-,02	2,84
	7,00	3,41*	,579	,000	1,45	5,38*
3,00	1,00	-,94*	,241	,002	-1,76	-,12*
	2,00	-1,41*	,241	,000	-2,23	-,59*
	4,00	-1,50*	,267	,000	-2,41	-,59*
	6,00	,00	,445	1,000	-1,51	1,51
	7,00	2,00	,597	,011	-,02	4,02
4,00	1,00	,56	,224	,129	-,20	1,32
	2,00	,09	,224	,999	-,67	,85
	3,00	1,50*	,267	,000	,59	2,41*
	6,00	1,50*	,436	,008	,02	2,98*
	7,00	3,50*	,590	,000	1,50	5,50*

	1,00	-,94	,420	,223	-2,37	,49
	2,00	-1,41	,420	,011	-2,84	,02
6,00	3,00	,00	,445	1,000	-1,51	1,51
	4,00	-1,50*	,436	,008	-2,98	-,02*
	7,00	2,00	,689	,045	-,34	4,34
	1,00	-2,94*	,579	,000	-4,91	-,98*
	2,00	-3,41*	,579	,000	-5,38	-1,45*
7,00	3,00	-2,00	,597	,011	-4,02	,02
	4,00	-3,50*	,590	,000	-5,50	-1,50*
	6,00	-2,00	,689	,045	-4,34	,34

Based on observed means.

The error term is Mean Square(Error) = 1,898.

*. The mean difference is significant at the ,01 level.

Table 5.3.6

Multiple Comparisons

Dependent Variable: Academic_research_on_purchasing

Tukey HSD

(I) Experience	(J) Experience	Mean Difference (I-J)	Std. Error	Sig.	99% Confidence Interval	99% Confidence Interval
					Lower Bound	Upper Bound
	2,00	-,23	,174	,764	-,82	,36
	3,00	,74*	,218	,010	,00	1,49*
1,00	4,00	-,88*	,203	,000	-1,57	-,19*
	6,00	-2,14*	,377	,000	-3,43	-,86*
	7,00	-,60	,566	,899	-2,52	1,33
	1,00	,23	,174	,764	-,36	,82
	3,00	,98*	,218	,000	,24	1,72*
2,00	4,00	-,65	,202	,019	-1,33	,04
	6,00	-1,91*	,377	,000	-3,19	-,63*
	7,00	-,36	,566	,988	-2,28	1,56
3,00	1,00	-,74*	,218	,010	-1,49	,00*
	2,00	-,98*	,218	,000	-1,72	-,24*

	4,00	-1,62*	,241	,000	-2,44	-,80*
	6,00	-2,89*	,400	,000	-4,25	-1,53*
	7,00	-1,34	,581	,194	-3,31	,63
	1,00	,88*	,203	,000	,19	1,57*
	2,00	,65	,202	,019	-,04	1,33
4,00	3,00	1,62*	,241	,000	,80	2,44*
	6,00	-1,26	,391	,017	-2,59	,06
	7,00	,28	,575	,996	-1,67	2,24
	1,00	2,14*	,377	,000	,86	3,43*
	2,00	1,91*	,377	,000	,63	3,19*
6,00	3,00	2,89*	,400	,000	1,53	4,25*
	4,00	1,26	,391	,017	-,06	2,59
	7,00	1,55	,657	,176	-,68	3,78
	1,00	,60	,566	,899	-1,33	2,52
	2,00	,36	,566	,988	-1,56	2,28
7,00	3,00	1,34	,581	,194	-,63	3,31
	4,00	-,28	,575	,996	-2,24	1,67
	6,00	-1,55	,657	,176	-3,78	,68

Based on observed means.

The error term is Mean Square (Error) = 1,526.

*. The mean difference is significant at the, 01 level.

Table 5.3.9

Multiple Comparisons

Dependent Variable:
Contribution_to_cost_quality_improvement_by_suppliers
Tukey HSD

(I) Experience	(J) Experience	Mean Difference (I-J)	Std. Error	Sig.	99% Confidence Interval	99% Confidence Interval
					Lower Bound	Upper Bound
	2,00	-,5515	,18690	,040	-1,1860	,0830
1,00	3,00	-,5635	,23661	,166	-1,3668	,2397
	4,00	-,3535	,21802	,585	-1,0936	,3867

	6,00	,7132	,40574	,495	-,6643	2,0906
	7,00	-1,2868	,60861	,283	-3,3530	,7794
2,00	1,00	,5515	,18690	,040	-,0830	1,1860
	3,00	-,0120	,23587	1,000	-,8128	,7888
	4,00	,1981	,21723	,943	-,5394	,9355
	6,00	1,2647	,40531	,024	-,1113	2,6407
	7,00	-,7353	,60832	,832	-2,8005	1,3299
3,00	1,00	,5635	,23661	,166	-,2397	1,3668
	2,00	,0120	,23587	1,000	-,7888	,8128
	4,00	,2101	,26123	,967	-,6768	1,0969
	6,00	1,2767	,43050	,038	-,1848	2,7382
	7,00	-,7233	,62539	,857	-2,8464	1,3999
4,00	1,00	,3535	,21802	,585	-,3867	1,0936
	2,00	-,1981	,21723	,943	-,9355	,5394
	3,00	-,2101	,26123	,967	-1,0969	,6768
	6,00	1,0666	,42057	,117	-,3612	2,4945
	7,00	-,9333	,61859	,659	-3,0334	1,1668
6,00	1,00	-,7132	,40574	,495	-2,0906	,6643
	2,00	-1,2647	,40531	,024	-2,6407	,1113
	3,00	-1,2767	,43050	,038	-2,7382	,1848
	4,00	-1,0666	,42057	,117	-2,4945	,3612
	7,00	-2,0000	,70693	,056	-4,4000	,4000
7,00	1,00	1,2868	,60861	,283	-,7794	3,3530
	2,00	,7353	,60832	,832	-1,3299	2,8005
	3,00	,7233	,62539	,857	-1,3999	2,8464
	4,00	,9333	,61859	,659	-1,1668	3,0334
	6,00	2,0000	,70693	,056	-,4000	4,4000

Based on observed means.

The error term is Mean Square (Error) = 1,764

Table 5.3.12

Multiple Comparisons

Dependent Variable: Sharing_the_same_goals_in_our_relationships

Tukey HSD

(I) Experience	(J) Experience	Mean Difference (I-J)	Std. Error	Sig.	99% Confidence Interval	99% Confidence Interval

					Lower Bound	Upper Bound
1,00	2,00	-,02	,147	1,000	-,52	,48
	3,00	-,21	,184	,858	-,84	,41
	4,00	-,85*	,170	,000	-1,43	-,27*
	6,00	,05	,318	1,000	-1,03	1,13
	7,00	-,45	,437	,909	-1,93	1,03
2,00	1,00	,02	,147	1,000	-,48	,52
	3,00	-,19	,184	,898	-,82	,43
	4,00	-,83*	,169	,000	-1,41	-,26*
	6,00	,07	,317	1,000	-1,01	1,15
	7,00	-,43	,437	,922	-1,91	1,05
3,00	1,00	,21	,184	,858	-,41	,84
	2,00	,19	,184	,898	-,43	,82
	4,00	-,64	,203	,022	-1,32	,05
	6,00	,26	,336	,970	-,88	1,40
	7,00	-,24	,451	,995	-1,77	1,29
4,00	1,00	,85*	,170	,000	,27	1,43*
	2,00	,83*	,169	,000	,26	1,41*
	3,00	,64	,203	,022	-,05	1,32
	6,00	,90	,329	,071	-,22	2,02
	7,00	,40	,445	,947	-1,11	1,91
6,00	1,00	-,05	,318	1,000	-1,13	1,03
	2,00	-,07	,317	1,000	-1,15	1,01
	3,00	-,26	,336	,970	-1,40	,88
	4,00	-,90	,329	,071	-2,02	,22
	7,00	-,50	,520	,930	-2,26	1,26
7,00	1,00	,45	,437	,909	-1,03	1,93
	2,00	,43	,437	,922	-1,05	1,91
	3,00	,24	,451	,995	-1,29	1,77
	4,00	-,40	,445	,947	-1,91	1,11
	6,00	,50	,520	,930	-1,26	2,26

Based on observed means.

The error term is Mean Square(Error) = 1,081.

*. The mean difference is significant at the ,01 level.

Table 5.3.15

Multiple Comparisons

Dependent Variable: Research_into_potential_suppliers_for_this_category

Tukey HSD

(I) Experience	(J) Experience	Mean Difference (I-J)	Std. Error	Sig.	99% Confidence Interval	99% Confidence Interval
					Lower Bound	Upper Bound
1,00	2,00	-,8717*	,17490	,000	-1,4654	-,2780*
	3,00	-,4934	,21959	,220	-1,2388	,2521
	4,00	,4989	,20282	,140	-,1896	1,1874
	6,00	-1,4011*	,37892	,003	-2,6875	-,1148*
	7,00	-,4011	,52119	,972	-2,1705	1,3682
2,00	1,00	,8717*	,17490	,000	,2780	1,4654*
	3,00	,3784	,21855	,512	-,3636	1,1203
	4,00	1,3706*	,20169	,000	,6859	2,0553*
	6,00	-,5294	,37832	,727	-1,8137	,7549
	7,00	,4706	,52076	,945	-1,2972	2,2384
3,00	1,00	,4934	,21959	,220	-,2521	1,2388
	2,00	-,3784	,21855	,512	-1,1203	,3636
	4,00	,9922*	,24147	,001	,1725	1,8120*
	6,00	-,9078	,40094	,212	-2,2689	,4533
	7,00	,0922	,53742	1,000	-1,7322	1,9166
4,00	1,00	-,4989	,20282	,140	-1,1874	,1896
	2,00	-1,3706*	,20169	,000	-2,0553	-,6859*
	3,00	-,9922*	,24147	,001	-1,8120	-,1725*
	6,00	-1,9000*	,39201	,000	-3,2308	-,5692*
	7,00	-,9000	,53079	,536	-2,7019	,9019
6,00	1,00	1,4011*	,37892	,003	,1148	2,6875*
	2,00	,5294	,37832	,727	-,7549	1,8137
	3,00	,9078	,40094	,212	-,4533	2,2689
	4,00	1,9000*	,39201	,000	,5692	3,2308*
	7,00	1,0000	,61982	,590	-1,1041	3,1041
7,00	1,00	,4011	,52119	,972	-1,3682	2,1705
	2,00	-,4706	,52076	,945	-2,2384	1,2972
	3,00	-,0922	,53742	1,000	-1,9166	1,7322
	4,00	,9000	,53079	,536	-,9019	2,7019

	6,00	-1,0000	,61982	,590	-3,1041	1,1041

Based on observed means.

The error term is Mean Square(Error) = 1,537.
*. The mean difference is significant at the ,01 level.

Table 5.3.20

Multiple Comparisons

Dependent Variable: Enforcement_of_a_code_of_conduct_for_suppliers
Tukey HSD

(I) Experience	(J) Experience	Mean Difference (I-J)	Std. Error	Sig.	99% Confidence Interval	99% Confidence Interval
					Lower Bound	Upper Bound
1,00	2,00	-,2063	,16727	,820	-,7742	,3615
	3,00	,2859	,21021	,751	-,4277	,9996
	4,00	-,1346	,19513	,983	-,7970	,5278
	6,00	-1,5005*	,36313	,001	-2,7332	-,2677*
	7,00	-,1535	,54470	1,000	-2,0027	1,6956
2,00	1,00	,2063	,16727	,820	-,3615	,7742
	3,00	,4923	,20955	,178	-,2191	1,2037
	4,00	,0717	,19442	,999	-,5883	,7317
	6,00	-1,2941*	,36275	,006	-2,5256	-,0626*
	7,00	,0528	,54445	1,000	-1,7955	1,9011
3,00	1,00	-,2859	,21021	,751	-,9996	,4277
	2,00	-,4923	,20955	,178	-1,2037	,2191
	4,00	-,4206	,23239	,461	-1,2095	,3684
	6,00	-1,7864*	,38445	,000	-3,0915	-,4813*
	7,00	-,4395	,55913	,970	-2,3377	1,4587
4,00	1,00	,1346	,19513	,983	-,5278	,7970
	2,00	-,0717	,19442	,999	-,7317	,5883
	3,00	,4206	,23239	,461	-,3684	1,2095
	6,00	-1,3658*	,37641	,004	-2,6437	-,0880*
	7,00	-,0189	,55364	1,000	-1,8985	1,8606
6,00	1,00	1,5005*	,36313	,001	,2677	2,7332*
	2,00	1,2941*	,36275	,006	,0626	2,5256*
	3,00	1,7864*	,38445	,000	,4813	3,0915*
	4,00	1,3658*	,37641	,004	,0880	2,6437*

	7,00	1,3469	,63270	,275	-,8010	3,4948
	1,00	,1535	,54470	1,000	-1,6956	2,0027
	2,00	-,0528	,54445	1,000	-1,9011	1,7955
7,00	3,00	,4395	,55913	,970	-1,4587	2,3377
	4,00	,0189	,55364	1,000	-1,8606	1,8985
	6,00	-1,3469	,63270	,275	-3,4948	,8010

Based on observed means.

The error term is Mean Square(Error) = 1,413.

*. The mean difference is significant at the ,01 level.

Table 5.4.1.2

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7,903	21,360	21,360	7,903	21,360	21,360
2	4,178	11,293	32,653	4,178	11,293	32,653
3	3,169	8,566	41,219	3,169	8,566	41,219
4	2,627	7,100	48,318	2,627	7,100	48,318
5	2,426	6,557	54,875	2,426	6,557	54,875
6	1,785	4,823	59,698	1,785	4,823	59,698
7	1,533	4,143	63,841	1,533	4,143	63,841
8	1,260	3,404	67,245	1,260	3,404	67,245
9	1,174	3,174	70,419	1,174	3,174	70,419
10	1,104	2,983	73,402	1,104	2,983	73,402
11	1,030	2,785	76,187	1,030	2,785	76,187
12	,928	2,509	78,696			
13	,862	2,330	81,026			
14	,778	2,103	83,129			
15	,678	1,831	84,961			
16	,657	1,777	86,738			
17	,525	1,418	88,156			
18	,507	1,371	89,527			
19	,467	1,262	90,789			
20	,406	1,097	91,886			
21	,392	1,061	92,947			
22	,332	,897	93,844			
23	,302	,816	94,660			

24	,290	,783	95,443			
25	,227	,615	96,058			
26	,210	,567	96,625			
27	,209	,565	97,191			
28	,173	,469	97,659			
29	,155	,419	98,078			
30	,144	,390	98,468			
31	,122	,330	98,798			
32	,115	,310	99,108			
33	,088	,237	99,345			
34	,080	,217	99,562			
35	,060	,161	99,724			
36	,053	,143	99,866			
37	,050	,134	100,000			

Extraction Method: Principal Component Analysis.

Table 5.4.2.2

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9,488	26,355	26,355	9,488	26,355	26,355
2	4,120	11,445	37,800	4,120	11,445	37,800
3	3,502	9,728	47,527	3,502	9,728	47,527
4	2,803	7,787	55,314	2,803	7,787	55,314
5	2,543	7,064	62,377	2,543	7,064	62,377
6	1,805	5,013	67,391	1,805	5,013	67,391
7	1,456	4,044	71,435	1,456	4,044	71,435
8	1,286	3,572	75,007	1,286	3,572	75,007
9	1,267	3,520	78,528	1,267	3,520	78,528
10	1,098	3,050	81,578	1,098	3,050	81,578
11	,874	2,427	84,005			
12	,818	2,272	86,277			
13	,652	1,810	88,087			
14	,549	1,526	89,612			
15	,497	1,380	90,992			

16	,387	1,075	92,067			
17	,373	1,036	93,103			
18	,335	,931	94,034			
19	,290	,805	94,839			
20	,259	,721	95,560			
21	,242	,672	96,232			
22	,228	,632	96,864			
23	,179	,498	97,363			
24	,173	,479	97,842			
25	,140	,390	98,232			
26	,115	,321	98,552			
27	,108	,299	98,852			
28	,091	,254	99,105			
29	,075	,209	99,314			
30	,061	,169	99,483			
31	,052	,145	99,628			
32	,041	,115	99,743			
33	,033	,092	99,835			
34	,030	,082	99,917			
35	,021	,059	99,976			
36	,009	,024	100,000			

Extraction Method: Principal Component Analysis.

Table 5.4.3.2

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,197	22,594	22,594	5,197	22,594	22,594
2	4,280	18,609	41,203	4,280	18,609	41,203
3	2,505	10,893	52,095	2,505	10,893	52,095
4	2,038	8,861	60,956	2,038	8,861	60,956
5	1,457	6,333	67,289	1,457	6,333	67,289
6	1,223	5,318	72,607	1,223	5,318	72,607
7	,989	4,300				
8	,850	3,695				

9	,687	2,987				
10	,639	2,779				
11	,537	2,333				
12	,465	2,021				
13	,381	1,656				
14	,350	1,520				
15	,249	1,081				
16	,232	1,007				
17	,221	,962				
18	,174	,756				
19	,157	,682				
20	,121	,527				
21	,103	,447				
22	,076	,331				
23	,071	,308				

Extraction Method: Principal Component Analysis.

Table 5.4.4.2

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	9,471	23,679	23,679	9,471	23,679	23,679	5,179
2	5,208	13,020	36,698	5,208	13,020	36,698	4,110
3	4,076	10,189	46,887	4,076	10,189	46,887	4,042
4	3,016	7,541	54,428	3,016	7,541	54,428	4,004
5	2,314	5,785	60,213	2,314	5,785	60,213	3,646
6	1,885	4,713	64,926	1,885	4,713	64,926	3,044
7	1,632	4,080	69,006	1,632	4,080	69,006	2,509
8	1,459	3,647	72,653	1,459	3,647	72,653	2,098
9	1,292	3,229	75,882	1,292	3,229	75,882	1,721
10	,948	2,370	78,252				
11	,844	2,109	80,361				
12	,725	1,813	82,174				

13	,691	1,726	83,900				
14	,668	1,669	85,569				
15	,597	1,493	87,062				
16	,558	1,395	88,457				
17	,491	1,227	89,684				
18	,428	1,070	90,754				
19	,389	,972	91,726				
20	,363	,908	92,634				
21	,318	,794	93,428				
22	,283	,708	94,135				
23	,250	,626	94,761				
24	,238	,594	95,355				
25	,233	,583	95,939				
26	,205	,512	96,450				
27	,192	,479	96,929				
28	,166	,415	97,344				
29	,155	,388	97,731				
30	,146	,366	98,098				
31	,130	,325	98,422				
32	,120	,300	98,723				
33	,093	,231	98,954				
34	,089	,223	99,177				
35	,075	,187	99,364				
36	,068	,171	99,535				
37	,061	,153	99,688				
38	,052	,130	99,818				
39	,042	,105	99,923				
40	,031	,077	100,000				

Extraction Method: Principal Component Analysis.

Table 5.4.5.2

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6,476	28,157	28,157	6,476	28,157	28,157

2	4,690	20,393	48,550	4,690	20,393	48,550
3	1,887	8,207	56,756	1,887	8,207	56,756
4	1,745	7,588	64,344	1,745	7,588	64,344
5	1,573	6,838	71,183	1,573	6,838	71,183
6	1,186	5,155	76,338	1,186	5,155	76,338
7	,907	3,943	80,281			
8	,830	3,608	83,889			
9	,577	2,510	86,399			
10	,490	2,131	88,530			
11	,425	1,850	90,380			
12	,385	1,674	92,054			
13	,311	1,352	93,405			
14	,273	1,186	94,591			
15	,250	1,086	95,677			
16	,231	1,005	96,682			
17	,178	,773	97,455			
18	,153	,665	98,120			
19	,117	,509	98,629			
20	,108	,468	99,097			
21	,081	,353	99,450			
22	,073	,318	99,768			
23	,053	,232	100,000			

Extraction Method: Principal Component Analysis.

Table 5.4.6.2

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7,541	19,845	19,845	7,541	19,845	19,845
2	6,285	16,538	36,383	6,285	16,538	36,383
3	3,974	10,457	46,840	3,974	10,457	46,840
4	2,958	7,783	54,624	2,958	7,783	54,624
5	2,678	7,048	61,672	2,678	7,048	61,672
6	2,161	5,687	67,359	2,161	5,687	67,359
7	1,694	4,459	71,818	1,694	4,459	71,818

8	1,304	3,433	75,250			
9	1,040	2,737	77,987			
10	,993	2,614	80,601			
11	,990	2,606	83,207			
12	,796	2,095	85,302			
13	,683	1,798	87,100			
14	,582	1,530	88,630			
15	,531	1,397	90,027			
16	,476	1,252	91,279			
17	,441	1,160	92,439			
18	,406	1,069	93,508			
19	,356	,937	94,445			
20	,338	,888	95,333			
21	,242	,637	95,970			
22	,225	,592	96,562			
23	,195	,514	97,076			
24	,188	,495	97,571			
25	,157	,413	97,984			
26	,141	,372	98,356			
27	,122	,320	98,675			
28	,104	,273	98,948			
29	,087	,228	99,176			
30	,081	,213	99,390			
31	,059	,154	99,544			
32	,050	,132	99,676			
33	,035	,091	99,768			
34	,032	,083	99,851			
35	,019	,049	99,900			
36	,018	,048	99,948			
37	,012	,032	99,980			
38	,008	,020	100,000			

Extraction Method: Principal Component Analysis.