The Strategic Contribution of ERP Systems to the Formulation of Non-Financial Performance Measures (KPIs) in Logistics Activities. An Exploratory Study in Northern Greece

Sophia P. Asprodini, Fotis Misopoulos
Department of Logistics and Supply Chain Management, City College, Thessaloniki, Greece

Abstract

The purpose of this paper is the thorough observation of supply chains within the broader geographical area of Northern Greece in order to recognize whether organizations formulate and use KPIs in order to evaluate performance. The essence of developing useful KPIs with regard to supply chain performance is the identification of the gap between planning and executing while KPIs also give an indication about areas that are in need of corrective action. However, due to the fact that the Greek region has maintained narrow manufacturing activities as a result of its economic situation in the past five years, the research is going to be focused on – but not limited to – that part of the supply chain associated to logistics and customer service. With respect to the diversity of the sample researched which is categorized into four groups – namely LSPs, wholesalers, retailers and service companies – some trigger outcomes have been obtained regarding the manner through which those companies are manipulating their information flow – either through their ERP or another IS. Within this context, it is also observed whether ERPs are utilized in order to assist and support the design and deployment of KPIs in the framework of performance evaluation with regards to key and support logistics activities.

Keywords: supply chain management, logistics activities, KPIs, ERPs, performance evaluation

1. Introduction

This paper portrays the strategic significance of a metrics system formulated by appropriate data derived from an ERP system in order to measure and tackle performance in logistics’ associated activities. The specific issue, the issue of performance evaluation is of great importance since there are already positive correlations researched and found by rich streams of literature concerning performance evaluation and non-financial performance measures. Thus, the importance of this study lies in the fact that performance evaluation is explored through being narrowed down to logistics activities and defined through the implementation and use of ERPs (Enterprise Resource Planning...
Systems). Based on research conducted in a number of SME’s in Northern Greece, significant correlations have been found with respect to properly set non-financial performance measures (KPIs) and logistics activities such as procurement, purchasing, supplier evaluation, warehousing, order processing and customer satisfaction in order to determine factors that adversely affect the efficient flow of goods within the supply chains. With the evolution of technology and information systems (IS), customers at any level of the supply chain are able to have access to vital information concerning processes and outcomes of interest so that proper integration and visibility through the supply chain is attained.

1.1 Aims and Objectives of the Study
The interviews have provided adequate info concerning the use of ERPs - and other in house developed IS - and the extent to which ERPs support logistics activities and contribute to the formulation of suitable non-financial performance indicators. The goal of the research is to realize whether ERPs or IS systems in the Northern Greek market are utilized adequately so as to tackle and evaluate performance. The most commonly used method for attaining this without contending with financial data - since the cost and expenses factor is not used in parallel in this paper - is through using non-financial performance measures. Following, the methodology of approaching this research is provided for the needs of the dissertation and outcomes are interpreted while being grouped into research questions and justified in order to finalize conclusions and areas that call for further research.

2. Literature Review
In turbulent times, organizations are struggling to perform in a rather dynamic business environment which requires a flexible-although structured-strategic approach in order to be tackled. Among various activities such as manufacturing, purchasing, operations, procurement and marketing, logistics has grown to be a viable component of the supply chain within the last fifteen years since it acts as an enabler of supply chain management (Panayides, 2004; Bienstock et al., 1997; Mentzer et al., 1989). For the purpose of this paper there is a necessity to address the goal of supply chains in a global context given the interdependence and interrelation of business entities within any given industry.

2.1 Supply chain management and its relation to strategy
Supply chain management has shifted the global business rationale from cooperation and competition between business entities to interrelation between supply chains (Van der Vorst et al., 2002). The procedure through which products flow - with the form of materials - from manufacturing until the end consumer - as finished goods – needs coordination and constant control since any failure to keep up within schedules and specifications entails excessive costs (Johnson et al., 1999) not only in money terms but in terms of performance and reputation as well (Green Jr. et al., 2008). Lee et al. (2007) in their research paper pointed out that “it has been well-known that supply chain integration creates strategic advantages” while it is also widely accepted
in theory that the effective monitoring of business processes leads to a well-executed overall strategy (Prajogo et al., 2006).

Strategy could be defined as managing long-term while sustainable maximum performance, according to Kluyver and Pearce (2006). Contemporary supply chains experience an immense requirement to integrate and coordinate all activities in order to attain superior accomplishment (Jahre, et al., 2005) in terms of delivering supreme value to its customers – both internal and external – while simultaneously targeting on considerable return on investment and profit results (Johnson et al., 1999). Logistics then is that part of the supply chain that creates and preserves value to the goods through time and place variation (Mentzer et al., 2008). In this context, logistics appears to be in the focal position facilitating internal, customer and supplier linkage (Lee et al., 2007) through managing transportation, inventory, order fulfillment and purchasing at any stage of the supply chain (Mentzer et al., 1989).

Support logistics activities although designed to reinforce and sustain key logistics activities, appear to be of equal importance since they involve product purchasing, storage, handling and information collection, warehousing and management. Information management facilitates the coordination of multiple and various functional areas within the supply chain through information sharing (Mithas et al., 2011). However, random information is seldom useful and able to be interpreted (Rennolls et al., 2008) therefore the necessity of information systems is apparent in order to organize, store, process and retrieve information so that this information is meaningful to the users who perform decision-making (Adams, 2009).

Lack of proper information sharing can cause lack of coordination and integration between supply chain members (Zhang et al., 2006) within the same or related supply chains. One very common example is the unevenness of demand pattern as we move upstream to the supply chain which can have adverse effects, one of which is fairly the bullwhip effect (Li et al, 2001). The inability to provide accurate demand forecasts is inextricably associated to the lack of visibility through the supply chain since demand variability is magnified (Ericsson, 2011).

Information sharing is of strategic importance due to the fact that it gives the organization an insight about which activities are performed efficiently (Li et al., 2001), whether processes run in order to create proper value while it can be used in order to formulate performance measures and metrics in order to answer questions and tackle drawbacks that traditional financial measures cannot (Chow et al., 2006) . Measuring specific activities in order to recognize and set performance levels is a good start however this procedure should not be faced as a checklist since there are implications and interpretations involved which are more critical than the data itself (Campo et al, 2010). Most managers are unaware of what they would like to measure in order to evaluate performance in specific sectors while in most cases data can be easily retrieved (Ittner et al., 2003).

According to numerous studies made upon the subject of information sharing and performance measures, the outcome is drawn through defining the industry from a generic perspective to a process-oriented perspective with a few overlaps (Van der Vorst, 2006).
• Identification of the margins within which a specific supply chain system operates in order to identify the business partners/entities that are of a trigger importance in terms of the organizations’ strategic objectives.
• Identify existent processes that are organized, measured in order to deliver specific outcomes so as to create proper value aligned to strategy.
• Ensure that processes within the supply chain are coordinated and integrated towards common strategic goals exemplified by related commitment and trust.
• Human and tangible resources including IT systems are combined and utilized in order to facilitate value-driven outbound activities.

2.2 IS and SCM
Since dot com schemes made their appearance threatening established companies, the business world has been intimidated while searching for approaches to develop in an “electronic” manner (Helo et al., 2006). This evolution has moved interest towards information and communication technologies (ICT), electronic data interchange (EDI) and more specifically, systems able to provide established and controlled buyer-supplier relationships such as various CRM modules, systems to monitor resources and turnover and systems to oversee warehouse activities and inventories (Hill Associates, Inc., 2006). In essence, the complexity of SCM per se has forced businesses to frame and control activities given that they are not restricted to arm-length operations.

SCM information systems are user-interfaced and they provide the ability to gather and process information within the supply chain, associated to strategy, operations, orders, inventory levels and handling (Soroor et al., 2009) while they embrace the decision making process based on information sharing. Enterprise systems belong to the most important tools of information technology within supply chains while their most famous and widely used representatives are the ERP (Enterprise Resource Planning) systems which appear to support a wide range of everyday tasks and processes (Haines, 2009). Logistics and order processing found themselves very high in the support agenda of ERPs due to the fact that they are highly correlated to performance improvement initiatives (Cotteleer et al., 2006).

2.3 ERP Systems
ERPs, when fully integrated and properly performed, provide timely information in an operational, tactical and strategic context while the manner based on which information is shared could turn them in JIT-information (Green et al., 2007). The evolution of MRP and MRP II shifted focus from production wise and planning production procedures to an interface that attempts to fit all functions through seamless integration in order to attain better information and knowledge management and as a consequence, better processes (Huang et al., 2009). Real time information can be a differentiating factor in competitive advantage formulation and core competencies’ enhancement (Li et al., 2001); however each supply chain faces different
needs especially when a business entity belongs to more than one supply chains.

2.3.1 ERP Benefits and Risks

Working with an ERP entails a plethora of benefits as well as risks. There is no standard way of identifying a given number of both categories since enterprises and supply chains differ as much as strategy among enterprises and industries. ERPs provide companies with the opportunity to gain better insight about their customers’ behaviour (Huynh and Chu, 2011) while at the same time they enable reengineering of processes through attaining strategic relationships with the company’s partners (Singla, 2008) in order to tackle the desires hidden within customers’ behaviour. More and more companies nowadays are seeking for ways to narrow their operating costs in order to make their profits emerge. Through the ERP, manual processes are automated and standardized in order for companies and supply chains to be able to be competitive and claim sustainability while at the same time enterprises are allowed to grow in a systematic and tactical way which is embraced by the number of users having access on the information (Sage ERP, 2011).

Despite the remarkable benefits that an ERP adoption can entail, such a tool can be transformed to a huge cost should it be implemented by unstructured strategic objectives. Major drawbacks find themselves in improper communication of strategic goals and support towards the employees, resistance to change and unclear job functions (Campo et al., 2010, Gunasekaran et al., 2004). Goals related to an ERP implementation are generally considered to be focused on information gathering, sorting, storing, retrieving and processing either financial or customer-related. Since the goal of ERP adoption lies in the field of information handling (Singla, 2008) in order to attain visibility and performance, technology vendors have specialized or modularized their products in order to adapt to a sample upright market model while they have also left room for customization (Huynh et al., 2011). Therefore, choosing an ERP randomly is far different from choosing the modules that serve an organization’s strategic goals.

The implementation of an ERP system entails a combination between the manner a company desires the ERP to perform and the way the system itself allows the company to perform (El Amrani et al., 2006). ERP systems are based on absolutely precise data entry due to their unified logic, in any other case wrong data entry is transferred to the whole supply chain as a domino; therefore the prior education of the users is of crucial importance (IFS, 2007). Apart from the already mentioned subsystems, there is a plethora of complementary subsystems supported by an ERP depending on the level of complexity a company’s processes bear. Such subsystems could support functions such as human resources, quality control, work planning and resource management (IFS, 2009). In this paper research is drawn upon subsystems supporting logistics activities such as purchasing, warehouse and distribution as well as marketing and sales through which relative KPIs are going to be formulated.

From a cost perspective, ERPs can be a low-cost solution if the support is totally susceptible to the vendor’s authority provided that upgraded versions
are installed upon launch (Haines, 2009). In case the software is customized, a private consultant needs to perform maintenance and support in order for the software to bear appropriately tailored modules for meaningful information processing (Hill Associates, Inc., 2006). Backbone costs include licensing, implementation and maintenance costs but these are not costs that a business unit could find difficult to afford (IFS, 2007). The implementation process of an ERP project is the costlier phase of all since it involves finding the right people who will be trained and be able to gain knowledge on this project (Moller, 2005). The cost factor comes in when some considerable workload burden will have to be lifted of those people’s shoulders and be shared among other employees–already existent or newly hired (IFS, 2007). Bottom line, the implementation of an ERP system should be faced as a project implemented from a project team with whatever that entails.

2.3.2 ERPs and Performance Measures

While the benefits of IS in relation to business performance are readily analysed further above in this paper and bear a rather extensive theoretical background there is very little theoretical and empirical evidence concerning the contribution of the ERP per se in organizational performance. Since the ERP issue is a newly advanced issue due to the fact that it made its appearance in the 90s, it practically merges the IT with the business world which is a rather rapidly developing combination. Therefore, one of the reasons that the academia has not sufficient evidence concerning the integration of ERPs lies in the complexity of these systems and the insufficiency and inability of common IT principles to adapt to ERP as well (Amoako-Gyampah et al., 2004). The continuous evolution of the IT part and its constant extension in order to support emerging business activities and needs more efficiently, made every theoretical framing attempt outdated (Uwizeyemungu et al., 2010).

In this study, it is not aimed to investigate the responsiveness of ERPs to processes, however it is desired to use performance indicators actually used by managers in Northern Greece in order to understand whether ERPs contribute to the formulation and use of performance indicators and whether people are familiar with extracting data from an ERP in order to measure business performance in supply chain activities. However, prior to the empirical analysis there is a necessity to address KPIs in relation to performance and logistics activities.

2.4 Performance measurement and KPIs

Performance - especially in the logistics field - in the contemporary business world is a trigger topic that has drawn global attention in terms of finding the finest tradeoff between effectiveness and efficiency in order to attain optimal customer service and thus satisfaction (Fugate et al., 2010). Logistics activities and their implications are of extreme interest for the companies and supply chains, nevertheless logistics managers have made efforts for years in order to prove the business world that logistics do contribute to overall organizational performance (Griffis et al., 2007; Fugate et al., 2010). Logistics performance is no old fashioned area based on boxes, trucks and warehouses, on the contrary it needs to be up-to-date in order to complement
shorter product life cycles, changing consumer needs and hypercompetition. However, there is a need to define performance evaluation and measurement in a logistics concept in order to further outline the measuring method that is going to be utilized in this paper, namely KPIs.

With the aim of performance evaluation, a company’s management should be well aware of the underlying strategic processes and procedures (Germain et al., 2006) in order for the data and criteria of the evaluation to be meaningful and based on actual extents of achievement on actual objectives related to goals and strategy (Fawcett et al., 1997; Ramos, 2004).

2.4.1 KPIs and logistics activities
Developing KPIs in order to measure performance in each one of the areas within a supply chain is a complex task and can be easily turned into a rebound in a case an organization is engaged into the formulation of many KPIs for many operations simultaneously. In case we isolate the five stages in logistics, namely purchasing, inventory management, warehouse management, transportation management and customer service, it can be easily noticed that there are numerous common non-financial KPIs such as fill rate, stock turn over (for both materials and finished goods), order picking accuracy rate, service level – DIFOT (delivered in full on time), amount of back loading, on time deliveries etc. (Onwubolu et al, 2006). However, it can also be observed that KPIs and their implications affect all stages in supply chains from production to delivery and the outcomes of KPIs set in one stage, directly affect the performance of the next stage. Broken down to activities, KPIs are giving an indication of how well the organization is performing with compliance to its strategic goals.

2.5 KPIs Benefits and Drawbacks
Successful performance measurement and evaluation based on KPIs is assumed based on how well these KPIs are formulated and designed. KPIs should motivate desired outcomes while at the same time they should be measurable and affordable (Chow et al, 2006). Moreover, the set of objectives established and aimed to be met through KPIs should be able to be attained and the results should be meaningful to all the parties involved (Griffis et al., 2007).

More extensively Theurer (1998) demonstrates in his paper some drawbacks and advise of performance measurement systems:

- Data by themselves have no meaning
- There must be a strong commitment from leaders to move toward measuring performance and not just collecting data on effort
- Employees must have the capacity to develop measures, or they will use whatever ‘measures’ are already available
- If measurement focuses on negative accountability, managers and employees will seek to avoid accountability when things go wrong
- A performance measurement system should provide information to policymakers and managers so they can make better decisions
- For many governments, the ultimate aim of management based on performance measures is to integrate program performance and outcome information with the budget process
• Provide reliable and valid information on performance

3. Methodology

3.1 Definition of Research Problem

ERPs seem to assist the implementation and control of the overall logistics performance while they boost and have a positive correlation with performance measurement however it has not yet been clarified whether ERPs facilitate the formulation of non-financial performance measures through information and data sharing in the Greek market. Given the fact that Greece has an underdeveloped manufacturing sector, logistics in an operational context exist in a very restrained manner. Therefore, supply chain and logistics activities are observed in a broader context and the research framework as well as the structure of the interviews are adapted to that part of the chain beginning from the wholesaler and ending to the final customer.

This study aims to look deeper into the formulation of proper KPIs measuring logistics activities, while at the same time it seeks to reveal whether non-financial performance measures’ formulation can be supported through information and data derived from ERP systems. The goal is to assist organizations conducting business in the Greek business environment in order to align their processes within a broader strategic perspective in the context of ERP usage.

By taking into account the nature of this paper, an inductive approach is going to be followed. This paper is based upon research among a number of wholesalers in Northern Greece. The industry in which the organizations conduct business in has been found to be of secondary importance since the aim of the paper focuses on the activities and processes per se rather than the nature of products or services entailed. Moreover, the research design applied is exploratory since there is no adequate theoretical framework that deals with the direct contribution of ERP and its contribution to KPI formulation while empirical evidence is going to be crucial in order to determine the implementation parameters of the topic. Finally, qualitative research is going to be conducted in order to express peoples’ perception concerning ERPs, their use and their involvement in performance measurement embraced by KPIs. Moreover since the research procedure is going to be conducted within the wider area of Northern Greece, it is important to take into account the norms based on which local organizations view performance measurement and up to what extent they find ERP integration useful.

3.2 Research Design

For the purpose of the research, interviews with IT, logistics and warehouse managers as well as managing directors took place after having drawn adequate literature review in order to gain a proper insight of what should be addressed in specific. Questionnaires have been provided to the interviewees before the interviews took place therefore they could be prepared to respond to the demands of the interview. The Questionnaire (see Appendix) included 18 questions related to whether Greek companies (SMEs) use an ERP system and up to which extent they utilize it in order to evaluate and control performance through the use of KPIs. Out of the 20 attempts made to arrange
interviews, 15 of them where successful. The reason why 5 of them failed to
be performed and completed was the ignorance of the supervisors concerning
KPIs mostly and performance measurement in general. They claimed to be
familiar only with financial metrics related to turnover and sales figures.

3.3 Sample
This study examines the ability of Greek companies in the northern Greek
region to combine the management of vital information concerning logistics
activities through an ERP system, with the formulation of performance
indicators (KPIs) and the extent to which those KPIs are able to help them
evaluate performance and take corrective action furthermore.

The sample monitored is not based on a sole industry, however there
are certain criteria used for its selection. Fifteen companies conducting
business in the northern Greek region were monitored and interviewed.
Companies selected could be grouped upon the position they hold within the
supply chain in the industry each is engaged in. In essence, out of the 15
companies interviewed, 6 are wholesalers, 4 are retailers, 3 are LSPs
(Logistics Service Providers) and 2 companies are engaged in the service
sector, namely education and health services. As expected, not all companies
interviewed held a separate logistics department therefore there was
adequate emphasis given in order to trace and interview the employee that is
in charge of monitoring the logistics activities ran in the company. Logistics
and warehouse managers existed only in 7 out of the total of 15 companies
visited where physical inventory is held in bulk. In the other 8 cases,
interviews were taken from IT managers occupying with the ERP settlement
and implementation as well as from general managers that made use of the
metrics and measures derived from the ERP in order to evaluate results and
performance.

3.4 Limitations and Ethical Issues
Ethics and limitations are particularly significant components throughout the
research procedures and if failed to be taken into account, they can lead to
misinterpretation or even invalid conclusions. Due to the fact that the business
environment in Greece is under deep crisis, Greek organizations avoid
publishing information concerning procedures and processes followed since
they perceive them as core competencies or weaknesses that would assist
competition to grow. Additionally information will not go under any form of bias
or change. Therefore this paper will not include the original names of the
companies surveyed, however it will portray the sector in which each
company is engaged in and all companies will be referred to as XYZ
Company.

As far as limitations are concerned, the research procedure has taken
place in companies within the region of Northern Greece since there is direct
access from a geographical point of view. Those companies are engaged into
logistics activities and they use ERP systems. Moreover, research has been
conducted within the summer period and early autumn period, therefore
business activity is expected to be restricted and it may have affected the
quality of responses concerning the specific period up to a limited extent.
The initial goal portrayed in the introduction section of this paper was to find answers concerning the five research questions that embrace and tackle the issue of this research paper which is the contribution of the ERP concerning the formulation of KPIs that are used for monitoring strategic logistics activities.

4. Findings and Discussion
4.1 Do companies use ERPs in order to tackle performance in logistics activities?
Respective questions from the questionnaire that answer this research question are numbers 14, 16 and 17. Companies are divided into two groups concerning the use of ERPs with regard to performance initiatives, companies that use the ERP as an enabler of performance evaluation and companies that do not use an ERP since they use another information system with more restricted capabilities.

Companies that use an ERP system so that they can tackle performance in performed logistics activities confirm that real time information provided by an ERP system lead to a strong competitive advantage and contributes to strategic performance as Li et al (2001) has claimed. Furthermore, being engaged in the procedure of integrating the ERP to their logistics activities they have realized that ERPs allow people participating in this integration to gain better insight about customers' behaviour (Huynh and Chu, 2011) while they support strategic relationships with the company’s partners (Singla, 2008) and find that ERP implementation and performance are in positive correlation for the supply chain overall. The companies that utilize an ERP system account for 66.6% of the total sample.

Companies that do not use an ERP system have reported drawbacks that make them postpone or even reject the future adoption and implementation of such a system. Those drawbacks are not as innocent as they seem however they appear to have rather strategic extensions related to bad strategy execution and communication to employees and resistance to change (Campo et al., 2010, Gunasekaran et al., 2004). Therefore they prefer performing arm-length activities since they believe that they can better control performance as well. Short-sighted strategy implemented by short-sighted tools.

4.2 Do companies keep record of day-to-day tasks related to logistics activities with the assistance of an ERP system?
This research question is associated to the efficient data entrance, retrieval and processing with extension to performance monitoring and evaluation through the ERP is linked with questions 3 and 15. Companies that use an ERP system, namely 10 out of the total 15 interviewed are entering the data based on transactions in logistics activities on a daily basis and reviewing them at the end of each week. These companies have realized that it is unfeasible to monitor and control these transactions without entering the data into the system (Rennolls et al., 2008). As mentioned earlier in theory, this data is useless unless it can be stored, analysed, combined and translated into meaningful information that will contribute to the decision making process (Adams, 2009). Through this procedure and the frequent review of information
the organization attempts to discovering the underlying reasons for high or low sales, gained or lost clients or orders and lead times (Hill Associates, Inc., 2006).

Companies that are reluctant adopting therefore they do not use an ERP system are proving in fact Dery et al.,(2006) correct since the drawback in essence does not lie in the use of the ERP or in the training of employees to adapt to the ERP, but it lies in the business part of the procedure which can reveal that until now, critical functions have been performed the wrong way (Dery et al, 2006).

4.3 What kind of information derived from an ERP contributes to non-financial performance measures’ formulation?
Based on the transactions that each company records related to logistics activities performed, the answers to this question vary among companies grouped into wholesalers, retailers, LSPs and service companies. Given the fact that retail companies do not use an ERP system however they use some IS applications that resemble to some ERP modules such as the ones supporting purchasing, order processing activities and accounting, it would be difficult to adapt their answers to the present research topic since the data is not sufficient and it cannot be extended to a rule.

Wholesalers and LSPs that find the use of an ERP necessary and record transactions which are mostly related to supplier evaluation, inventory handling and storage and in some cases transportation in terms of loading optimization with reference to picking, are subject to be contributing to this research because they fulfill all the prerequisites. Evidence from these companies has shown that the implementation of an ERP system in order to support and evaluate these activities affects the activities and the business processes entailed (Uwizeyemungu et al., 2010). Service companies have not contributed much in order to gain a specific insight concerning activities recorded through the ERP, although company A has given some really interesting answers regarding the handling of consumables and its support through the ERP. Nevertheless the latter cannot be generalized but could be easily a topic for future research about ERPs and logistics activities in service companies.

4.4 Do companies use KPIs in order to measure performance in logistics activities?
With respect to the sample researched, companies have found to be formulating and consulting KPIs in order to measure and evaluate performance. Representatives that perform pure logistics activities such as purchasing activities, inventory handling and transportation have reported that they use and review their KPIs weekly and sometimes daily in case they aim to maintain their customer service initiatives – after all – in high levels. Specifically, wholesalers, retailers and LSPs confirm theory embracing customer service from a logistics perspective, which claims that there are three performance parameters that affect customer service and satisfaction: product availability, cycle time and customer responsiveness (Dadzie et al., 2005). Those parameters are the ones that companies nowadays attempt to tackle through the use of KPIs.
Performance however does not have the same meaning for all companies. Service companies, although sharing the aspects of the wholesalers, retailers and LSPs mentioned above, do not have procedures involving tangible goods in order to mathematically measure and are engaged on other resources’ utilization evaluation such as technology, rooms and efficiency of information flow in general. Surprisingly, service companies that belong to this sample utilize KPIs and take them into account in the decision making process.

4.5 Which logistics KPIs are found to be of strategic importance?
Answering this question is giving an insight towards the linkage between performance evaluation and strategy. Not all companies have readily available KPIs in order to be more specific in what they evaluate, however it has been realized through discussion that not all companies have fully implemented the correct KPIs that are going to specifically tackle performance to the activities that they consider as strategic. Back to theory and KPIs’ formulation, there is a difficulty on behalf of the companies to measure exactly what they are in need of, based on their strategy (Chow et al., 2006). In the case of this sample, companies that do not have specific KPIs have claimed to have identified the activities that are of strategic importance for their company, so this is a paradox. What those companies have failed to do is to formulate KPIs that are in direct link with their already identified strategic logistics activities.

Still, contrary to companies that have specific KPIs mentioned in question 18 of the questionnaire, companies that do not, seem to have failed to take into account the multidimensional nature of business entities cooperating in an environment characterized by interdependence (Hervani et al., 2005). Then again, companies that have portrayed some indicative KPIs, have reported to believe that non-financial performance measures have more direct correlations with strategic goals than pure financial quantitative measures since they give a more reliable proxy for performance (Lunnan et al., 2002).

5. Conclusions
After deploying the answers to questionnaires and research questions, it has been realized that the complexity of this topic is intense since all factors involved, no matter if they are related to technology, supply chain integration and coordination or soft aspects are interacting with each other and provide diverse results. An attempt was made to group interviewed companies into four categories, namely wholesalers, retailers, LSPs and service companies. Unfortunately, the sample of service companies was not considerable enough in order to generalize findings, however, their answers hold important remarks in this research and give a stimulus for further research.

LSPs were more specific about their KPIs and the manner their WMS contributes to their formulation while wholesalers are coming second with less precise answers but the same levels of KPIs and ERP utilization. Retailers were more attached to financial metrics and indications of performance while they did not reject the use of an ERP, yet they do not find it necessary since
they have been assigned to the drawbacks related to cost in time and money, while service companies portrayed two opposite cases of having and not having an ERP; however through utilizing a good number of performance indicators for performance evaluation.

Although all companies have reported that they measure performance through performance indicators, 5 out of 15 are considering it difficult to link performance with ERPs since they have major drawbacks regarding their adoption and implementation. Reduced turnovers have resulted in demotivation and distorted strategic goals which prevent these 5 companies from realizing the domino effect affecting the whole supply chain (IFS, 2007). Those companies are experiencing drawbacks while dealing with the complexity of the supply chains in general rather than with the complexity of the ERPs and demonstrate a rather egocentric behaviour and resistance to change (Campo et al., 2010, Gunasekaran et al., 2004). Yet, there are high hopes that the results and argumentation of this research will have positive effects towards changing their minds.

Companies that have adopted and implemented ERPs have replied that they have gained visibility within the supply chain (Ericsson, 2011) and can efficiently coordinate activities and share information with their business partners and customers(Germain et al., 2006). Those companies have also reported that they have switched from conventional IS systems to ERP systems since they have higher chances of being integrated and provide the company with higher levels of flexibility than any conventional IS (El Amrani et al., 2006). Those companies that account for 66.6% of the sample (10 out of 15) have reported that their ERP has supported their attempts to link performance with technology and has provided all necessary information for KPIs formulation and therefore performance evaluation.

Based on theory, companies being engaged in performance evaluation maintain considerable levels of supply chain logistical integration (Zhao et al., 2001) and technological readiness (Richey et al., 2007). Companies have reported that the communication and the information flow have been better-off even from suppliers and other partners’ perspective within the supply chain with the use of ERPs while their strategic goals have become clearer and effectively communicated. The first half of the questionnaire attempts to define the companies’ position, goals and background in order to define the supply chain in which they belong and consequently demonstrate that these companies interact with partners and customers as the new era compels.

As reported by all companies through discussion, customer service is a top priority nowadays, especially with reduced workloads and turnovers in the Greek region, however it seems that more effort is being put on good relationships with suppliers than on good relationships with customers. This conclusion has been reached since none of the companies, even the ones maintaining an ERP system, reported having an integrated CRM in order to boost demand and not supply for once. Back to what Ericsson (2011) supports that the Demand Chain Management (DCM) concept is designed to tackle this new challenge through times of crisis and limited resources by aiming on the customer and aligning inter- and intra-organizational processes accordingly which would be an excellent topic for future research.
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