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A Strategic and Empirical Classification and Assessment of the Influence of Procurement Process on Organizational Management, Performance and Outcomes in the Lebanese Industrial Organizations.

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ABSTRACT:-The purpose of this paper is to explore the different patterns of purchasing function configuration, and to show statistically the relationship between such patterns and organizational performance using Lebanese firms. This will ensure different competitive advantages affecting positively the performance outcome of the Lebanese organisations. *To examine* the purchasing functions and to assess their relationships with the performance outcomes. Two reesearch questions were used concerning the classification of the purchasing functions and their effect on performance outcomes followed by two hypotheses using primary data. The variables were derived from the literature review using the Performance Outcomes (PO) as the dependent variable and the Purchasing Clusters (PC) to be the independent variable. Data were collected via a paper-based, telephone, and email survey questionnaire. Using "SPSS", different statistical techniques such as Principle Component Analysis and Factor Analysis were used to investigate the relationships among variables and to illustrate the impact of PC on PO in the Lebanese organizations As a result of the data presented and analyzed, we observe that the first research question and hypothesis were found to be significant. The positive correlation between PC and PO was also statistically significant; hence the Performance clusters in the studied Lebanese organizations positively and significantly affects performance outcome which answers the second research question and hypothesis. Moreover, it is noted that the majority of top managements in these companies did not realize the importance of the process design to gain a competitive advantage; as well as the management did not conduct any cultural or organizational changes in order to develop purchasing network, implement a quick ordering system, and encourage the supplier involvement in increasing the product sales. This research establishes the importance of the Lebanese trading and management in ensuring quality of services and provides the best of these in the area to help reduce inefficient procedures and achieve optimal use of resources helping the Management and the Industrial engineering decisions. It has argued that purchasing functions affect the performance outcome and should be well developed, monitored, and evaluated in order to increase organizational performance outcome. An analysis has been presented to allow managers and the Quality Control Department to understand the importance of the characteristics and their effect on the organizational performance in order to give more attention and develop these characteristics. This paper has a number of implications for managers at the different levels of the firm. Scholars and practitioners agree that it is vitally important for firms to develop their purchasing functions and follow a set of practices and procedures. This paper tested directly the relationships between the purchasing clusters and the performance outcomes in 95 Lebanese organizations/industries. It provided a clear understanding of the statistically significant items that characterize the purchasing clusters. It also quantified the positive correlations between the selected variables used. The findings are useful for practitioners seeking to improve the performance and standing of the purchasing function through identification of the characteristics and potential limitations faced at each phase.

Keywords:- Procurement, Purchasing Clusters, Performance Outcome, Internal Integration, Industrial Engineering, Strategic Planning, Classification and Factor Analysis.

I. INTRODUCTION

Purchasing and Procurement have recently become a major concern for researchers worldwide from different industries and different departments such as the Industrial Engineering, the Management, the Procurement, the Operations Management and Quality Control. Organizations have started to realize the importance and the impact of Purchasing on the organizational management and performance (Patala Samuli; Jalkala Anne; Soukka Risto, 2014) who discussed the issue of the need to be able to reduce buyer perceived risk. Proper integration of Purchasing has proved to guarantee a sustainable competitive advantage. The increased importance of the purchasing role within international organizations has captivated the attention of the Lebanese

industrial firms to analyze and assess the importance of the purchasing in order to fulfill their strategic role and development. For that, organizations and firms are increasingly involving suppliers in new product development (Melander, Lisa and Lakemond Nicilette, 2014). But, despite the considerable attention of researches and organizations to procurement, there is a little empirical evidence showing the current situation of purchasing function development and their effect on management and performance outcomes (Gupta, S.L., and Gupta, Hilesh, 2012) (Singh, S.R. and Vishnoi, Monica, 2013) within organizations/industries in the Lebanese Market. Further to the Economic Accounts of Lebanon published in 2010 and updated in 2015 by the Lebanese Ministry of Finance (Finance, 2010), the growth of domestic economic activity as measured by the Gross Domestic Product (GDP) using the prices of the previous year which was identified to be approximately 5% in 2015, 7% in 2010, against 9% in 2009, 8.6% in 2008; 8.4% in 2007; Different sectors were assessed and evaluated for their contribution to the (GDP). For example, in the Construction industry, the prices of almost all the factors of production forming the added value showed approximately a 2.4% increase in 2010. Therefore, due to the contribution of different sectors and their importance for the Lebanese Economy, this paper investigates the configurations of the purchasing functions in the Lebanese organizations and from different sectors. It measures specifically the major characteristics of purchasing related to various suppliers and organizational performance outcomes. To achieve the different goals and objectives efficiently and to increase the reliability and accuracy of the results, the researchers used a survey questionnaire in order to collect the appropriate and detailed data concerning the purchasing and supply management practices, and supplier organizational performance outcomes, from 95 Lebanese firms. The "SPSS" results were analyzed in detail using different tools and techniques. The findings seem to be very useful for practitioners seeking to improve the performance and standing of the purchasing function through the identification of the different characteristics and potential limitations faced at each phase. (Chen, I.J., Paulraj, A. and Lado, A.A., 2004) showed that strategic purchasing can create sustainable competitive advantage. Moreover, the ability to design and manage supply-chain taking into consideration that supply chain management has become essential for almost all organizations and firms (Jauhari, W.A., Sejati, N.P. & Rosyidi, C.N., 2016) relationships is a critical organizational asset that can produce durable strategic advantage. In turn, these capabilities contribute to enhancing customer responsiveness (Karthik, V. & Kumar, Sanjay, 2013) and financial performance for the buying firm. This research will show also the significant purchasing functions within the Lebanese organizations and how therefore these functions can and will affect the management and performance outcomes of the organizations. Researchers and decision makers can also use our model and the results found as a framework and a guideline to better understand this interesting and useful concept and better analyze its impact and how to design a strategy for its optimal measurement.

II. LITERATURE REVIEW

The literature discussed the purchasing organization as being the process of evaluating, and controlling strategic and operative purchasing decisions for leading all actions of the purchasing tasks to be consistent with the abilities to realize its long-term objectives (Glock, 2011). Here, we define procurement as being used in preference to purchasing and resulting in viewing the Purchasing Organization as becoming more strategic and less operational in nature. In addition, the evolution from a tactical activity to a more strategic role was outlined. (Carr, A.S. and Smeltzer, L., 1997) described that the evolutionary process was slow due to management failure to distinguish the critical role of purchasing. However, in order for the procurement (Bahri, S., Mahzan, N., & Kong L. C., 2013) to gain a more important and strategic role, it is necessary to have the appropriate configurations and emphasis in place. For example, the e-procurement has the potential to provide savings to organizations by properly developing and allocating the company's resources using an ERP system. Also, the literature described the importance of purchasing (Dza, M., Gapp, R., & Fisher, R., 2015) of being the sourcing, pricing and getting the right items, at the right price, and on time to offer a service or product (McLaughlin, P., 2014). Our research focused on the progress of the purchasing organization, the role, the types and the importance to achieve a more strategic role in the evolving business environment (Heizer, J., Render, R., & Munson, C., 2017). Relying on the research and on the role of purchasing function, four variables were identified and selected in a way that could affect the purchasing structure. These variables specify and give information about the role of purchasing in strategic planning, regarding the top management (Saha, S., 2015), the degree of internal integration, and skill progress and growth. The following subdivisions explain each variable and its impact on the structure of the purchasing role. (Cooper, M. & Ellram, L.A., 1993), (Ellram, L.A, 1994) and (Ellram, L.A., 2001) suggested that purchasing would not be one of the companies' strategies until it is considered as strategic. (Narasimhan, R. & Das, A., 2001) linked successful purchasing to the joint venture or the cross-functional purchasing, and stressed on manufacturing as one of the best ways of purchasing integrations. More or Less, recent surveys have inspected the involvement of strategic purchasing to firm performance (Chen, I.J., Paulraj, A. and Lado, A.A., 2004). For many years, the position of the purchasing function has been the topic of long argumentation since (Farmer, 1972). Position is defined as how purchasing is

seen by high management, and by other utilities (Carr, A.S. and Smeltzer, L., 1997). Purchasing positions acts as a pioneer for many of the purchasing functions and is considered to be "strategic". Moreover, we consider that the top management (Dza, M., Gapp, R., & Fisher, R., 2015) does not only play an important role in affecting the company's opinion regarding purchasing, they can also give all their resources when it comes to time, personnel and finances in relation to the improvement and the ability of the purpose (Soni H.N. & Patel, K.A., 2015). The integration of internal (Trivedi, A., Chauhan, A., Singh, S.P. & Kaur H., 2017) business purposes and methods is a hard task for almost all companies. (Narasimhan, R. & Kim, S.W., 2002), argued that firms need to proactively seek efficient linkage or integration among its various internal functions, and with its suppliers and customers comprising its supply chain. (Robertson, I., 1995), found that purchasing integration play a key role in integrating purchasing initiatives with business priorities in Rover (Robertson, I., 1995). (Cousins, P.D., 2005), discussed that supply planners should take into consideration what approaches they need to concentrate upon to find what suits best the company's strategic purpose. The understanding that when organizing and controlling supply tactically (Gwynne, Peter, 2015) firms can save gigantic sums of money has directed firms to emphasis on this part of management. The formation of competitive procurement sections has changed the view and life process of the procurement. They are being viewed as a strategic business process (Cousins, P.D., 1999), (Hines, P., Lamming, R., Cousins, P., Jones, D. & Rich, N., 2000). When procurement is regarded as a strategic utility, the procurement will be a main judgment assessor and a member in the company's strategic plan of action (Cousins, P.D. & Spekman, R., 2003). The skills required of purchasing experts have significantly affected organizational performance over the last few years. The buyer's part changed from focusing mainly on price, delivery and quality, to professionally purchasing, strategically directing and complex agreements between internal stakeholders and suppliers. According to (Carter, J.R., Smeltzer, L. & Narasimhan, R., 1998), many transformations are happening in the procurement career, comprising electric trade, planned cost administration, calculated procurement, and universal supplier expansion. (Carr, A.S. and Smeltzer, L., 1997) Presented a list of "35 purchasing skills" categorized into practical, manner, and talent methods. Developing a cross-functional groups alongside with careful improvement of skills have allowed companies to benefit of their strategic sourcing (Harb, A., Yaacoub, C., Kassem, A. & Baena, C., 2017) opportunities within couple of years using different factors of assessment and analysis. The skill group for procurement employees that work in strategic administration emphasizes more on the course of abilities such as ability to work within groups, business knowledge, mediation and investigative talents (Cousins, P.D. & Spekman, R., 2003). Different researchers found that the aspects of performance are classified into four key dimensions including organizational performance (Lahiani, Nouha et al., 2018), external environment, internal motivation, and capacity. (Sanhueza, 2011) has defined organizational performance (OP) as the level of efficiency and effectiveness obtained by the company while pursuing its objectives. (Siggelkow, 2002), has viewed organizations as systems of core, elaborating, independent, and inconsistent elements and the interconnections among all or part of these elements (Carmeli, Abraham, 2004). The literature focuses on the importance of superior top management team in generating higher profits for the organizations. (Mahoney, 1995) has stressed that the management team's power is associated with the managerial capabilities or skills that it possesses because they satisfy the conditions for achieving and maintaining competitive advantage (Kamouche, 1996). (Pfeffer, 1994) has identified the organization's members as the real source of competitive advantage. A good organizational reputation is considered a core intangible resource that enables an organization to attain sustained superior outcomes (Moultrie, James & Anja, M. Maier, 2014), declared that a Strategic fit between the elements contributes to improving performance. (Porter, 1996) has found that complementary interactions between elements enhances performance in a way that the value of one element is increased by the presence of other elements. It was noted that for the Financial Performance, the financial achievement/conduct of a supply chain can be measured by deciding on the total logistics cost. It is essential to choose the adequate policies and methods that help in the flow of data and goods in the supply chain surroundings. For example, a change in capacity has a major impact on costs associated with inventory (Jauhari, W.A., Sejati, N.P. & Rosyidi, C.N., 2016) and order processing. The literature discusses also that different kinds of purchasing configuration would lead to different performance results (Carr, A.S. & Pearson, J.N., 1999). Thus, companies have to work on their interior experiences, and power these experiences rather than transferring the knowledge to another company by outsourcing. Meanwhile, Transaction cost Analyses (TCA) is a mean used to study the inferences when a firm decides to carry out an operation within the company or to send it out to another firm to work on it for the account of the initial firm. Further to Williamson, the importance of the (TCA) is viewed when a firm should decide on carrying out the operation or giving the activity to another company; by studying the cost related to each operation carried internally or externally and the degree of external activity involvement (Williamson, O.E., 1981). Concerning The Middle East, Some of the procurement activities mentioned in the literature are applied in the Middle East area. The literature presented some examples showing that the region is in urgent need of more development regarding the new trends applied worldwide when it comes to new purchasing policies, practices, studies and applications. (Giunipero, L. & Flint, D., 2001), discussed the importance and the

opportunities offered by the Middle Eastern region. Hence, when companies search for new opportunities for business and learning (Taghavi, A., & Murat, A., 2011), Saudi Arabia and other Middle-Eastern countries must be considered since the economic opportunities of this region are great. After many attempts to find in Lebanon or the region of the Middle East the necessary information related to purchasing as presented in our literature, the outcome was nil. Even Saudi Arabia which is considered by many experts as a leader purchaser/partner of many international companies sourcing (Harb, A., Yaacoub, C., Kassem, A. & Baena, C., 2017) has only a timid know-how that includes only the power of the country purchasing and the necessary management trainings that are conducted in a low percentage of the whole number of the companies functioning in the Gulf area. All the researches, publications and works found about Lebanon were "case studies" using single firms. So, the importance of this research is based on the exploration of the various configurations of purchasing functions within today's Lebanese organizations and on how this can significantly affect the management performance outcomes of the companies/industries. It would be the starting point of a more advanced research within the supply chain field and the operations management, the procurements and purchasing disciplines, since no significant and serious studies were previously conducted about this topic and specifically in Lebanon and/or for the Lebanese organizations/industries. By identifying the different functions of purchasing and the different organization performance outcomes, the literature allowed us to develop the needed research methodology and statistical procedures to be conducted in order to test and examine the following hypotheses: (H1) Purchasing functions within Lebanese organizations can be classified based on their level of involvement in strategic planning, status in the eyes of top management, degree of internal integration, and purchasing skills. (H2) Based on different configurations of purchasing characteristics, different purchasing functions will have higher levels of performance outcomes. The Analysis and Interpretation of results will be discussed in the next sections.

III. PROCEDURES AND METHODOLOGY

As discussed previously, the purpose of this research is to identify and examine the different patterns of the purchasing function in the Lebanese organizations and to identify the relationship between such patterns and the organizational performance. This section includes the research questions and a brief description of the research methodology which includes three phases: preparation, data collection, and data analysis. The Hypotheses were tested through a survey that investigates the purchasing functions in the Lebanese Organizations/industries. More than 500 Lebanese organizations from different industries were contacted. The respondents to this research included only those organizations from different industries that had a well-developed purchasing department. However, the questionnaire was distributed only to 150 Lebanese Organizations/industries accepting to participate to our survey, including different industries. The total participants that completed the questionnaire were 95 subjects. The response rate was 63% as shown in figure 1. The Instructional Assessment Resources (IAR) finds that a response rate greater than 50% in a paper administered survey is considered a good and acceptable response rate (www.utexas.edu).

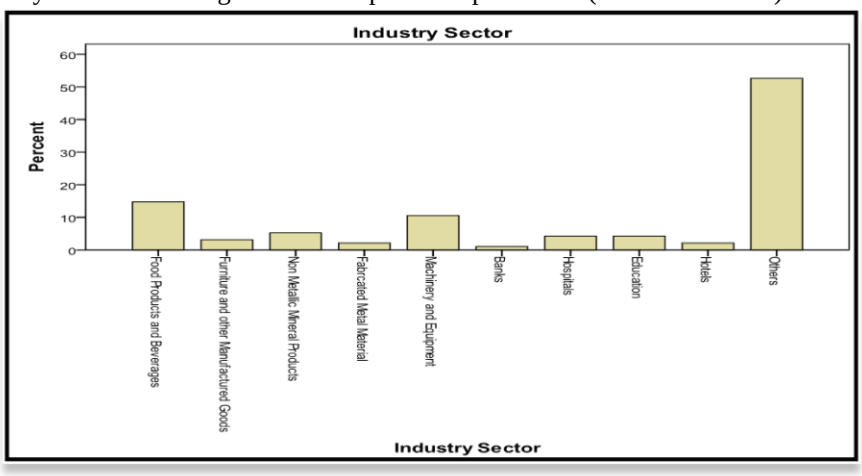

Figure 1: Industry Sector

The questionnaire used in this research was adapted from previous models discussed in the literature review. It includes a cover page and different questions of different items related to the industry. All items were measured using a 5-point Likert-Scale response. The questionnaire was distributed either by hand (assigned people were responsible for its distribution), by phone (concerned people were called: landline or mobile) or via e-mail (concerned people were contacted by e-mail) to well-developed purchasing departments. The letter clarified the intention of the survey, and included a copy of the questionnaire designed and prepared in English. Initially, the questionnaire was submitted to two professionals as a pilot test to determine whether the questions were clear, understandable, and in a logical order (Face validity) and several changes were made as a result of

the feedback. Finally, factorial validity was established, indicating that the factor structure of the questionnaire makes intuitive sense. Accordingly, factor analysis was performed and correlated questions were re-coded into uncorrelated variables called factors (factorial validity) (Field, 2003). To assess the reliability of the questionnaire, Cronbach's alpha was calculated using "SPSS". The items of the questionnaire showed a high internal consistency and reliability as Cronbach's alpha was greater than 0.80, leading to a significant and high accuracy of our results. This will help the researchers to better understand the concept, to analyze it efficiently in order to make the appropriate explanations, conclusions and recommendations for the decision makers and for the future research and development in this field. For the variables, the items used to measure the theoretical constructs were derived from an extensive review of the present literature. They were measured in a 5-point Likert-scale response and one additional response option called "Do not know" to indicate the degree to which the described activities were present in the Lebanese organizations/industries. The performance outcomes were assessed as: supplier integration; supplier relationship outcomes; product performance; and financial performance. Supplier integration was measured using a six-item scale (Carr, A.S. & Pearson, J.N., 1999) and (Narasimhan, R. & Kim, S.W., 2002)). Supplier relationship outcomes were measured using a four-item scale (Womack, J., Jones, D. and Roos, D., 1990). Production performance was assessed using a four-item scale adapted from (Carr, A.S. & Smeltzer, L.R., 2000). Financial performance was assessed using a four-item scale (Carr, A.S. and Pearson, J.N., 2002) and (Carr, A.S. & Smeltzer, L.R., 2000)). The practices used to establish the purchasing clusters were: involvement in strategic planning; internal integration; status; and purchasing skills. Strategic planning was measured using a three-item scale validated by (Carr, A.S. & Pearson, J.N., 1999) and developed by (Carter, J. & Narasimhan, R., 1993) and (Hendrick, T.E. & Ellram, L.M., 1993). Internal integration was assessed using a six-item scale developed by (Narasimhan, R. & Das, A., 2001). Purchasing status of the purchasing function was assessed using the scale of (Carr, A.S. & Smeltzer, L.R., 2000). Purchasing skills used also the scales developed by (Carr, A.S. & Smeltzer, L.R., 2000). Since this research seeks to identify and examine the clusters of purchasing and the relationship between purchasing characteristics and organizational performance in the Lebanese industries, the Principal Component Analysis (PCA) Model was selected as the basic model for conducting analysis by employing "SPSS" (Statistical Package for the Social Sciences). This model is a data reduction technique creating components or factors (Black, I.T., & Philips, D. T., 2010) allowing the interpretation of large series of data into components that can be meaningfully important to understand and to achieve the goals and objectives of the paper. This will also be very helpful for the interpretation of the results found. The model conceptually helped to better examine the purchasing characteristics of Lebanese organizations and the relationship between purchasing clusters and Lebanese organizations performance. It is known that, there are two basic types of factor analysis: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The first one is used when researchers have no prior assumption about the number of factors necessary to explain the interrelationships among a set of characteristics, indicators, or items. The second, which assesses the extent to which the hypothesized model of a set of identified factors fits the data (Gao, 2011). In this paper, the purchasing clusters were categorized based on four different characteristics: including internal integration, purchasing skills, strategic planning, and purchasing status. Organizational performance indicators were categorized into four items including supplier integration, supplier relationship, production performance, and financial performance. Therefore, it is necessary to explore the factor structure of each variable by conducting an EFA. A CFA was then conducted to determine whether the factor structure generated from the EFA required modification. After defining each set of variables, the next step designed to assess the relationships between them in order to test the hypotheses and answer the different research questions. "SPSS" was also used to perform linear regression techniques, chosen because it has been extensively used lately in behavioral and social sciences and found to be appropriate for our data. With its ability to describe and quantify possible relationships between identified variables, it has helped a lot in analyzing significant data that proves to be statistically and meaningfully important to explain the purpose and the need of the research. Table 1 summarizes the research questions and the hypotheses to be tested followed by the reliability test of the questionnaire (Data).

Research Questions (RQ)	Hypotheses (H)
RQ 1: How are purchasing functions within Lebanese Organizations classified?	H 1: Purchasing functions within Lebanese organizations can be classified based on their level of involvement in strategic planning, status in the eyes of top management, degree of internal integration, and purchasing skills.
RQ 2: How do purchasing functions at the Lebanese organizations affect performance outcomes?	H 2: Based on different configurations of purchasing characteristics, different purchasing functions will have higher levels of performance outcomes.

Table 1: Summary of Research Questions, Hypotheses, and research Instruments

Cronbach's Alpha	**No. of Items**
.836	**18**
Cronbach's Alpha	**No. of Items**
.846	**19**

Table 2: Reliability Statistics for (PC) and (PO)

To summarize this section, the research methodology was conducted using three phases: the Preparation, the Data Collection, and the Data Analysis.

The first phase, Preparation, identified: (i) the research relationships and the formulation of two hypotheses to answer the two research questions i.e. (H1) Purchasing functions within Lebanese organizations and (H2) based on different configurations of purchasing characteristics, different purchasing functions will have different levels of performance outcomes.

(ii) The target population was 150 companies from which 95 responded (500 company were contacted to find out if they have a purchasing department) and the statistical information was demonstrated. (iii) The different variables were derived from the Literature review and measured using Likert-scale response to indicate the degree to which the described activities were present at the Lebanese organizations and included: (a) Performance Outcomes (PO) as a dependent variable including the supplier integration; supplier relationship outcomes; product performance; and financial performance and the measurement scale used for each outcome, (b) Purchasing Clusters (PC) as an independent variable including the involvement in strategic planning; internal integration; status; and purchasing skills and the measurement scale used for each cluster. (iv) the Instrumentation Basis, were derived from earlier research that were used to measure (PC) and (PO) and a questionnaire was developed in order to provide the necessary information to test the relationship between the variables, including: A one-page cover letter; 5 questions that addressed industry sector, number of employees, education level, experience, and position; Purchasing clusters, 18 items were developed ;Performance outcomes, 19 items were developed; and all items were measured in a 5-point Likert-scale response; A pilot test was conducted first and several minor changes were made as a result; the response rate was 63 %. (v) First, The validity checked and approved: (a) the questionnaire was adapted from previous models, (b) face validity of the questionnaire was checked by 2 professionals to determine clarity and appropriateness, (c) content validity was reviewed, (d) factorial validity was established which indicates that the factor structure of the questionnaire makes intuitive sense, factor analysis was performed and correlated questions were re-coded into uncorrelated variables called factors. Second, the reliability of the questionnaire was assessed using "SPSS" to calculate Cronbach's alpha and resulted in a high internal consistency and reliability between the items of the questionnaire as Cronbach's alpha was greater than 0.80 (Table 2). The second phase, the researchers distributed the questionnaire by hand and via email and then collected the answers. The Third Phase was the Data Analysis, the Principal Component Analysis Model was selected as the basic model, which is a data reduction technique that creates components that allow the interpretation of large series of data into components that can be meaningfully important to identify variables among purchasing clusters and performance outcome and was divided to two steps: (i) identifying each set of variables by using two basic types of factor analysis: (a) exploratory (EFA) which is used when researchers have no previous assumption about the number of factors necessary to explain the interrelationships among a set of factors and thus (PC) indicators were categorized based on four characteristics and (PO) indicators were categorized based on four items, and (b) confirmatory (CFA) that assesses the extent to which the hypothesized model of a set of identified factors fits the data, (CFA) was then conducted to determine whether the factor structure generated from the (EFA) required modification. (ii) Linear Regression was used to assess the relationships between (PC) and (PO) in order to test the hypotheses and answer the research questions. Linear Regression was chosen because it has been extensively used lately in behavioral and social sciences, and it has helped in analyzing significant data that proves to be statistically reliable and meaningfully important. So, all the listed phases helped the researchers to establish the: research relationships, select measurement, identify variables, develop Instrumentation, establish reliability & validity, describe data collection, and analyze the data in order to discuss the findings of the research in the next section of this paper.

IV. FINDINGS: ANALYSIS AND INTERPRETATION

As mentioned previously, the main objective of this paper is to examine the purchasing functions within the Lebanese organizations/industries and to study the relationships between purchasing functions and performance outcomes. So, it is completed using three-step analyses. The first involved a descriptive analysis

for the characteristics of the respondents as well as the distribution of responses of the items describing the Purchasing Clusters (PC) and Performance Outcomes (PO); the second is the Factor Analysis (FA) used to identify the factor structures of the dependent and independent variables; the third step involved the use of Linear Regression to express the dependent variable as function of the independent variable and to examine the relationships between them. From the results obtained, we find that (48.4%) of the Lebanese organizations involved in the research had more than 200 employees and most of them were Bachelor degree holders (84.2%), the respondents' work experience was equally distributed. The targeted respondents had current managerial positions (82.1%) including high managerial positions (11.6%), middle managerial positions (46.3%), and first line managerial positions (24.2%). Table 3 describes the different notations used in the research. We observe also that the (PC) and (PO) items described were significant and important since they were closer to the "Agree" than to the "Neutral" scale. The central tendency of the distribution used is "the Mean" which is the estimate of the "center" of the distribution of values, and the "Standard Deviation" refers to the spread of the values around the central tendency as shown in Table 3.

PC Descriptive Statistics				**PO Descriptive Statistics**			
	N	Mean	Std. Dev.		N	Mean	Std. Dev.
SP: Purchasing Included in Strategic Plan	95	4.06	1.029	SIN: Information Technology	95	3.86	1.097
SP: Purchasing Performance Measured by Firm's Success	95	3.92	1.059	SIN: Strategic Partnership	95	3.84	1.003
SP: Purchasing Development Focuses on Competitive Strategy	95	3.95	1.076	SIN: Participation in Design	95	3.87	1.013
SP: Purchasing Focuses on Long Term Risky Issues	95	3.6	1.189	SIN: Participation in Process	95	3.64	0.956
SP: Purchasing Has A Formal Long Range Plan	95	3.91	0.968	SIN: Quick Ordering System	95	3.85	1.01
STA: Supportive Top Management	95	4	0.989	SIN: Stable Procurement through Network	95	3.78	1.084
STA: Purchasing Vital to Company Strategy	95	4.13	0.97	SRO: Improve Product Design	95	3.79	1.051
STA: Purchasing Important to Top Management	95	4.06	0.873	SRO: Improve Process Design	95	3.63	1.082
INT: Regular Strategy Meetings	95	3.68	1.065	SRO: Improve Product Quality	95	3.63	0.935
INT: Initiate Changes in End Products and Inputs	95	3.8	1.068	SRO: Reduce Lead	95	3.92	1.018
INT: Market and Price/Cost Analysis	95	3.91	0.979	SRO: Increase Product Sales	95	3.96	0.944
INT: New Product Design	95	3.59	0.917	PRO: Product Quality	95	4.24	0.896
INT: Process Design and Improvement	95	3.86	0.93	PRO: Delivery Speed	95	4.09	0.935
INT: Strategic Contributions to The Company	95	3.98	1	PRO: Delivery Reliability	95	4.18	1.01
SKL: Monitor and Interpret Changes	95	3.92	1.018	PRO: Flexible Production	95	3.91	1.042
SKL: Technical Capabilities	95	3.89	1.047	FIN: Return on Investment	95	4.19	1.065
SKL: Improve Total	95	3.94	0.976	FIN: Return on	95	4.21	1.119

Cost				Sales			
SKL: Perseverance, Imagination, Decisiveness, and Interpersonal Skills	95	3.96	0.922	FIN: Profit Growth	95	4.21	0.898
				FIN: Return on Total Assets	95	4.23	1.086
Valid N (listwise)	95			Valid N (listwise)	95		

Table 3: Descriptive Statistics for (PC) & (PO)

Performance Outcomes	Variable
Supplier Integration (SIN)	**Strategic partnership with suppliers** **Information exchange** **Supplier participation in design, procurement, and production** **Quick ordering systems**
Supplier Relationship (SRO)	**Improved product design** **Improved process design** **Improved product quality** **Reduced lead times**
Product Performance (PRO)	**Product quality** **Delivery speed** **Delivery reliability** **Flexibility of production**
Financial Performance (FIN)	**Return on investment** **Return on sales** **Profit growth** **Return on total assets**
Strategic Planning (SP)	**Formal long range plan** **Review of plan to match changes** **Inclusion of relationships with suppliers**
Purchasing Status (STA)	**Top management support** **Importance to strategy** **Importance to top managers**
Internal Integration (INT)	**Extent of integration with marketing** **New product design** **Process involvement** **Strategy making**
Purchasing Skills (SKL)	**Monitor changes in supplier market** **Technical capabilities** **Reduce total cost** **Interpersonal skills**

Table 4: Purchasing Clusters (PO) as dependent and (PC) as independent variables

Principal Component Analysis (PCA) was used to interpret series of data into meaningfully important components. "SPSS" identifies (PCA) as Factor Analysis (FA). In Factor Analysis, also known as Common Factor Analysis (CFA), the only percentage of variance included in the model is the variance that is shared between the variable under study and the rest of variables included in the analysis. The difference is obvious in the correlation matrix where diagonal elements in (PCA) are equal to 1. Exploratory Factor Analysis was conducted to identify a viable factor structure for the dependent and independent variables, and to determine the factor structure of the 19 items of (PO) as a dependent variable and the 18 items of (PC) as an independent variable using the: Principal components, Varimax rotation, and Listwise missing values. Factors were extracted based on Eigenvalues >1, statistically significant components tested by Bartlett's test of Sphericity were considered, KMO (Kaisen-Meyer-Olkin) measure of sampling adequacy was considered where values are > 0.7 showed positive correlations and justified performing component analysis, ± 0.40 was the factor loading standard (i.e. items with absolute primary factor loadings ≥ 0.40 were retained. Items not meeting this criterion was removed one item at a time). The Factor analyses iterations were repeated until a solution was attained in which all the items included in the analysis met all criteria.

The (CFA) yielded one factor solution for each dependent variable assessed. Purchasing Clusters (PC) variables were extracted into a 15-item statistically significant component. Table 3 shows in detail as the opposite of grouping the purchasing functions and performance outcome. So, that can make clearer the correlation between the purchasing functions and purchasing outcome in each organization. Therefore, the general conclusion can be beneficial to show the strengths and weaknesses in each and every part of the studied items. The 15 statistically significant (PC) items included the four factors as discussed in the literature before. They included the strategic planning excluding the existence of a formal long range purchasing plan as a meaningful function due to the fact that Lebanon is considered at the moment of conducting the study as risky country and going through an economic crisis; included all purchasing status; from the part discussing the internal integration, the new product design as well as the process design and improvement were dropped as the majority of the functioning organizations are not manufacturing ones but more oriented into services, import and export. Knowing that for some organizations this was a meaningful and important part that included all purchasing skills items. Performance Outcomes (PO) variables were extracted into 16-items statistically significant component. The 16 (PO) statistically significant extracted factors correlated with the factors discussed in the literature above. The quick ordering system was considered irrelevant and meaningless; therefore, it was excluded from the supplier integrations as well as the stable procurement through network was also omitted for the simple reason that most if not all the Lebanese organizations did not even think of implementing this option into their management and purchasing departments. Increased product sales were added to the list of meaningless functions by the organizations themselves, so, it joined the rest of the functions in the excluded group and it was omitted from the supplier relationship improvement. While all product performance outcomes and all financial performance were included. For further analysis, linear regression showed in Table 4, was performed to study the significant relationship between (PC) items as independent variables and (PO) as dependent variables as well as to quantify the strength of their relationships. The statistical significance was confirmed based on the significance values below 0.05 with 95% confidence level. Linear regression was used in this paper to model the relationship between the concerned variables. The factors extracted, as discussed before, showed a positive but weak correlation which was statistically significant. In order to better understand the relationships between all items of the research, linear regression was used to test each item of the independent (PC) with the extracted factor of (PO). The analysis shows that, only three statistically significant independent (PC) factors have direct positive and significant effect on (PO) when studied independently (sig. < 0.05). They include Purchasing focus on long term risky issues, process design and improvement, and perseverance, imagination, decisiveness, and interpersonal skills. When linear regression was performed on each item of the 18 independent variables (PC) items with respect to the 19 dependent variables (PO) items, some significant correlations were detected. The significant correlation between the different factors presented show that the purchasing included in strategic plan is positively affecting the product quality; purchasing performance measured by firm's success is positively affecting the information technology, return on sales, return on total assets; purchasing development focuses on competitive Strategy is positively affecting the return on total assets; Purchasing focuses on long term risky issues is positively affecting the Quick Ordering System, improve product quality, increase product sales; purchasing has a formal long range plan is positively affecting the reduce lead, profit growth; supportive top management is positively affecting the strategic partnership; Purchasing vital to company strategy is positively affecting the participation in process; purchasing important to top Management is positively affecting the delivery speed; regular strategy meetings is positively affecting the improve process design; initiate changes in end products and inputs is positively affecting the information technology, improve product design, product quality, delivery reliability; market and Price/Cost analysis is positively affecting the information technology, improve process design, product quality, return on investment; New product design is positively affecting the return on total assets; process design and

improvement is positively affecting the participation in design, participation in process, improve product design, flexible production; monitor and interpret changes is positively affecting the quick ordering system, stable procurement through network, return on investment; Technical capabilities is positively affecting the return on investment; perseverance, imagination, decisiveness, and interpersonal skills are positively affecting the delivery speed, delivery reliability, return on investment and return on sales.

PC Component Matrix			**PO Component Matrix**	
	Component 1			Component 1
SP: Purchasing Included in Strategic Plan	0.672		SIN: Information Technology	0.464
SP: Purchasing Performance Measured by Firm's Success	0.701		SIN: Strategic Partnership	0.571
SP: Purchasing Development Focuses on Competitive Strategy	0.572		SIN: Participation in Design	0.515
SP: Purchasing Focuses on Long Term Risky Issues	0.449		SIN: Participation in Process	0.509
STA: Supportive Top Management	0.449		SRO: Improve Product Design	0.435
STA: Purchasing Vital to Company Strategy	0.575		SRO: Improve Process Design	0.458
STA: Purchasing Important to Top Management	0.489		SRO: Improve Product Quality	0.533
INT: Regular Strategy Meetings	0.481		SRO: Reduce Lead	0.62
INT: Initiate Changes in End Products and Inputs	0.572		PRO: Product Quality	0.558
INT: Market and Price/Cost Analysis	0.538		PRO: Delivery Speed	0.614
INT: Strategic Contributions to The Company	0.439		PRO: Delivery Reliability	0.719
SKL: Monitor and Interpret Changes	0.53		PRO: Flexible Production	0.515
SKL: Technical Capabilities	0.645		FIN: Return on Investment	0.566
SKL: Improve Total Cost	0.66		FIN: Return on Sales	0.572
SKL: Perseverance, Imagination, Decisiveness, and Interpersonal Skills	0.52		FIN: Profit Growth	0.684
			FIN: Return on Total Assets	0.479
KMO and Bartlett's Test			**PC**	**PO**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			0.764	0.748
Bartlett's Test of Sphericity	Approx. Chi-Square		398.763	579.781
	Df		105	120
	Sig.		0.000	0.000

Table 5: (PC) & (PO) Component Matrix

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.590	0.348	0.341	0.811893	0.348	49.604

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.913E-18	.083		.000	1.000
	PC Regression	.590	.084	.590	7.043	.000

Table 6: (PC) & (PO) Model Summary

In order to better understand the relationships between all items of the research, linear regression was also used to test each item of the independent (PC) with the extracted factor of (PO) as shown in tables 5 and 6.

	B Coefficient	**Sig.**
SP: Purchasing Included in Strategic Plan	.17	.133
SP: Purchasing Performance Measured by Firm's Success	.18	.098
SP: Purchasing Development Focuses on Competitive Strategy	.01	.897
SP: Purchasing Focuses on Long Term Risky Issues	.19	.039
SP: Purchasing Has A Formal Long Range Plan	.05	.609
STA: Supportive Top Management	-.04	.707
STA: Purchasing Vital to Company Strategy	.13	.251
STA: Purchasing Important to Top Management	.12	.357
INT: Regular Strategy Meetings	.00	.995
INT: Initiate Changes in End Products and Inputs	-.04	.694
INT: Market and Price/Cost Analysis	.05	.634
INT: New Product Design	.17	.106
INT: Process Design and Improvement	.24	.038
INT: Strategic Contributions to The Company	.04	.665
SKL: Monitor and Interpret Changes	-.01	.948
SKL: Technical Capabilities	-.06	.519
SKL: Improve Total Cost	-.12	.340
SKL: Perseverance, Imagination, Decisiveness, and Interpersonal Skills	.31	.011

Table 7: Statistically Independent Factors

Table 7 shows that only three statistically significant independent (PC) factors have direct positive significant effect on (PO) when studied independently (sig<0.05). They include Purchasing focus on long term risky issues, process design and improvement, and perseverance, imagination, decisiveness, and interpersonal skills. Based on factor analysis, 15 (PC) items were statistically significant as principal components that can be meaningfully important in analyzing Purchasing Clusters. 16 (PO) items were statistically significant as principal components that can be meaningfully important in analyzing Performance outcomes. The 15 statistically significant (PC) items included the four factors as discussed in the literature before. Purchasing functions within the Lebanese organizations can be classified based on their level of involvement in strategic planning, status in the eyes of top management, degree of internal integration, and purchasing skills. First, purchasing cluster is defined as purchasing involvement in strategic planning that includes review of plan to match changes and inclusion of relationships with suppliers and excludes formal long range plan. Second, purchasing cluster is defined as purchasing status which includes top management support, importance to strategy, and importance to top managers. Third, purchasing cluster is defined as internal integration that

includes extent of integration with other areas in the firm such as marketing and strategy making and excludes new product design and process design and improvement. The forth purchasing cluster is defined as purchasing skills that includes the abilities to monitor changes in supplier market, technical capabilities, total cost reduction, and interpersonal skills. The most significant Purchasing Clusters (PC) contributing to the Performance Outcomes (PO) based on the results obtained from "SPSS" show a positive correlation which is statistically significant and represented by the following equation:

$$PO = 0.59\ PC - 4.913e\text{-}18 \qquad (1)$$

The above equation shows that Performance clusters in the studied Lebanese organizations positively and significantly affects performance outcome. Also, we observe that Lebanese organizations have developed significant and important purchasing functions that follow the international norms, but they are facing challenges from the external environment due to the political and economic situation of the country. The majority of top managements in these companies did not realize the importance of the process design to gain a competitive advantage; moreover, top managements did not conduct any cultural or organizational changes in order to develop purchasing network, implement a quick ordering system, and the supplier's involvement in increasing product sales. The managerial implications, recommendations, limitations of the study, and the final conclusion will be developed and presented in the next section.

V. CONCLUSIONS AND RECOMMENDATIONS

This research tested directly the relationships between Purchasing Clusters and Performance Outcomes in different Lebanese organizations/industries. This research was conducted using a sample of 95 Lebanese organizations that had well developed purchasing departments. It provided a clear understanding of the statistically significant items that characterize the purchasing clusters in the Lebanese organizations. It also quantified the positive correlations between the selected variables under study. A high siomilarity observed between the results found and what was discussed previously in the literature review taking into consideration the fact that, the researchers developed a research instrument to measure some major indicators of the purchasing clusters and performance outcomes. Using "SPSS", reliability and descriptive testing were used and applied to guarantee the internal consistency of our data and our model. Then, principal component analysis (PCA) was conducted to identify the component structures for each variable. Finally, linear regression technique was implemented in order to investigate the relationships among variables and to illustrate the impact of (PC) on (PO). Results found show also the scores on the 18-items scale that measured (PC) as an independent variable was neutral and statistically reliable. This indicates that purchasing executives in the Lebanese organizations/Industries perceived a good feedback regarding purchasing characteristics at their organizations. Moreover,The scores on the 19-items scale that measured (PO) as a dependent variable was also neutral and statistically significant. So,we can conclude and based on the different statistics discussed previously that in general the Respondents have perceived the positive effect of (PC) on (PO) in the Lebanese organizations/industries which is similar to the majority of studies discussed in this paper from the literature review. The (PC) variables were extracted and grouped into 15-item statistically significant component including strategic planning except the existence of a formal long range purchasing plan, purchasing status, internal integration excluding new product design and process design and improvement, and all purchasing skills items. The 16 (PO) statistically significant extracted factors correlated with the factors included supplier integration outcomes excluding quick ordering system and stable purchasing through network, supplier relationship improvement excluding increased product sales, all product performance outcomes and all financial performance results." SPSS" generated values based on the statistically significant components of the two variables presented in equation (1).

Moreover, we can detect and show a positive impact regarding the management, CEOs and employees involved in the process. They were well educated especially regarding the purchasing as well as the marketing departments. It establishes the importance of the Lebanese trading and management to insure the quality of services to help reducing the inefficiency of the procedures and achieving the optimal use of the resources used with a cost effective way. Scholars and practitioners agree about the fact that, it is vitally important for firms to develop their purchasing functions and follow a set of practices and procedures. Knowing that, if the purchasing is not aware of the strategic intent of the firm, it is likely to obstruct the increase of profit; this will imply that, the firm cannot achieve its full business benefit leading sometimes to different losses in the intermediate and/or the long run. It is noted that approximately 70% of the contacted companies in Lebanon do not have a purchasing department and are unaware of the importance of the purchasing characteristics, process and benefits to the organization performance outcome and the attribution to gain a competitive advantage in the market leading the company to achieve some efficiency in its operations. For the assessed companies, we observed and we notified that awareness of the purchasing characteristics was significant, but managers should put more emphasis on the excluded part of the research, i.e. a formal long range purchasing plan, new product design, process design and improvement; and develop them in order to maximize the performance of the outcome. It

was observed and noted also that the partnerships with the suppliers within the Lebanese companies did not contribute to the product sales increase due to a variety of reasons and factors. The distinctive purchasing efforts and specialized categories awareness that every purchasing employee has are the improvements that the firms should consider to benefit. A formal long range purchasing plan was found meaningful in some studies done outside Lebanon but was not well developed by the Lebanese companies due to different factors such as, the risk level in the country to implement a long-range plan. Moreover, new product design, process design, and continuous improvement were dropped by the majority of the Lebanese functioning organizations, taking into consideration that companies are more oriented into services. Process design requires management support and cultural change within companies and this is a cost that companies are not willing to assume and/or to pay. The quick ordering system is dependent on building long-term relationships, sharing information, and shared investment in technology and facilities with suppliers. This will work only if senior management drives the necessary organizational and cultural change. However, it was also noted that in general, Lebanese companies lack the management support and motivation needed to make the required changes to develop and to take advantage of such systems. To better understand this concept and for the efficiency of its assessment and measurement, we recommend to cluster the lebanese industries and organizations using different factors of classification in order to perform comparative studies to learn more about this topic and its effect concerning the cost and the benefits in the short run, intermediate run and long run. Moreover, companies should use different concept and Application related to the Industrial Engineering Department. Also, they have to implement different types of hightech if possible such as, the Entreprise Resource Planning (ERP), the Customer Relationship Management (CRM), the Supply Chain Management (SCM) and e-procurement systems to manage procurement, fulfillment and production systems because these systems track the entire event that occur within each process. To overcome the impact of the different limitations that we were facing, it might be helpful to separate the data into different samples statistically significant with similar statistical or industrial criteria in an attempt to test separately each category and its effects. Future researches can also explore the driving forces behind the purchasing functions and its impact on performance outcomes. Thus, the importance of this paper is based mainly on the exploration of the various configurations of purchasing functions within today's Lebanese organizations/industries and if these significantly affect the performance outcomes of the companies. It would be the starting point for a more advanced research within the supply chain field since no studies were previously conducted concerning the tackled subject. By identifying the different functions of purchasing and the different organization performance outcomes, the Literature allowed us to develop the needed research methodology and statistical procedure to be conducted in order to examine the previously presented hypotheses about the importance of purchasing functions and their effect on the performance outcomes.

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