COMPETITIVE SOURCES & PERFORMANCE OF CYPRIOT FURNITURE MANUFACTURERS

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Purpose - The study provides important implications for managers and researchers who explore the relationships among competitive sources and company performance.
Design / methodology/ approach - A 2007 empirical study explores the competitiveness of 145 furniture enterprises in Cyprus. Based upon the relevant literature, a comprehensive list of 47 competitive items was developed which were viewed as potential strategic abilities supporting competitiveness. The data analysis techniques are descriptive statistics, correlation and regression analysis, using the SPSS package.
Findings - Cypriot furniture manufacturing follows the principles of manufacturing strategy. Competitive advantage is limited in price and quality. Price-competitive companies are stressing delivery/time issues with a leading role of the marketing area, whereas quality – competitive ones are building on marketing and new products, with quality being the strongest predictor for market share.
Time is seen as a possible winning criterion. On – time delivery strongly correlates to human resources, but not to quality processes. Yet, Quality Management starts gaining some attention with ISO 9001:2000 being the main concern.
The Cypriot furniture sector is still lagging behind in technology and manufacturing. This, however, does not mean that advanced technologies are neglected in Cyprus with a steady growth of CNC machinery.
Practical Implications - Mature, industries, struggle to survive in the new globalized markets. The study provides useful information first and most of all for Cypriot managers and all responsibles for the survival and development of the Cypriot furniture industry. It also proves that companies need more than one competitive priorities and advantages to prosper, while focusing on a singe competitive component is rather dangerous.
Originality / value - This was the first study devoted to the analysis of manufacturing, product development, marketing, quality, human resources and overall management decisions adopted by Cypriot furniture manufacturers.
This study expands previous similar studies, offering more insight on the effects of the several functional areas and arising questions on the differences among the same industry sector across different nations.
Keywords: Competitive Sources, Performance, Cyprus, Furniture industry, Manufacturing, Empirical Research

INTRODUCTION

This paper presents the results of a survey about the competitive sources and performance of 145 furniture manufacturers located in Cyprus. The survey was conducted in late 2007 and combines competitive strategy and performance in order to draw results and suggestions for the Cypriot furniture industry. There are currently some 800 factories and workshops throughout the country, employing a total of 2,500 people (CSIL, 2008).

There are practically no studies that have been devoted to the analysis of manufacturing, product development, marketing, quality, human resources and overall management decisions adopted by Cypriot furniture manufacturers. Responding to the specific industry need for survival and development, this research aims at investigating sources of competitive advantage that could lead to superior performance.

The aim of this paper is to establish the framework in which the Cyprus wood and furniture industry is operating with emphasis given to the competitive priorities and manufacturing parameters. The level of existence of various characteristics of the companies is investigated and correlated in order to examine their relationship. The level of importance given to each competitive priority and manufacturing parameter is established.

This paper is organized as follows. First, the strategic operations literature is reviewed to develop a theoretically relevant list of competitive priorities. The methodology is described next, including the sampling procedure and measurement process. The set of competitive priorities is then analyzed to identify core dimensions of manufacturing strength in the furniture industry. Next, predictive validity is established by examining relationships between these generic dimensions of manufacturing performance and overall business performance. Finally, the managerial implications of this study are presented along with suggestions for future research.

Following a discussion of the survey, the results which focus on competitive objectives and performance are discussed, as well as their relationship to the above mentioned competencies and their practice.

LITERATURE REVIEW

Porter (1980) developed the idea that all competitive strategies are variants of generic strategies involving a choice between differentiation and delivered cost (price), with degrees of focus, i.e., serving niche or broad markets, providing a second competitive dimension. The term "competitive advantage" has at least two distinct but interrelated meanings. The first focuses on superiority in skills and/ or resources and the second are concerned with superiority in performance outcomes (Vickery, 1994). Still, both meanings rely on companies' distinctive competencies such as New Product Development, Quality and Marketing.

Traditionally competition was static with production factors being the key responsibles for success or failure. Modern competition is global and unexpectently dynamic. The industrial competitive advantage is changing rapidly dew to new and innovative technology, shorter product life cycles and new dynamic players such as China. Li (2000) claims that there is a cross-functional effort between marketing and operations to follow the market needs and translate them into capabilities.

Numerous studies conducted during the past two decades demonstrate the importance of strategy in relation to firm performance (Demeter, 2003). This stream of research includes work highlighting the connection between performance and manufacturing technology (Beaumont and Schroeder, 1997; Das and Narasimhan, 2001), quality management practices (related to both people and systems/assets) (Dow *et al*., 1999) and overall strategy (Robb and Xie, 2005; Li, 2000). We first argue that competencies in marketing, innovation, quality, human resources, overall management and manufacturing are sources of advantage for a firm. We focus on these six functional areas because they have long been hypothesized to be crucial to corporate survival and progress.

The marketing, innovation, and manufacturing competencies are defined in terms of the weighted performance on a comprehensive set of competitive elements. The set of elements is derived from the strategy, innovation, marketing, and manufacturing literature. Such items have also been referred to as capabilities and order- winning criteria. The literature also suggests that competitive performance relative to such items contributes to business performance, and hence, to overall competitive advantage. The literature reduces an exhaustive list of competitive priorities to five to six core dimensions: price (cost), quality, delivery performance, dependability, innovativeness and flexibility (Hayes and Wheelwright, 1984; Ferdows and De Meyer, 1990; Ward et al., 1990; Roth and Van Der Velde, 1991).

Previous research has shown that only when a firm can concert its functional area competencies, can it enhance competitiveness (Li, 2000; Evans and Lindsay, 1996; Hill and Jones, 1989; Porter, 1990). In 1966, Skinner described the heightened competitive pressures placed upon U.S. manufacturers for improvement in a variety of performance categories. The areas that were marked as the most important were: more frequent product changes and new product introductions; price advantage; lower production costs; quality which encompassed appearance, style, function, and tighter design tolerances; longer, trouble-free product life; special purpose or customer-designated products; shorter lead times; and delivery speed (in Vickery et al, 1997). Several years later (in 1974) Skinner described some common standards for measuring manufacturing performance. These performance criteria included short delivery cycles; superior product quality and reliability; dependable delivery promises; the ability to produce new products quickly; flexibility in adjusting to volume changes; low investment leading to high return on investment and low costs.

Since then several authors have described in an analytical way the most important general criteria for enhancing and evaluating manufacturing performance : Wheelwright (1978) (in Robb and Xie, 2003); Schmenner, (1981) who grouped them in product - , delivery – and cost – related "competitive demands"; Hayes and Wheelwright (1984) who introduced the term 'competitive priorities'; Krajewski and Ritzman (1987) with a more definitive list of manufacturing competitive priorities; Hill (1994) who outlined a set of 'order-winning criteria' and Schroeder and Lahr (1990). Each author expanded the criteria from price, product and process quality (conformance to specifications) and reliability to delivery speed, delivery reliability, and the ability to respond to increases in demand as well as after-sales service, product design, product customization, process technology (Vickery et al, 1997).

Around the same time, empirical studies focusing on competitive priorities began to stress the need for consistent quality, high performance products, dependable delivery promises such as delivery on due date, fast deliveries, design changes/introduction of new products, rapid volume changes, offer low prices, broad distribution, advertise effectively, broad product line, and after-sales service (Cleveland et al., 1989; Wood et al., 1990; Ferdows and De Meyer, 1990 in Vickery et al, 1997).

A common theme in operations strategy research has been the manufacturers' choices of emphasis among key capabilities or competitive priorities. Schroeder et al. (1986) found the first- and second- ranked objectives to be quality and delivery performance, respectively. Single-industry US studies include Vickery et al. (1997) on 65 furniture manufacturers, finding significant relationships between company financial performance and the degree to which manufacturing performance supported the business strategy.

Other studies concentrated on *infrastructure* (human resources, management policies, and procedures) such as Upton (1995, in Robb and Xie, 2001), who entered the importance of the workforce and management communication and Bates et al. (1997) who show a significant relationship between manufacturing strategy and management, and Evans and Lindsey (1996) and Simerly (1997) who discussed on the effect of human resources.

Based on the above literature and using the studies of Vickery et al. (1996) and Li (2000) as guidelines, a comprehensive list of 47 items was developed, which were categorized to the six categories that were found to be crucial functional areas for firm survival and development: marketing, product design and development, quality, human resources, overall management and manufacturing.

More specifically and in order to clarify their role, the above functional areas are briefly discussed bellow:

Marketing: Literature concerning marketing and its linkage to production shows that one key to success is the understanding of customers and expected wishes and their satisfaction (Krajewski and Ritzman 1996; Li, 2000). Therefore, the existence of a separate marketing department, with modern approaches and tools and a formed strategy emphasizes responsiveness, meeting customer's needs.

Product design and development: They are considered as innovation capabilities and thus cover the area of innovation. Furthermore, furniture industry belongs to the mature ones. So, one cannot expect radical innovations or exceptional R&D. Many studies have suggested that they have a significant impact on a firm's overall performance (Ettlie, 1997; Porter, 1990).

Quality: Garvin (1987) points out that quality is multidimensional and that each of its dimensions can be used strategically to gain competitive advantage. The quality scale used here includes items related to the important quality aspect of process control and process management (Flynn et al., 1994). Quality cycles and employee contribution have been recalled from the classical quality theory.

Human Resources: Evaluation and training combined to a good communication with the top management empowers employee satisfaction and leads to superior performance. Human resources management is one of the non replicable and most valuable competences in a prospering organization. Its importance has been highlighted by numerous authors (Forrester and Hassard, 2000; Sun *et al*., 2001; Porter, 1990; Hil, 1994; Simerly, 1997).

Overall Management: Studies dealing with the connection between business management and business performance have played an important role (e.g. Pearce et al., 1987; Cool and Schendel, 1987; Banker et al.,

1996) in the development of the production strategy of successful organizations. They refer to business characteristics and strategies, such as communication and collaboration, information diffusion and company programs. Benchmarking is introduced as an indicative practice, in order to specify the general meaning of "new practices" (where the answer is usually *yes*).

Manufacturing: Recent management theories stress the need for the manufacturing strategy of the business to be compatible with the firm's competitive strategy (Efstathiades et al., 1999). Success in the global market place requires companies to employ technology strategically by linking it to a firm's competitive strategy. Such a link ensures that technology and strategy support one another, enabling a company to better achieve its goals (Zahra, 1994). The target customer needs determine the manufacturing capabilities the firm must possess, in order to offer a competitive customer service. Therefore, the development and use of technology must be guided explicitly by the business strategy of the firm. Technology is then considered as a tool that has to be used in the strategy of an enterprise (Haan and Peters, 1993; Erickson et al., 1991).

Using a rather big pool of manufacturing parameters, a set was made of the ones that have been identified as major contributors to the competitive priorities of the furniture industry (Efstathiades et al., 1999; Li, 2000).

Performance

Concerning business performance, it is obviously very difficult to create a single measure for business success. Still, the overall research hypothesis that the six above mentioned and discussed functional areas individually and/or jointly determine performance is strongly supported by the literature in a variety of fields. Fitzsimmons, Kouvelis, and Mallick (in Vickery, 1994) argue that the successful performance of design, manufacturing and marketing functions, as well as the performance of the whole, is required for competitive advantage.

Craig and Douglas (1982) investigated the effects of several marketing mix and industry structure variables on firm performance to find product quality to be significantly related to ROI and market share in every year of a six-year time horizon. Many studies in the innovation literature have identified innovation as a key determinant of firm performance, especially of growth. While the measurement of new product success or failure is multi-dimensional, researchers have historically focused on overall firm impacts (e.g., profitability, revenue growth, ROI) and have connected the number of new products to firm performance (Griffin, A. & Page, 1993).

In the manufacturing literature, several studies have attempted to link business performance with one or more manufacturing-related constructs. Wood et al. (1990) examined several competitive items (e.g., high product reliability, high durability, product customization, short delivery time, quality consistency, and cost) in their study of the effects of intended and achieved performance on firm performance. They found that above average financial performance was associated with above average emphasis on a wide variety of competitive items, highlighting quality and delivery accuracy among them. In a similar vein, Giffi et al. (1990) argued that the achievement of superior manufacturing capability requires emphasis on many priorities such as quality, dependability, cost, and flexibility (in Vickery et *al*., 1994).

CYPRUS

Cyprus, a small island in the eastern Mediterranean, has traditionally relied on agriculture and tourism for economic growth. The introduction of Cyprus to EU and market globalization have led to the opening up of the Cyprus market to manufacturers from the EU and other countries with products of higher quality and higher design content (e.g. Italy and Spain), or lower price (China) than locally manufactured goods. The challenge arises from the need to compete with European and other manufacturers in terms of cost and quality in the local market (Efstathiades et al., 1999) in an ever changing competitive environment. Success in this endeavour, however, requires new approaches to technology, human resource development, company structure, and management philosophy.

Cyprus is classified as a 'high income' economy in the World Development Report 1997 (Anon, 1998). Cypriot firms are generally very small with many micro-businesses: 88% of firms have less than 10

employees, while only 1.4% of firms have more than 50. Furthermore, industrial research in Cyprus is virtually absent and, probably, due to its size only some industrial development work is realistically feasible (Hadjimanolis & Dickson, 2001).

THE FURNITURE INDUSTRY

There are a remarkable number of studies of the furniture industry in the United Kingdom (Deeks, 1976 in Robb and Xie, 2003), the United States (Skinner and Rogers, 1968; Moorman and Montgomery, 1998 in Robb and Xie, 2003), and China (Robb and Xie, 2003). All of them show an industry comprised largely of small, privately- owned firms (the majority employing less than 100), with many operating in a 'craft' production mode and very labour intensive. Raw materials have a great impact on costs, plant locations, design and innovation.

With processes such as assembly and finishing notoriously difficult to automate, the furniture industry in general is not known for highly advanced manufacturing technology — the level is 'reasonable but not overwhelming' (Vickery *et al*., 1994 in Robb and Xie, 2003). Generally only the largest firms target more than one segment of the market. A 1990 study of 65 US furniture firms with sales above 10 million US$ showed that manufacturing strategy, expressed in terms of 'production competence', was strongly associated with business strategy and firm performance (Vickery *et al*., 1993).

FURNITURE MANUFACTURING IN CYPRUS

The destruction of the island's infrastructure by the Turkish invasion in 1974 and the rapid reconstruction programme that followed, led to the rapid development of the furniture industry which was initially geared to serve the local construction industry. There are practically no studies about the specific industry and its main characteristics of its manufacturing and business strategy.

Furniture production in Cyprus is mainly based on wood, with a marginal share of plastic and metal furniture. Cyprus has limited forest resources but has large areas of woodland with typical Mediterranean flora. As could be expected Cyprus is completely dependent on imports of semi-finished wood products. It therefore shows a large deficit in the trade balance. The country is completely dependent on imports for its woodworking machinery needs (mainly from Italy).

In recent years (2002 – 2007) furniture production has slowly yet constantly decreased. In contrast, consumption has been increasing over the same period (about 50%). Actually, between 1998 and 2007 per capita private consumption showed average annual growth of about 5%. The Cyprus manufacturing sector is very active, also due to the country's great tourist attraction (around 2 million tourists every year). Demand is particularly high for hotels and other kinds of accommodation as well as houses used as a second home. The increased share of furniture imports on the domestic market should be noted (CSIL, 2008)

Most of the companies produce total furniture excluding parts, while the rest concentrate mainly on kitchen and frame production and installation. According to the Cyprus Furniture and Woodworking Industry Association, there are around 2,500 people working in almost 800 factories and workshops throughout the country. The number of employees in the sector has been stable since 1999 (CSIL, 2008).

RESEARCH METHODOLOGY

Furniture industry is in general highly competitive with a moderate level of technology. Globalization has changed the demand rules even for furniture; that is bulky products with expensive transfer. The purpose of the present study is to identify the competitive sources that affect the performance of Cypriot furniture firms, under the hypothesis that the whole organization is responsible for its economic growth and the ability to compete globally.

The methodology adopted in this study is based on the findings of the literature review outlined above. Based upon the strategy, innovation, manufacturing, and marketing literature, a comprehensive list of 47 competitive items was developed which were viewed as potential strategic abilities a firm acquired,

sustained, or improved upon with the goal of competitiveness. Most of the competitive priorities that were frequently cited in the various literatures, as important ones, were included, in order to be comprehensive. Following Li (2000) who formed four groups of competitive advantages (marketing, product design and development, manufacturing and human resources), the sources of competitiveness are explored in six separate groups of questions, which represent six functional areas (FA): overall management, human resources, quality, manufacturing, new product development and marketing.

Business performance is operationalized as a composite of four measures, market share (BP1); number of new product introductions (BP2); Quality conformance (BP3) responding to the percentage of not delivered /accepted products due to defects and On-time delivery (BP4) (Source: 1988 European Manufacturing Futures Survey (De Meyer and Ferdows, 1988)). It is important to have different performance measures, since firms competitive priorities are quite different (Droge et al. 1994). These four parameters refer to data of the last three years.

With a well known negative attitude towards mailed questionnaires in Cyprus (most companies do not even have an e-mail) we opted to phone companies directly requesting an interview with the manufacturing/ plant manager, who was usually the company's owner. The face-to-face contact provided a forum for the respondent to complete the questionnaire, as well as opportunities to discuss items in more detail and obtain anecdotal evidence.

The response rates was approximately 60%, while the final sample consisting of 145 firms, was a quite satisfactory one, based upon the total number of firms in the relevant population frame (around 800 in CSIL, 2008). There were 140 companies producing total furniture excluding parts, confirming the CSIL study, with a mean number of employees around 5.

The data analysis techniques employed are descriptive statistics, correlation analysis and regression analysis. Descriptive statistics were used to indicate the level of significance of each parameter. The current implementation status was assessed using 1 = none / no (which could mean "we don't have / use it" or "not at all"), 2 = in progress or under consideration or partly used, 3 = yes, fully used and similar expressions) and future investment plans (1 = no plans, 2 = considering, and 3 corresponding to yes (we use / have it, we fully believe and support it)). The same model was used for the performance parameters with 1 indicating declination, 2 for no change and 3 for increase in the last three years. Further questions were used to cross check these answers (the percentage of returns due to imperfections, or the percentage of delayed deliveries etc.).This was the promptest way to find out the real situation instead of wish and personal believes.

Correlation and regression analysis was used to examine and analyse the results obtained. The coefficient of correlation is a measure of the degree of linear association between two variables. Factors with a correlation coefficient greater than 0.3 and level of significance below or equal to 0.01 were considered as highly correlated.

All computations were done using the SPSS package (Norusis, 1997). The qualitative responses are used to provide context for the statistical results obtained.

RESULTS AND DISCUSSION

Demographics

The majority (128) are micro firms with a mean of 5.3 employees, which is rather representative of the Cypriot furniture sector. Practically all of them (140 out of 145) produce total furniture excluding parts and are Ltds (132, with the rest of them being SAs).

Competitive objectives

Respondents were asked to indicate their company situation on various "competitive objectives". They are described in six functional areas. The means and rank orders for the usage rating of the 47 items are given in Table 1 (overall ranking) and in Table 2 (ranking by functional area). In soliciting these competitive

priorities we were seeking to establish what the competitive advantage (if any) was that led to a satisfactory performance and could support the long wellbeing of the company.

The first important notice is that only five out of 47 globally established important competitive priorities (in both theoretical and empirical studies) are almost or above 2, indicating a rather poor and raw way of company management. Three of these items belong to the overall management area responding to the dependence from suppliers and the high degree of communication with both customers and suppliers. 'Communicating with customers" usually refers to the mouth-to mouth promotion and the tailor made products which enclose almost all customer wishes. Second and third ranked items are due to the micro - and rather family – type of the Cypriot furniture companies. Nevertheless, a fade commitment to quality appears with 3 items on quality to follow with means above 1.85 (1.86, 1.93, 1.99). ISO9001 and a quality strategy are some of the objectives that are enclosed in direct future plans (Table 1).

The last positions with a "no" answer by almost all respondents hold three marketing competencies. Cypriot firms neither regard the existence of a marketing department as a need, nor want to spend on market research. This can be satisfactorily explained by the combination of the steady demand increase (from 146 million € at 2002 to 216 million € at 2007 (CSIL, 2008)) and the reluctance of the Cypriot furniture manufacturers to export (although there are very good prospects for exporting due to Cyprus's proximity to Lebanon and Arabic Emirates. Group targeting has gained the biggest mean of the particular functional area, which in any case is only 1.49, indicating a rather subconscious tendency to group their markets than really doing it.

Safety and Health seem not to interest Cypriot companies with a mean of 1.06. That can be explained because of the small size of the companies, but it will be a problem in conforming to EU laws.

Competitive Capability	*Functional Area*	*Mean (increasing order)*
Existence of a distinct Marketing dep.	*MAR*	*1.01*
Market research	*MAR*	*1.02*
Relation to other departments	*MAR*	*1.02*
Life cycle management	*NPD*	*1.02*
Establish brand name	*MAR*	*1.04*
Safety and health	*OMAN*	*1.06*
Benchmarking	*OMAN*	*1.08*
Collaboration to research programs	*NPD*	*1.09*
Quality cycles	*QUA*	*1.12*
NPD methods	*NPD*	*1.12*
EMAS	*QUA*	*1.14*
Formed objectives	*OMAN*	*1.14*
Internet use	*MAR*	*1.16*
Robot	*MANU*	*1.17*
BPR	*MANU*	*1.17*
MRP	*MANU*	*1.17*
Scada	*MANU*	*1.19*
CIM	*MANU*	*1.19*
QC automatization	*MANU*	*1.20*
Formed strategy	*MAR*	*1.22*
Info gathering and collaboration	*OMAN*	*1.23*
Involvement in objects forming	*OMAN*	*1.23*
Database marketing	*MAR*	*1.25*
Production line automation	*MANU*	*1.25*
CAD – CAM	*MANU*	*1.29*
B2B	*MAR*	*1.30*
B2C	*MAR*	*1.30*
Information diffusion	*OMAN*	*1.30*
Personnel training	*HR*	*1.31*
Personnel satisfaction measurement	*HR*	*1.33*

Customer Relationship Management	*MAR*	*1.35*
EN 14000	*QUA*	*1.35*
Group targeting	*MAR*	*1.49*
Time study	*MANU*	*1.51*
QC sampling – products	*QUA*	*1.62*
QC sampling – raw materials	*QUA*	*1.63*
New technology acquisition	*NPD*	*1.63*
Access to manager	*HR*	*1.68*
Formed strategy	*OMAN*	*1.83*
Waste management	*MANU*	*1.85*
Formed Quality strategy	*QUA*	*1.86*
Employee contribution to quality	*QUA*	*1.93*
ISO 9000	*QUA*	*1.99*
Communication	*OMAN*	*2.09*
Personnel evaluation and recognition systems	*HR*	*2.16*
Cooperation with departments	*OMAN*	*2.21*
Cooperation with suppliers / customers	*OMAN*	*2.25*

Table 1: Means and rank order for the competitive items

Human resources are regarded as an important competitive source, but training is neglected (mean = 1.31), although it is considered to be important. Free discussion proved training started to be part of their plans the last three years.

New technology in order to develop new products is under consideration (mean = 1,63), since Cypriot consumers are well informed and rather hard to please (Papadopoulos et al. 2007) and imported new products are very close to them. On the other hand, they do not manage the life cycle of their products but let customers decide about that (mean = 1.02).

FUNCTIONAL AREA	***Mean***
FA1. OVERALL MANAGEMENT	
Formed strategy	*1.83*
Formed objectives	*1.14*
Involvement in objects forming	*1.23*
Cooperation with departments	*2.21*
Cooperation with suppliers / customers	*2.25*
Communication	*2.09*
Information diffusion	*1.30*
Safety and health	*1.06*
Benchmarking	*1.08*
Info gathering and collaboration	*1.23*
FA2. HUMAN RESOURCES	
Personnel evaluation and recognition systems	*2.16*
Personnel training	*1.31*
Personnel satisfaction measurement	*1.33*
Access to manager	*1.68*
FA3. PRODUCT DESIGN AND DEVELOPMENT	
Life cycle management	*1.02*
NPD methods	*1.12*
New technology acquisition	*1.63*
Collaboration to research programs	*1.09*
FA4. QUALITY	
Formed Quality strategy	*1.86*

ISO 9000	*1.99*
EN 14000	*1.35*
EMAS	*1.14*
QC sampling – products	*1.62*
QC sampling – raw materials	*1.63*
Quality cycles	*1.12*
Employee contribution to quality	*1.93*
FA5. MARKETING	
Formed strategy	*1.22*
Existence of a distinct Marketing dep.	*1.01*
Market research	*1.02*
Relation to other departments	*1.02*
Group targeting	*1.49*
Establish brand name	*1.04*
Internet use	*1.16*
B2B	*1.30*
B2C	*1.30*
Database marketing	*1.25*
Customer Relationship Management	*1.35*
FA6. MANUFACTURING	
Time study	*1.51*
Production line automation	*1.25*
CIM	*1.19*
Robot	*1.17*
Scada	*1.19*
BPR	*1.17*
QC automatization	*1.20*
MRP	*1.17*
CAD – CAM	*1.29*
Waste management	*1.85*

Table 2: Means and rank order for the competitive items per functional area

In our survey, several firms had positioned themselves as high quality providers and have stressed quality to be one of their strong competitive advantages. Although their products are recognized for their quality by Cypriot consumers (Papadopoulos et al. 2007), they do not follow known quality strategies. They consider ISO 9001 to be important and have already started to enter into its concept (mean=1.99) and they encourage eemployee contribution to quality (mean = 1.93), without applying (or indenting to do so) any methods to systemize it. They seem indifferent to any environmental certification (means 1.14, 1.35).

Advance Manufacturing Technology is out of the plans of most companies, although there appears to be a growing number of CNC purchases the three last years. Waste management, with a mean of 1.85, starts playing an important role. At the time of the survey, a new law about waste management brought new troubles to furniture companies (new waste installations according to EU specifications and plant relocation in some cases). The low mean of CAD – CAM (1.29) was rather a surprise, since in free discussion everybody seemed to care about CAD but they did not even consider entering it in their early future plans.

SOURCES OF COMPETITIVENESS

Concentrating on the functional areas and exploring relationships *between them*, Pearson correlation coefficients were generated (non-parametric Spearman rank correlation coefficients generated very similar results).

Table 3 identifies high positive correlations between marketing and manufacturing competitive areas and Human Resources, indicating a strong dependence of the employees' characteristics and skills in order to

manufacture and promote. There are also clear linkages *between* the two above areas and quality, which confirm the managers' claims that quality is the focal point of their products and their strong competitive advantage.

Competencies	***Mean***	***St Dev.***	***Correlations***					
			FA1	*FA2*	*FA3*	*FA4*	*FA5*	*FA6*
FA1	*1,2993*	*,30833*	*1*					
FA2	*1,1963*	*,22716*	*-,139*	*1*				
FA3	*1,6466*	*,19618*	*,108*	*-,081*	*1*			
FA4	*1,2155*	*,29259*	*-,064*	*,231**	*-,021*	*1*		
FA5	*1,6152*	*,35041*	*-,113*	*,353**	*-,080*	*,302**	*1*	
FA6	*1,5330*	*,24317*	*,062*	*,399**	*,081*	*,362**	*,303**	*1*
** Correlation is significant at the 0.01 level (2-tailed).*								

Table 3: Descriptive statistics and correlations for the functional areas

On the other hand, there appears to be only a weak connection between on – time delivery and market share (cor. coef = 0.179) which is rather surprising, since in free discussion, most managers admit that one of the weaknesses is the delayed deliveries and mention it among the reasons that loose customers. Nevertheless, it does affect quality performance with a coefficient around 0.30 and a sig. value of 0.000, which further confirms the managers' aspects.

The performance means are all slightly above the mid point of 1.5, with Quality performance and on-time delivery to be well above 2. This indicates a positive growth of Cypriot manufacturers. Furthermore, the quite low prices of St. Deviations confirm the homogeneity of the sample.

Of note is the only high positive correlation between Human Relations and on-time delivery (0.324 at sig. = 0.000), which again denotes the importance that is paid to personnel skills and competencies (Table 5). There are no significant correlations between the functional areas of New Product Development and Quality with any performance parameter. While the first is rather expected, the second surprises and calls for further investigation. A not negligible correlation (0.270 and 0.287 respectively with a sig. value of 0.000) shows that overall management and marketing are closely linked to the market share.

Performance	***Mean***	***St Dev.***	***Correlations***			
			BP1	*BP2*	*BP3*	*BP4*
BP1	*1,96*	*,686*	*1*			
BP2	*1,54*	*,746*	*,017*	*1*		
BP3	*2,19*	*,739*	*,112*	*,075*	*1*	
BP4	*2,19*	*,725*	***,179***	*-,083*	***,288****	*1*
** Correlation is significant at the 0.01 level (2-tailed).*						

Table 4: Descriptive statistics and correlations for the performance parameters

Two negative results with correlations of medium significance indicate the manufacturing area to be reversely associated with both quality and delivery performance. This can be explained because of the very early use of advanced machinery. Employees as well as management are not familiar with AMT and its

culture. There are delays, malfunctions, defective products etc. The direct results are on quality and delivery time. Yet, table 1 and 2 show CAD to be the most popular manufacturing technology, with the rest playing only very limited roles. This result is consistent with findings that CAD is among the most common and often the first technology implemented (Boyer, 1998, Robb and Xie, 2003).

	Correlation with			
	BP1	**BP2**	**BP3**	**BP4**
FA1	***,270***	*-,045*	*,031*	***,298***
FA2	*,098*	*,002*	*,010*	***,324***
FA3	*,114*	*-,010*	*,103*	*,178**
FA4	*-,193**	*-,074*	*,049*	*,044*
FA5	***,287***	*,121*	*,160*	***,262***
FA6	*,154*	*-,013*	***-,268***	***-,234***
** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).				

Table 5: Correlation between functional areas and performance

No functional area correlates to New Product Introduction. This supports the above mention note that this area is of no interest for Cypriot manufacturers and does not constitute a competitive advantage. Table 5 shows in a most definite way how important the on-time delivery is for the respondents, with 4 out of 6 functional areas having strong or medium relationships to this performance parameter. Finally, table 5 presents a remarkably wide range of correlations (from -0.268 to 0.324) supporting the use of multiple performance measures.

The survey asked the respondents to place themselves in one of the four performance groups according to their opinion. New product development was expanded to "competitiveness on innovation" and on-time delivery to "competitiveness on time – criteria". The other two groups were named competitiveness on price and quality. All companies placed themselves in either price or quality group, which was rather predictable.

Competencies	**Correlations (N=52)**					
	FA1	**FA2**	**FA3**	**FA4**	**FA5**	**FA6**
FA1	*1*					
FA2	***,378***	*1*				
FA3	***,584***	*,291**	*1*			
FA4	*,010*	***-,303***	*-,062*	*1*		
FA5	***,398***	***,408***	***,375***	*-,110*	*1*	
FA6	*,023*	*-,056*	*,060*	*,110*	*-,083*	*1*
** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).						

Table 6.1: Correlations for the functional areas for quality - competitive companies

Almost one third of the survey sample (52 out of 145 companies) belonged to the quality group. While there appeared to be some strong correlations among the functional areas (Table 6.1), the performance parameters seemed to have no relationship (Table 6.2), except for on-time delivery which is modestly connected to quality. Although this relationship appears feebler in the case of price – sensitive companies, it leads to the promising conclusion that time starts bothering furniture manufacturers and is seen as a possible winning criterion.

The strong relationship between Marketing and new product releases (Table 6.1) indicates that in Cyprus quality is highly connected to faster changes and new materials or techniques in order to satisfy customer needs. It should though be mentioned that managers referred to new design as well. On the contrary, the negative relationship between an emphasis on the functional area of quality and the one of human resources is somewhat disturbing. This is further stressed by the fact that quality appears not to relate, or to relate to a

negative way to the other functional areas, although the group is the quality competitive one. An explanation could possibly be that Cypriot furniture manufacturers focus on product quality and not on process quality. As seen in Table 2, the questions concentrated in certifications, quality techniques and controls, which fall out of the scope of the questioned small and micro furniture Cypriot firms.

Competencies	*Correlations (N=52)*			
	BP1	***BP2***	***BP3***	***BP4***
BP1	*1*			
BP2	*,084*	*1*		
BP3	*,165*	*,090*	*1*	
BP4	*,262*	*-,157*	*,313 **	*1*
** Correlation is significant at the 0.05 level (2-tailed).*				

Table 6.2: Correlations for the performance parameters for quality - competitive companies

Yet, this group shows strong relationships among three out of five functional areas and overall strategy, leaving out manufacturing (besides quality) for similar reasons. Marketing appears to play an important role in overall strategy, human resources and new products (cor. Coef. 0.398, 0.408 and 0.375 at sig. values of 0.002, 0.004, 0.003), revealing its importance for the specific industry.

Marketing and new products correlate modestly to market share (Table 6.3), since they are the media to appeal to customers. The results can surprise anyone who is not familiar to Cypriot mentality of the specific industry. Quality is connected to artisanship, tailor – made products by new materials and fresh design that are promoted in a quality way. These were the advantages that came to light by the free discussion and are verified by the statistical analysis too. Managers do not believe that quality comes through systems and methods and declare that the size and the type of the companies do not permit the competitive items of the manufacturing area.

	Correlation with			
N=52	***BP1***	***BP2***	***BP3***	***BP4***
FA1	*,238*	*-,157*	*,019*	*,246*
FA2	*,025*	*-,011*	*-,139*	*,213*
FA3	***,280*** *	*,152*	*,096*	*,228*
FA4	*-,028*	*-,158*	*,208*	*,038*
FA5	***,341*** *	*,106*	*,026*	*,189*
FA6	*,273*	*,050*	*-,250*	*-,102*
* *Correlation is significant at the 0.05 level (2-tailed).*				

Table 6.3: Correlation between functional areas and performance for quality - competitive companies

The majority of the companies (93 out of the 145 ones) considered themselves as price – competitive. The strongest relationship appeared to be between marketing and overall management (Table 7.1; 0.411 at 0.01 level), indicating that marketing is a competitive priority in this group too. There is also a quite interesting relationship between human resources and new product development, which is rather normal.

Competencies	***Correlations (N=93)***					
	FA1	***FA2***	***FA3***	***FA4***	***FA5***	***FA6***
FA1	*1*					
FA2	*,227**	*1*				
FA3	*,182*	***,312****	*1*			
FA4	*,144*	*,070*	*-,003*	*1*		
FA5	***,411****	***,258****	*,101*	*-,042*	*1*	
FA6	*,066*	*-,182*	*-,142*	*,110*	*-,211**	*1*
* *Correlation is significant at the 0.05 level (2-tailed).* ** *Correlation is significant at the 0.01 level (2-tailed).*						

Table 7.1: Correlations for the functional areas for price - competitive companies

There is some interesting insight when considering the results of Table 7.3. Quality is negatively related to market share, while the manufacturing competitive area has a negative relationship to quality and on – time delivery. The last result confirms previous remarks on the introduction of AMT and time and quality problems. The notion that quality costs leads to the first result. Manufacturers confront this functional area with scepticism since according to their opinion, quality actions are money and time consuming and because of the companies' size and capability could probably reduce the number of customers ("*drive them away if I tell them I will deliver their furniture too late..*"). It seems that on – time delivery is a strong winning criterion for this group and it strongly correlates to human resources, a competitive priority of special interest in Cypriot furniture manufacturing.

Competencies	***Correlations(N=93)***			
	BP1	***BP2***	***BP3***	***BP4***
BP1	*1*			
BP2	*-,115*	*1*		
BP3	*,035*	*,025*	*1*	

BP4	*,055*	*-,067*	*,260**	*1*
** Correlation is significant at the 0.05 level (2-tailed).*				

Table 7.2 Correlations for the performance parameters for price - competitive companies

	Correlation with			
N=93	***BP1***	***BP2***	***BP3***	***BP4***
FA1	*,218**	*-,031*	*,051*	***,284*****
FA2	*,108*	*-,075*	*,087*	***,367*****
FA3	*-,003*	*-,132*	*,087*	*,067*
FA4	***-,306*****	*-,010*	*-,027*	*,052*
FA5	*,177*	*,040*	*,210**	*,219**
FA6	*,053*	*-,102*	***-,307*****	***-,358*****
. Correlation is significant at the 0.05 level (2-tailed).* *. Correlation is significant at the 0.01 level (2-tailed).*				

Table 7.3 Correlation between functional areas and performance for price - competitive companies

The most outstanding feature of these results is that price-competitive companies are stressing delivery/time issues, whereas quality – competitive ones are building a foundation on marketing and new products (mostly of design) and reveal their interest on market share. It is interesting to note how Table 5 (for all companies) encompasses the views of both groups.

To examine the relationship between performance and the importance of the various competitive Functional areas, a multiple regression analysis with the current emphasis of the four performance factors as the dependent variables (see Table 8).

Variable	***P-value***	***Model R2***	***FA1***		***FA2***		***FA3***		***FA4***		***FA5***		***FA6***	
			B	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*
BP1	*.000*	*0.275*	*0.453*	*0.093*	*-.076*	*0.657*	*0.091*	*0.659*	*-.770*	*0.006*	*0.679*	*0.012*	*0.421*	*0.018*
BP2	*.618*	*0.284*	*0.502*	*0.076*	*0.450*	*0.013*	*0.113*	*0.603*	*0.269*	*0.035*	*0.211*	*0.454*	*-.546*	*0.004*
BP3	*.007*	*0.223*	*-.290*	*0.332*	*-.167*	*0.379*	*0.381*	*0.099*	*0.289*	*0.006*	*-.431*	*0.150*	*-.658*	*0.001*
BP4	*.000*	*0.332*	*-.333*	*0.292*	*-.063*	*0.752*	*0.002*	*0.995*	*-.226*	*0.486*	*0.570*	*0.073*	*0.056*	*0.787*

Table 8: Multiple Regression Analysis

Quality makes the strongest unique contribution (p=0.006, beta=-0.770) to market share, while the marketing and manufacturing areas seem to contribute also strongly (but certainly less) to this performance parameter. Quality performance is strongly and uniquely affected by manufacturing (p=0.001, beta=-0.658) and less by the quality functional area (p=0.006, beta=0.289). There are no other important relationships among the other two performance parameters (new product introduction and on-time delivery).

Variable	*P-value*	*Model R2*	***FA1***		***FA2***		***FA3***		***FA4***		***FA5***		***FA6***	
			B	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*
BP1	*,004*	*0.294*	*,246*	*,030*	*,102*	*,372*	*,341*	*,600*	*,050*	*,655*	*,097*	*,349*	*-,059*	*,572*
BP2	*,709*	*0.142*	*,016*	*,898*	*-,065*	*,578*	*,009*	*,933*	*,059*	*,625*	*-,109*	*,334*	*-,159*	*,166*
BP3	*,05*	*0.230*	*-,048*	*,679*	*-,022*	*,845*	*,007*	*,949*	*,179*	*,124*	*-,266*	*,014*	*,077*	*,478*
BP4	*,00*	*0.304*	*,214*	*,043*	*,273*	*,008*	*,037*	*,689*	*,017*	*,870*	*-,354*	*,000*	*-,084*	*,395*

Table 9.1: Multiple Regression Analysis for price - competitive companies

The results indicate that emphasizing quality, marketing and manufacturing, Cypriot furniture manufacturers enhance their quality performance and market share. Strangely and contrary to other similar studies (Li, 2000) there dos not appear any kind of HR's contribution, although correlations proved its importance.

Variable	*P-value*	*Model R2 Adjust*	***FA1***		***FA2***		***FA3***		***FA4***		***FA5***		***FA6***	
			B	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*	*B*	*Sig*
BP1	*,042*	*,205*	*,000*	*,999*	*-,185*	*,241*	*,213*	*,229*	*-,082*	*-,593*	*,337*	*,033*	*,271*	*,048*
BP2	*,076*	*,194*	*-,521*	*,006*	*-,043*	*,788*	*,460*	*,013*	*-,159*	*,268*	*,117*	*,456*	*,182*	*,856*
BP3	*,112*	*,112*	*-,203*	*,275*	*-,111*	*,492*	*,331*	*,073*	*,204*	*,161*	*-,010*	*,952*	*-,337*	*,018*
BP4	*,218*	*,101*	*-,065*	*,731*	*,157*	*,344*	*,363*	*,076*	*,105*	*,476*	*-,003*	*,984*	*-,147*	*,301*

Table 9.2: Multiple Regression Analysis for quality - competitive companies

Considering the two groups, overall management appears the only functional area that contributes to market share for price competitive furniture companies. Marketing plays a rather important role, since it has a unique strong contribution to quality performance and on – time delivery (p=0.014, beta=-0.266 and p=0.000, beta=-0.354 respectively). On-time delivery is of vital importance for this group and also strongly affected by human resources and overall management.

Quality makes the strongest contributor to high market share for the quality – focus group (p=0.033, beta=0.337), followed by manufacturing. Overall management and the process of new product development affect the new product performance, while quality performance is only affected in a strong and unique way by manufacturing, revealing again the dislike of Cypriot manufacturers for quality processes.

It is quite notable that on – time delivery appears of little interest for this second group, contrary to the first one. No functional area contributes to its prediction. This is due to a common belief in Cyprus that "good things take time".

CONCLUSIONS

This was the first study devoted to the analysis of manufacturing, product development, marketing, quality, human resources and overall management decisions adopted by Cypriot furniture manufacturers. Responding to the specific industry need for survival and development, this research investigated sources of competitive advantage that could lead to superior performance.

In general, Cypriot furniture manufacturing appears to follow the principles of manufacturing strategy. Competitive advantage seems to be limited in price and quality. The most outstanding feature of the results of this survey is that price-competitive companies are stressing delivery/time issues, whereas quality – competitive ones are building a foundation on marketing and new products (mostly of design) and reveal their interest on market share. Meanwhile quality is the strongest predictor for market share when referring to quality competitive firms. The strong relationship between Marketing and new product releases indicates that in Cyprus quality is highly connected to faster changes and new materials or techniques in order to satisfy customer needs.

Time also starts bothering furniture manufacturers and is seen as a possible winning criterion. On – time delivery strongly correlates to human resources, but not to quality processes. Furthermore, managers do not believe that quality comes through systems and methods and declare that the size and the type of the companies do not permit the competitive items of the manufacturing area. Yet, Quality management starts gaining some attention with ISO 9001:200 being the main concern.

Although four out of the five less important competitive items (with the lowest means) in the 47- item ranking belong to the marketing area, the functional area itself appears to play an important role, especially for the price competitive furniture companies.

The Cypriot furniture sector is still lagging behind in technology and manufacturing. CAD is the only new technology to be implemented mostly by micro firms and it is quite normal: it facilitates designing, stands alone, its costs are coming down rapidly and the benefits are quite clear. This, however, does not mean that advanced technologies are neglected in Cyprus. The number of CNC machinery is constantly growing, but there is still a misuse of them due to lack of proper training and culture and management change, which cause troubles for the time being.

Mature, labour - intensive industries, such as the furniture industry, struggle to survive in the new globalized markets. The present study provides several important implications first and most of all for Cypriot managers and all responsibles for the survival and development of the Cypriot furniture industry. The results offer a better understanding of the competitive sources and underscore the strengths and weaknesses of furniture companies in an ever changing business environment. It is also proved that companies need more than one competitive priorities and advantages in order to prosper. Especially for micro and small companies, focusing on a singe competitive component is rather dangerous.

The six functional areas with their 47 competitive items, as sources of advantage, are hypothesized to lead to outcomes across a variety of business performance measures. Considering relationships among sources and outcomes of advantage, this study expands previous similar studies, conducted in both industrialized and developing countries, offering more insight on the effects of the several functional areas and arising questions on the differences among the same industry sector across different nations. The last issue could start a new direction of research. Another direction could be the study of the environmental parameters that favour the development of different competitive areas and / or items within the same industry sector in a nation or across nations and industries.

Another possible direction could be a more general specification of competitive items and areas that lead to different desirable competitive advantages (e.g. price, quality and innovation) although there appear to arise several questions to answer, such as whether this list would be general or industry specific, international or nationally dependant. In this direction, the present study encourages further empirical research on the relationships between competitive sources and performance and how these are shaped due to the special economic, legal, and cultural environment in various countries and industries.

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