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Awwad, Abdulkareem, Al Khattab, Adel and Anchor, J.R

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Competitive priorities and competitive advantage in Jordanian manufacturing

1. Introduction

As organizations are forced to respond efficiently and effectively to a changing business environment. One of the biggest challenges which they face is gaining and developing competitive advantage. Competitive advantage may be defined as the extent to which an organization is able to create and maintain a defensible position over its competitors (Tracey et al., 1999). In the same vein, Ma (1999, p. 259) defines competitive advantage as the asymmetry or differential in any firm attribute or factor that allows it to serve its customers more effectively than others and hence to create better customer value and achieve superior performance. Alternatively it may be considered to refer to the capabilities which allow an organization to shape its competitive advantage and differentiate itself from its competitors (Li et al., 2006). Harrison and Hoek (2002, p. 15) suggest that competitive advantage is achieved by the competitiveness of the supply chain, which means "meeting end customer demand through supplying what is needed in the form it is needed, when it is needed, at a competitive cost".

In the strategy literature, there exists a rich body of knowledge on the nature and causes of competitive advantage ranging from the industry positioning approach, the commitment explanation, to the resource based view and the dynamic capability approach (Mellahi and Sminia, 2009). The concept of competitive advantage needs to be tested empirically to determine the competitive priorities which create a firm's competitiveness. However, little empirical work has been undertaken to address this issue. In this context, Kathuria (2000) states that "there are little empirically derived

taxonomies that characterise manufacturers by manufacturing tasks or competitive priorities, such as quality, delivery, flexibility, or cost".

There is a need, therefore, to conduct empirical studies which address and analyse the functions and processes which create the competitive advantage of a firm.

2. Literature review

2.1 Competitive advantage

Competitive advantage is still a controversial concept as it is discussed in the literature via the use of different variables, measures, and scales. However, this variation comes from different perspectives about what creates competitive advantage and its components. In addition, researchers have had different ideas in relation to the competences which are required for creating competitive advantage. In this context, Conner (2003) addresses the central question: who decides if a company is competitive? He lists a number of answers to this question. For example, governments might define a company as competitive if it conforms to criteria contained within competition or anti-trust law. Managers might define competitiveness in terms of market share and growth. Shareholders may judge competitiveness in terms of profit and growth. Other stakeholders may have views of competitiveness based on values such as care of the environment, social contribution, enlightened employment polices and so on. It is clear that the definition will vary with differing points of view and with the nature of the viewer's interest in the performance of a business (Conner, 2003, p. 196).

Creating competitive advantage requires a determination of the factors that may put a firm in a better position in relation to competitors in the marketplace. Wheelwright

(1984) identified four strategic capabilities that can be considered as competitive priorities. These capabilities were: low cost, quality, quick delivery, and flexibility. Competitive advantage is gained, according to Passemard and Kleiner (2000), by five sources of innovation including: new technologies; the modification of demand or the emergence of new demand; the emergence of a new segment; changes in costs or the availability of means of production; and changes in regulation. In the same vein, Helms (1996) considers that quality and productivity can be used as strategic weapons for achieving competitive advantage. He argues that organisations must be aware of what increases quality or supports production as strategic weapons; otherwise, they will lose market share.

By contrast Cardy and Selvarajan (2006) consider competencies as the key to competitive advantage. These competences are defined as a combination of resources and capabilities. From a strategic perspective, competences can be functions, processes and routines in an organisation.

Competence is a controversial concept since it has been identified using different perspectives. The concept of competence is central to the domains of both strategy and HRM (Cardy and Selvarajan, 2006). Competences can be classified into two categories: the first category is personal competences such as knowledge, skills, abilities, experience and personality, and the second category is corporate competences which belong to the organization and are embedded processes and structures that tend to reside within it (Turner and Crawford, 1994). Top management needs to have specific competences including leadership skills, general management

skills, interpersonal skills, communication skills, creativity, and personality traits such as dependability and adaptability (Thornton and Byham, 1982).

Molina et al. (2004) used the following variables to determine firms' competitiveness: market share, profits, returns, technological provision, financial management, quality of products/services, after sales services, managers' educational background, customer loyalty, supplier loyalty, location of establishment, employees' commitment and loyalty, employees' professional know-how, and reputation.

The resource based theory of the firm (RBV) views the firm as a collection of assets or resources. These may be tangible assets such as physical capital brand names or less tangible assets, such as organisational routines and capabilities. These resources may be both static and dynamic. The crucial requirement of the RBV is that the relevant resources, whatever their nature, are specific to the firm and not easily imitated by rivals (Barney, 1991).

The sustainable competitive advantage (SCA) approach to the RBV is illustrated by the work of Barney (1986, 1991) and Peteraf (1993). SCA theory seeks to explain the extent to which a firm may be able to sustain a position of competitive advantage. Sustainable competitive advantage is based on the ownership of firm-specific resources that are valuable; rare; inimitable; and non-substainable (VRIN) (Barney, 1991). However, in practice, there are significant methodological and practical difficulties associated with identifying a relationship between a firm's resource endowment and its competitive advantage (Lockett et al, 2009).

Teece and Pisano (1994) explained that the RBV was not able to explain how some firms were able to respond flexibly and in a timely manner to changes in their external environment by re-deploying both internal and external competences. Teece et al, (1997, p 516) went on to define dynamic capabilities "as the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments". Dynamic capabilities therefore allow firms to maintain a competitive advantage and may help them to avoid developing core rigidities which inhibit development, generate inertia and stifle innovation. A dynamic capability is not, therefore, a capability in the RBV sense. Indeed a dynamic capability is not a resource. Rather a dynamic capability is a process which impacts upon and alters the resource base.

The literature is divided about the relationship between dynamic capabilities and competitive advantage. The problem is that these definitions are often tautological. "If the firm has a dynamic capability, it must perform well, and if the firm is performing well, it should have a dynamic capability" (Cepeda and Vera, 2007).

As Heflat et al. (2007, p140) have argued, "dynamic capabilities do not necessarily lead to competitive advantage. While dynamic capabilities may change the resource base, this renewal may not necessarily be valuable since it may not create any VRIN resources. Indeed there may be four different outcomes that could result from the deployment of dynamic capabilities. Firstly, they could lead to sustainable competitive advantage if the resulting resource base is not initiated for a long time and economic rents are sustained. Secondly they could lead to a temporary advantage, especially in hyper competitive environments. Thirdly they may only give

competitive parity if their effect on the resource base simply allows the firm to operate in the industry rather than to out-perform rival firms. Finally the development of dynamic capabilities may lead to failure if the resulting resource stock is irrelevant to the market.

Furthermore if there is not a direct link between dynamic capabilities and competitive advantage, it can be suggested that dynamic capabilities do not have to be firm specific. Indeed they can be duplicated across firms and therefore their value for competitive advantage lies in the resource configuration which they create, not in the dynamic capabilities themselves (Eisenhardt and Martin, 2000).

2.2 Competitive priorities

The literature on operations strategy and manufacturing strategy has focused extensively on the competitive priorities that act as strategic capabilities which can help organizations create, develop, and maintain competitive advantage. Competitive priorities are defined as "the dimensions that a firm's production system must possess to support the demands of the markets in which the firm wishes to compete (Krajewski and Ritzman, 1993). Phusavat and Kanchana (2007) identify six criteria which act as competitive priorities: quality, cost, delivery, flexibility, customer focus, and know-how. They defined these criteria as follows:

1) Quality: low-defect rate, product performance, reliability, certification, and environmental concern.

(2) Cost: the ability to manage effectively production cost, including its related aspects such as overhead and inventory, and value-added.

(3) Delivery: this is considered as a time-based issue. Delivery addresses how quickly a product or a service is delivered to customers. It also incorporates the time-to-market for a new product.

(4) Flexibility: the term represents the ability to deploy and/or re-deploy resources in response to changes in contractual agreements which are initiated primarily by customers. Several features are included in this term such as adjustment on design/planning, volume changes, and product variety.

(5) Customer-focus: this concentrates on how to fulfill customers' needs. It includes after-sale services, product customization, product support, customer information, and dependable promise.

(6) Know-how: the term know-how deals with the trend of decreasing product life-cycles. Therefore, knowledge management, creativity, and skills development are included.

It seems that there is general agreement among authors and researchers (Wheelwright, 1984; Boyer and Lewis, 2002) that the major competitive priorities comprise the following: flexibility, cost, quality, and delivery. These priorities are discussed below:

2.2.1 Flexibility

Mandelbaum (1978) defined flexibility as the ability to respond effectively to changing circumstances. Mandelbaum's work has been extended and supported by a number of authors (e.g. Zelenovich, 1982; Nakane and Hall, 1991; Upton, 1994) who all agree on the importance of flexibility in coping with uncertainty. However, the similarities of the definitions of flexibility refer to its main job which is mastering changes and meeting uncertainty resulting from the internal and external business environments. In this context, Nakane and Hall (1991) define flexibility as a quick

response to changed production volume, changed product mix, customisation of product (i.e. provide each customer with what they want), introduction of new products, and adoption of new technology. Upton (1994) supports Mandelbaum's definition of flexibility as the ability to change or react with little penalty in time, effort, cost, or performance. It could be concluded that both Upton and Mandelbaum's definitions have focused on coping with changes efficiently and effectively. In other words efficiency and effectiveness are the basic criteria for measuring performance where organisational goals should be met at a lower cost and higher utilization of resources. Corrêa (1992) stated that Mandelbaum's (1978) definition consists of three main elements: *The first* element is "ability…" which gives flexibility the character of a potential. *The second* element is"…to respond…" Response generally means reaction or adaptation to changes. Finally, *the third* element of is "…effectively…" which suggests a link between the concept of flexibility and the concept of the overall performance of the system.

However, flexibility is a multidimensional concept (Sethi and Sethi, 1990). Therefore, it is classified in the literature using different dimensions. Corrêa (1992) suggests that different kinds of flexibility would be appropriate to deal with different conditions or types of change. Mandelbaum (1978) classified flexibility into two forms. *The first* is action flexibility (the capacity for taking new action to meet new circumstances). *The second* is state flexibility (the capacity to continue functioning effectively despite changes in the environment). Buzacott (1982), in his taxonomy, identifies two classes of flexibility: *job flexibility* is the ability of the system to cope with changes in jobs to be processed by a system; *machine flexibility* is the ability of a system to cope with changes and disturbances at machine and work stations. Narian et al. (2000) classified flexibility into three categories: *necessary flexibility* (machine flexibility, product

flexibility, labour flexibility, materials handling flexibility, routing flexibility, volume flexibility); s*ufficient flexibility* (process flexibility, operational flexibility, programme flexibility, materials flexibility); and *competitive flexibility* (production flexibility, expansion flexibility, market flexibility).

Different *types* of flexibility are defined and addressed in the literature such as:

- Product flexibility: the ability to add or substitute easily new parts (Sethi and Sethi, 1990).
- Volume flexibility: the ability of a manufacturing system to vary total production volume economically (Das, 2001).
- Mix flexibility: the ability of an organisation to produce different combinations of products economically and effectively (Zhang et al., 2003).
- Machine flexibility*:* the ability of a machine to perform different types of operations without requiring a prohibitive effort in switching from one operation to another (Sethi and Sethi, 1990; Das, Gupta and Somers; 1996).
- Labour flexibility: the ability of the workforce to perform a broad range of manufacturing tasks economically and effectively (Zhang et al., 2003).
- Market flexibility: the ability to adapt to a changing market environment easily (Das, 2001).
- Process flexibility: the ability of a manufacturing system to process a given set of components with different processes, operations sequence and materials (Chen et al., 1992).
- New product flexibility: the ability of a manufacturing system to introduce and manufacture new parts and products (Das, 2001).
- Expansion flexibility: the ability to increase capacity and capability easily when needed (Sethi and Sethi, 1990).

2.2.2 Quality

Quality is a competitive weapon in the marketplace. Quality engenders competitive advantage by providing products that meet or exceed customer needs and expectations (Lee and Zhou, 2000). Quality is defined using different perspectives as it is a subjective goal that has indefinable characteristics (Kazan et al., 2006). An early definition for quality was presented by Juran (1974) who defined quality as "*fitness for use*". Juran's definition employs the customer's perspective in defining quality. It is the customer who decides what goods or services best satisfy his/her needs. A similar definition is presented by Reeves and Bednar (1994) in which they defined quality as excellence, value, conformance to specifications, and meeting or exceeding customers' expectations. The term "fitness for use," presented by Juran (1974), is included in the quality definition presented by Reeves and Bednar (1994). Therefore, it could be concluded that the customer perspective is central to any definition of quality. Garvin (1987) argued that quality is a multidimensional construct. He linked the term quality to eight dimensions including: performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality. These dimensions match the customer perspective. Table 1 summarises a number of definitions of quality.

Table 1: definitions of quality

Author(s)	Definition(s) of quality
Juran (1974)	Fitness for use
Crosby (1996)	Conformance to specifications
Feigenbaum (1991)	The total composite product and service characteristics of marketing, engineering manufacture, and maintenance through which the product and services in use will meet the expectations of customers
Ishikawa (1989)	To practice quality control is to develop, design, produce and service a quality product which is most economical, most useful, and always satisfactory to the customer
Deming (1986)	"Quality should be aimed at the needs of the consumer, present and future".
Garvin (1987)	There are eight dimensions of quality as defined from the customer's view point; namely, performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality.
Bregman and Klesfsjo (1994)	Quality is the ability to satisfy the needs and expectations of customers.
Oakland (2003)	Quality is meeting customer requirements.

It could be concluded, therefore, that quality is viewed clearly as a main source of competitive advantage via meeting customer requirements. Moreover, scholars have linked quality to competitive strategy. In this context, Prajogo (2007) considers quality as a reflection of the competitive strategy of firms. He supports the notion that quality has gone through an evolutionary process, from an operational level to a strategic level. Thus, quality should be adopted as a strategic goal in organizations. Therefore, in manufacturing strategy, quality is associated with both conformance to specifications and critical customer expectations (Miltenburg, 1995). In this context, Porter (1980) argues that organizations which compete on quality can adopt a differentiation strategy and position their products based on several attributes which will lead to the ability to charge a premium price. Therefore, quality helps organizations enhance their competitiveness and leads to customer loyalty through meeting customers' expectations. This conclusion leads an organization to view quality as a competitive weapon that should be adopted as a competitive strategy for playing a major role in creating, sustaining, and maintaining the competitive advantage of a given firm.

2.2.3 Cost

Porter (1980) argues that competitive advantage can be achieved by adopting one or more of the following generic competitive strategies:

1. Cost leadership: the features of this strategy are: low cost relative to competitors, related and standardised products, and economies of scale. A cost leadership strategy requires intense supervision of labour, tight cost control, frequent and detailed control reports and structured organisation and responsibility.
2. Differentiation: this strategy is described in terms of product uniqueness, an emphasis on marketing and research, and a flexible structure.
3. Focus: this strategy implies the focus on a narrow strategic target (buyer group, product line or geographic market) through differentiation, low cost or both.

Hill (1994) indicates that low cost manufacturing is the priority when profit margins are low. The logic behind linking a cost leadership strategy to competitive advantage is the fact that competitive advantage can be divided into two basic types: lower cost than rivals, or the ability to differentiate and command a premium price that exceeds the extra cost of doing so (Porter, 1991).

2.2.4 Delivery

Delivery is a competitive priority via which customers are interested in satisfying their needs and wants in the right quantity at the right time. In this context, Kumar and Kumar, 2004, p. 310) state that" *delivery of the required function means ensuring that the right product (meeting the requirements of quality, reliability and maintainability) is delivered in the right quantity, at the right time, in the right place, from the right source (a vendor who is reliable and will meet commitments in a timely fashion), with the right service (both before and after sale), and, finally, at the right price*. In the same vein Li (2000), referring to Krajewski and Ritzman (1996), argues that delivery capability is a time issue where it reflects the following concepts: the number of

aspects of an organization's operations; how quickly a product or service is delivered to a customer; how reliably the products or services are developed and brought to the market; and the rate at which improvements in products and processes are made.

3. Research objectives and model

The objectives of this research can be summarised as follows:

1. Identifying the relationships between competitive priorities and competitive advantage in Jordanian manufacturing companies.
2. Clarifying the concept of competitive advantage, and considering different perspectives and approaches, related to the term.

In the light of the arguments presented in sections 2 and 3, a research model is shown in Figure 1. The model suggests that the competitive advantage of a firm is generated by competitive priorities including quality, cost, flexibility, and delivery. However, it has been argued that there is a link between quality and each of the two competitive strategies: cost leadership and differentiation. Prajogo (2007) points out:

- To compete via a cost leadership strategy, firms will put considerable effort into controlling production cost, increasing their capacity utilization, controlling materials supply or product distribution, and minimizing other costs, including R & D and advertising.
- To compete via a differentiation strategy, firms need to offer unique products which are characterized by valuable features, such as quality, innovation, the delivery system, and a broad range of other factors.

- There is a link between quality and competitive strategy since quality is categorized as a primary basis for a differentiation strategy as firms adopting this strategy will position their products uniquely based on several attributes leading to a premium price.

"Take in Figure (No. 1)"

The hypotheses of this research are aimed at investigating and examining the relationships between competitive priorities and competitive advantage. In other words, the hypotheses are aimed at investigating the extent to which the construct of competitive advantage is a function of competitive priorities including quality, cost, delivery and flexibility. The hypotheses are consistent with the central objective of the research which is concerned with predicting the relationships between competitive priorities and competitive advantage in Jordanian manufacturing companies.

More specifically, the rationale for developing the research hypotheses is the fact that there is a general agreement among authors and researchers (e.g. Wheelwright, 1984; Boyer and Lewis, 2002) that competitive priorities comprise the following major factors: flexibility, cost, quality, and dependability, where all of them contribute to creation of competitive advantage. This argument leads to the formulation of the following hypotheses:

H1: Quality affects positively the creation of competitive advantage by a firm.

H2: A cost leadership reduction strategy affects positively the creation of competitive advantage by a firm.

H3: Delivery affects positively the creation of competitive advantage by a firm.

H4: Flexibility affects positively the creation of competitive advantage by a firm.

4. Methodology

A positivistic methodology was adopted, because of the need for quantitative data to satisfy the objectives of the research and the need for a large sample to carry out the data analysis. In addition, there is a need to examine the anticipated relationships included in the research model depicted in Figure 1.

The data collection method consisted of a questionnaire designed to test the model. A delivery and collection approach was used to distribute and collect the questionnaires to ensure a high response rate and to take advantage of personal contact since this method enhances respondent participation. The survey instrument was pre-tested with executives and academic experts who were asked to review it for readability, ambiguity, completeness, and to evaluate whether individual items appeared to be appropriate measures of their respective constructs (Dillman, 1978). This process led to several minor changes, which were made prior to generating the final version of the questionnaire. The questionnaire format was highly structured: all of its questions were fixed-response alternative questions that required the respondents to select from responses which were located by using five point Likert scales.

All of the measurement scales used were based on previous research. Assuring the validity and reliability measures requires supported literature to validate the measurement scales used for operationalising the research constructs. The competitive advantage construct was measured using the measurement scales and indexes included in the work of Molina et al. (2004), who used the following variables to determine the firms' level of competitiveness: market share; profits; returns; technological provision; financial management; quality of products-services;

after sales services; managers' educational background; customer loyalty; supplier loyalty; location of establishment; employees' commitment and loyalty; employees' professional know-how; firm's reputation.

Competitive priorities were operationalised using measurement scales which were adapted from previous studies.

Table 2: **Supported literature for measurement scales**

Construct	**Supported literature for measurement scales**
Quality	Burgess et al, (1998), Oakland (2003), Parajogo (2007)
Cost	Lee and Zhou (2000), Kazan, et al. (2006)
Delivery	Burgess et al, (1998), Kazan, et al. (2006)
Flexibility	Sethi and Sethi (1990), Zhang and Sharifi (2000), Zhang et al. (2003)

Jordanian manufacturing companies, which were classified as public shareholding companies on the Amman Stock Exchange Market, were chosen as the target population because the industrial sector clearly reflects the constructs of this research in which variables are related to manufacturing rather than services. The entire population, which consisted of 88 industrial companies which were classified on the Amman Stock Exchange Market as industrial shareholding companies, according to its report for the year 2006, were targeted as the sample. The decision was made to adopt individual distribution to administer the questionnaire. The questionnaire was accompanied by a covering letter explaining the research objectives. The participants were asked to complete the questionnaires, which were picked up later. The main reason for choosing the entire population was to ensure that the sample was representative and not biased.

The main survey consisted of 400 questionnaires. Four to five questionnaires were delivered to each manufacturer and were given to its Director, Vice-President, Operations or Production Manager, Finance Manager and Marketing Manager. The respondents comprised 334 individuals in total; 226 respondents completed the questionnaires of which 12 responses were unusable. The usable questionnaires were collected from executives with the title of Director (n =33), Vice-President (n = 35), Operations or Production Manager (n = 59), Finance Manager (n=37) and Marketing Manager (n = 62). These usable replies represented a response rate of 45%. The responding firms covered a wide range of manufacturing activities including electronics, engineering products, electrical, chemical and pharmaceutical.

5. Data Analysis

A reliability test was carried out using Cronbach's alpha, which measures the internal consistency of a construct. The recommended minimum acceptable limit of reliability for this measure is 0.60 (Sekaran, 2003). The results can be seen in Table 3. The table shows that all the constructs passed the reliability test.

Table 3: Values of Cronbach's alpha for the research constructs

Construct	**α- Value**
Competitive advantage	.8214
Quality	.7168
Cost	.8990
Delivery	.9226
Flexibility	.8339

Frequency and descriptive statistics were used to determine the relative importance of each of the competitive priorities in achieving competitive advantage. The results are shown in Table 4.

Table 4: Descending means of the competitive priorities

Construct	Mean	Standard deviation
Quality	4.213	.5537
Cost	3.270	.7405
Flexibility	3.127	.5793
Delivery	3.081	.6726

The respondents agreed that their companies utilise different competitive priorities to maintain competitive advantage. Quality was ranked with an average of 4.213 as the most important competitive priority to achieve and maintain competitive advantage. The next most frequent type of competitive priority was cost, which was ranked second with an average of 3.270. Flexibility and delivery were ranked with an average of 3.127 and 3.081 respectively.

It may be noted that all the competitive priorities shown in Table 4 have an average of above 3. This result leads us to conclude that all of the competitive priorities listed above are of considerable importance in Jordan.

Multiple regression analysis was conducted to test the above hypotheses. Multiple regression identifies how much of the variance in the dependent variable is explained when a set of variables is able to predict a particular outcome.
Kurtosis[1] and skewness[2] values were used to examine and check the normality of each variable included in the research. According to Hair et al. (2003, p. 244) when

[1] Kurtosis indicates the extent to which the height of the curve (probability density) differs from that of the normal curve. Positive kurtosis is associated with distributions with long, thin tails, whereas negative kurtosis is associated with shorter, fatter tails relative to the normal curve (West et al., 1995, p. 60). In other words, Kurtosis is a measure of a distribution's peakedness (or flatness). Distributions where responses cluster heavily in the centre are peaked. Distributions with scores more widely distributed and tails further apart are considered flat (Hair et al., 2003, p. 244).

skewness values are larger than +1 or smaller than –1 this indicates a substantially skewed distribution. On the other hand, a curve is too peaked when the kurtosis exceeds +3 and is too flat when it is below –3. Thus skewness values within the range of –1 to +1 and kurtosis values within the range of –3 to +3 indicate an acceptable range. The values of skewness and kurtosis for each variable are shown in Table 5. In fact, all the research constructs fall within the acceptable range.

Table 5 Skewness and kurtosis for research constructs

Variable	Skewness	Kurtosis
Quality	-1.041-	-.477-
Competitive advantage	-.691-	-.275-
Cost	-.580-	-.933-
Flexibility	-.962-	.224
Delivery	.244	.932

A multiple regression analysis was then conducted. The results of the multiple regression analysis are presented in Tables 6, 7 and 8. Based on the above hypotheses, four independent variables are identified as predictor variables: quality, cost, delivery, and flexibility and one dependent or outcome variable is considered (competitive advantage).

As shown in Table 6, the results which emerged from the multiple regression analysis revealed that the coefficient of determination, R^2, which predicts the relationship between the independent variables and dependent variable, is equal to 0.775. This shows that 77.5% of the total variance in the dependent variable (competitive advantage) is accounted for by the independent variables (quality, cost, delivery, and

[2] Skewness is a measure of symmetry of a distribution. A positively skewed distribution has relatively few large values and tails off to the right, and a negatively skewed distribution has relatively few small values and tails off to the left. Skewness values falling outside the range of –1 to +1 indicate a substantially skewed distribution (Hair et al., 1998, p. 38).

flexibility). This result provides support for the significant role of the four competitive priorities in creating competitive advantage.

Table 6: Model summary

Model	R	R Square	Std. Error of the Estimate
1	.880	.775	.4108

As indicated in Table 7, the results of the F-ratio show that the regression model is significant at $P < 0.001$. Therefore, we can conclude that the regression model predicts competitive advantage significantly well. In other words, competitive priorities (independent variables: quality, cost, flexibility, and delivery) have the ability to predict the outcome variable (dependent variables: competitive advantage.

Table 7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	128.155	4	32.039	189.873	.000
	Residual	37.291	221	.169		
	Total	165.446	225			

The regression analysis presented in Table 8 reveals that the creation of competitive advantage is determined by the competitive priorities: flexibility, quality, cost, and delivery. Therefore all the hypothesised relationships between competitive priorities and competitive advantage can be accepted.

Table 8: The results of multiple regression analysis

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
	(Constant)	-1.858	.265		-7.002	.000
	Quality	.841	.069	.568	12.216	.000
	Cost	.398	.062	.312	6.451	.000
	Delivery	.187	.051	.121	3.646	.000
	Flexibility	.242	.042	.209	5.781	.000

a Dependent Variable: Competitive advantage

A summary of the research hypotheses (H1-H4) and their results is given in Table 9.

Table 9: Summary of the research hypotheses (H1-H4) and their results

Hypotheses	Description	Beta	t-value	Comment
H1	Quality affects positively the creation of competitive advantage by a firm.	.568	12.216	Accepted
H2	A cost leadership reduction strategy affects positively the creation of competitive advantage by a firm	.312	6.451	Accepted
H3	Delivery affects positively the creation of competitive advantage by a firm.	.121	3.646	Accepted
H4	Flexibility affects positively the creation of competitive advantage by a firm.	.209	5.781	Accepted

Therefore, it could be concluded that the evidence of the multiple regression analysis shows that a positive *significant* relationship is found between each of the following independent variables (quality, cost, delivery, and flexibility) and the dependent variable (competitive advantage). The results of our hypothesis testing are similar to the findings which have emerged from previous empirical work. For example, in the work conducted by Kazan et al. (2006) the authors found significant relationships between quality, cost, and flexibility and financial performance. The results are also in consistent with the work presented by Phusavat and Kanchana (2007) where the authors conclude that quality, customer focus, and delivery criteria are important priorities for enhancing manufacturing firms' competitiveness. Therefore, it should be noted that each of the four competitive priorities (quality, cost, flexibility, and

delivery) contribute to improving and sustaining the competitive advantage of a firm since the competitive priorities are linked to the corporate and functional strategies of a firm.

In this context, Ward et al. (1998) support the strategic link between manufacturing strategy and competitive priorities in which they indicate that identifying manufacturers' competitive priorities has long been considered a key element in manufacturing strategy research. However, operations managers should consider the fact that each of the competitive priorities is a complex construct which ultimately affects the planning and implementation of the operations strategy of a firm by meeting the related organizational objectives. For example, competing via a cost reduction leadership strategy leads firms to analyze the manufacturing cost-related categories including (direct) production costs, productivity, capacity utilization, and inventory reduction (Ward et al., 1998).

In the same vein, quality as a competitive priority is a multidimensional construct. Garvin (1987) names eight dimensions of quality as defined from the customer's view point: namely, performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality. In their comments on these dimensions, Ward et al. (1998) place an emphasis on the conformance dimension of quality. They point out that the other dimensions represent possible bases of competition, but they require more inter-functional coordination among manufacturing, marketing, and research and development/engineering than does achieving conformance quality. This conclusion leads us to think strategically about the mutual relationships among competitive priorities. Ferdows and De Meyer (1990)

believed that the four competitive capabilities could be emphasized simultaneously and enhanced.

Since competitive advantage is enhanced by an increase in organizational performance, scholars such as Kathuria (2000) have linked competitive priorities to performance. Kathuria's findings are consistent with literature (eg: Roth, 1989; Nemetz, 1990) which suggests a correspondence between performance measures and the manufacturing priorities emphasized. The work deals with four competitive priorities in the manufacturing strategy including cost, delivery, quality and flexibility. The study findings indicate that different groups of manufacturers — Do All, Speedy Conformers, Efficient Conformers, and Starters — emphasize different sets of competitive priorities, even within the same industry. Further, the Do All types, who emphasize all four competitive priorities, seem to perform better on customer satisfaction than their counterparts in the Starters group. In summary, Kathuria's study suggests that different manufacturers use different bases to compete within the same industry.

Similarly, Amoako-Gyampah and Acquaah (2008) examined the relationship between manufacturing strategy and competitive strategy and their influence on firm performance. The findings of the work confirm that all four manufacturing strategies (cost, delivery, flexibility, and quality) are means through which a firm can implement its competitive strategies. However, it could be concluded that the competitive priorities are interrelated and correlated to one another. In this context, Amoako-Gyampah and Acquaah (2008) have found that strong relationships exist between competitive strategy and manufacturing strategy. In line with Ferdows and De Meyer

(1990), they argue that improving quality can reduce manufacturing lead time, reduce the amount of time spent on reworking and in the quantity of materials rejected, and thus contribute to improvements in flexibility, delivery times, and unit cost efficiencies.

7. Conclusion

Managers need to deal with several types of competitive priorities to plan a manufacturing strategy. In other words, competitive priorities facilitate the planning of operations strategy and manufacturing strategy to enhance the competitive advantage of a firm. The results of this study indicate collectively that, as hypothesised, strong relationships exist between competitive priorities and competitive advantage.

Therefore, managers need to consider the following managerial implications when planning the operations and manufacturing strategy of a firm:

- Quality positively affects the creation of competitive advantage by a firm.
- Cost leadership reduction strategy affects positively the creation of competitive advantage by a firm
- Delivery positively affects the creation of competitive advantage by a firm.
- Flexibility positively affects the creation of competitive advantage by a firm.

It is also interesting to note that the four competitive priorities (flexibility, cost, quality, and delivery) exist in most of the industries covered in the sample, which suggests that different manufacturers use different competitive priorities to compete within the same industry. In addition, it could be concluded that each priority affects

the others. Amoako-Gyampah and Acquaah (2008) give the following examples of mutual relationships among competitive priorities:

- Providing products with minimal defects and using statistical control methods that allow early detection of quality problems will allow the firm to reduce the cost of its operations and achieve its cost leadership goals
- Reducing the set-up time as a part of flexibility, small batch production can result in cost benefits that normally accrue to large-scale production and hence the firm can adjust its competitive strategy from one emphasizing purely economies of scale to one that includes an emphasis on economies of scope (Gupta and Somers, 1996).
- Providing reliable deliveries will reduce any expediting costs associated with the inability to meet delivery promises and also reduce any inventory related costs. A firm's ability to adjust capacity rapidly as part of its flexibility efforts will lead to less need for excess capacity and thus a reduction in production costs that can translate to price reductions and the attainment of a cost leadership position.
- High quality products will lead to the attainment of brand loyalty. A firm's ability to handle changes in product mix and adjust its capacity quickly will enhance its ability to offer customized products and thus gain the ability to differentiate itself from other competitors in the market place.

Based on the above argument it could be concluded that competitive priorities are interrelated and correlated and they play a major role in creating, maintaining, and sustaining the competitive advantage of a firm.

8. Contributions to Knowledge, Limitations and Proposals for Future Research

The above results are similar to the findings which emerged from empirical work conducted by Kazan et al. (2006) in which they found significant relationships between quality, cost, and flexibility and financial performance. The results are also consistent with work presented by Phusavat and Kanchana (2007) in which the authors concluded that quality, customer focus, and delivery criteria are important priorities to enhance a manufacturing firm's competitiveness.

This study extends earlier research (e.g. Kazan et al. 2006: Cardy and Selvarajan, 2006: Phusavat and Kanchana, 2007), by addressing the mutual relationships between competitive priorities and competitive advantage.

The findings of this research suggest that linking competitive priorities to competitive advantage is the master key for a firm to survive in a turbulent environment. However, operations strategy and marketing strategy should place an emphasis on competitive priorities such as quality, cost, flexibility, and delivery to achieve, develop, and maintain competitive advantage.

This research has several limitations. It has not taken into consideration the effect of moderating and intervening variables (such as company size, business unit, organisational structure and industry type) on the relationships between the competitive priorities and the competitive advantage of a firm. In addition, the sample was limited to the Jordanian manufacturing companies classified on the Amman Stock Exchange as public industrial shareholding companies. The research

excluded the Jordanian manufacturing companies that are not classified on the Amman Stock Exchange due to the absence of a database of them.

Despite the above limitations, this study is the first attempt in Jordan to examine empirically the relationship between the competitive priorities and the competitive advantage of a firm. Therefore, the limitations should be viewed as opportunities for future research. It is proposed to conduct more empirical studies about the impact of competitive priorities on the financial and non-financial performance of a firm; on the role of the intervening variables (i.e. company size, organizational level, industry type); on the relationship between competitiveness and organizational performance; and on the role of competitive priorities in planning different functional strategies including manufacturing, operations, marketing, and financial.

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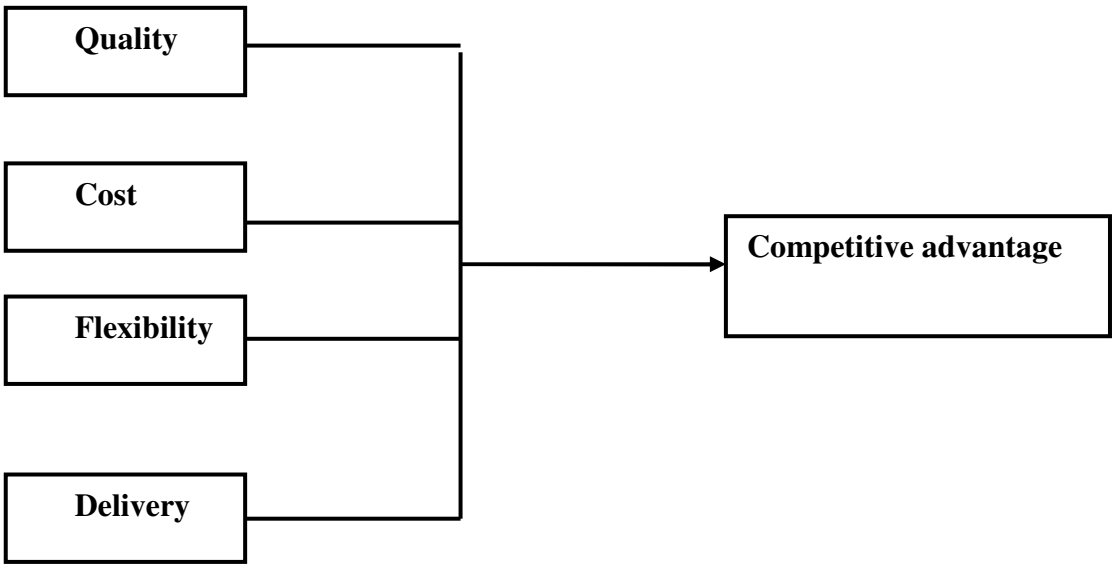

Figure 1: The Research Model