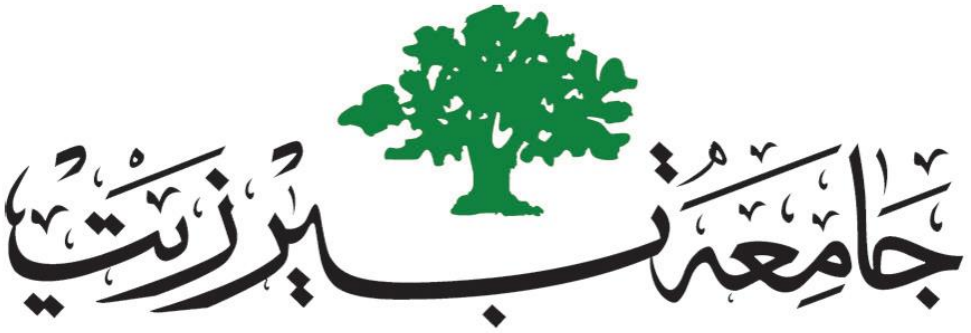

BIRZEIT UNIVERSITY

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Enhancing The Competitiveness Of Palestinian Pharmaceutical Companies Through Clustering

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Abstract

The purpose of this research is to obtain a better understanding of how clustering approach could affect the competitiveness of the pharmaceutical companies in Palestinian.

This study is a descriptive exploratory study, the researcher had used qualitative methods, and the researcher had used three tools to collect information, structured interviews, semi-structured interviews, and a documentary analysis. The researcher had done an onsite visits for the four factories which enabled him to observe the operations processes,

The interviews questions were developed in order to measure the current clustering situation of the companies and their competitive advantages, the researcher had collected the data from the middle managers at each company.

Cross tabulations and desegregations features have been used to analyse data, and to enrich the results to get a better defining of the findings. Qualitative data and weighting criteria were developed and explored to read the data in depth.

The researcher found that the Palestinian pharmaceutical companies don’t apply the clustering concept, while they play as a potential innovative cluster, so the researcher recommended the companies to work as a cluster, where this will enhance their competitiveness.

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CHAPTER ONE

Introduction

1.1 Overview

The pharmaceutical industrial sector is considered as one of the pillar industries in the Palestinian economy. The industry boomed after events in 1967 resulted in closed borders with the Arab world, where it was established with small laboratories to become now as sophisticated manufacturers. The Palestinian pharmaceutical industrial sector consists of five major manufacturers, which have an about 50% of the local market share, in addition to some exports to other markets (PNA, 2011).

This research aims to study clustering which is an aggregation of related firms, or supplier that exist in a specific geographic area, and linked together through some common interdependencies to supply a related group of products or services (Porter, 1990), and investigates how clustering could enhance the competitiveness of the industry, and answers the questions about the effect of industry clusters on companies' competitiveness. Many studies have indicated that clustering play an important role in improving the competitiveness of the industry and its product quality (Porter, 1990), (Najib et al., 2011), (Zhang & Luo, 2014).

Nowadays companies are striving to obtain an advantage over their competitors by providing distinct products and services due to the easy access to know-How knowledge, increase of competition in the markets. Distinction could be attained by

applying one or more of the following approaches "strategies": higher quality of products and services; meeting special needs of market segments; and providing products and services at a lower price (McLeod & Schell, 2006).

In order to compete nowadays within the new globalisation, companies must design and offer better products and services and improve themselves (Taj & Morosan, 2011). Every company has to have one of the competitiveness strategies, either to deliver higher quality products, or to concentrate at a significant lower cost in order to achieve a competitive advantage through the market. According to Porter (1990) Industrial competitive advantages could be created by clustering which will affect all of the firms within such an area, whereas such competitive advantages could be not possible to be created by a single firm alone.

Indeed, companies should make decisions and implement the clustering concept that eventually will have an impact on their performances. To do so effectively, they need enhance the relationships within the clusters and to access strategic resources, knowledge, technologies, information, and infrastructures that will create positive effects (Hoffmann et al., 2011).

1.2 Research Rationale

Industrial clusters which are a specific type of clusters that are identified by its industrial related activities are considered as a network-based industrial system, that aims for adapting and fast changing the markets and technologies to the whole organization (Niu, 2012). As many countries, governments, and planners are driving the formation of

the industry cluster because clusters are generating external benefits geographic proximity such as cost savings that result from lower input costs and increased productivity (Marshall, 1890)

Pharmaceutical companies working in Palestine must look for new approaches to be implemented which will help them to reduce costs and increase productivity. In other words increase their competitiveness in the markets, therefore this research will highlight on the extent of clustering on competitiveness of the pharmaceutical industrial companies in Palestine as a developing country.

The Palestinian pharmaceutical companies manufacture medicines in a very restricted ways depending on its capabilities, which could be summarized into two main categories, which are: production of formulations from pharmaceutical starting materials, and repackaging of finished dosage forms, while it lacks the capabilities of research and development for discovering new active substances, and Production of pharmaceutical starting materials. (PNA, 2011).

All of the pharmaceutical starting materials that are used in the pharmaceutical industry are imported separately and specially for each manufacturer, and can't be used by other manufacturers. From an another point it is clear that the Palestinian pharmaceutical industry market, has all local manufacturers, where there is no any multinational pharmaceutical companies currently manufacture medicines locally. (PNA, 2011). And the percentages of exportation to the other markets are so limited due to the difficulty of penetration of other markets. (USAID & ICC palestine, 2013)

The companies which will be the subject of this study are the human pharmaceutical industries, where they are taken according to the Ministry Of Health (MOH) registration information. These firms are sorted in the following table 1.1:

Table 1.1: Palestinian Pharmaceutical Companies

No.	Manufacturer	location	Date of establishment
1	Birzeit Pharmaceutical Company	Ramallah	1973
2	Jerusalem Pharmaceutical Company	Ramallah	1969
3	Dar Al-Shifa'a for the Manufacturing of Pharmaceuticals. (PHARMACARE)	Ramallah	1986
4	Chemical Jordanian Factory company	Bet Jalla	1969
5	The Middle East Pharmaceutical and Cosmetics Laboratories Ltd. (MEGAPHARM)	Gaza	1981

Source: Palestine National Authority, pharmaceutical country profile (PNA, 2011).

1.3. Conceptual Model

This Thesis concentrates on assessing the existing situation in the Palestinian pharmaceutical industry sector, whether it applies the clustering concept or no, or what is the current situation inside this sector concerning clustering. And also evaluates the comprehensive competitiveness of the Palestinian pharmaceutical companies. In order to know what is the effect of clustering on the companies' competitiveness, and what is the indicators which gives the best competitiveness, In order to sustain them, and which give the lowest competitiveness, in order to enhance them.

The theoretical framework consists of two main phases, clustering assessment, and competitiveness assessment, as shown in the figure below, Fig 2.3. The contents of each phase are described below.

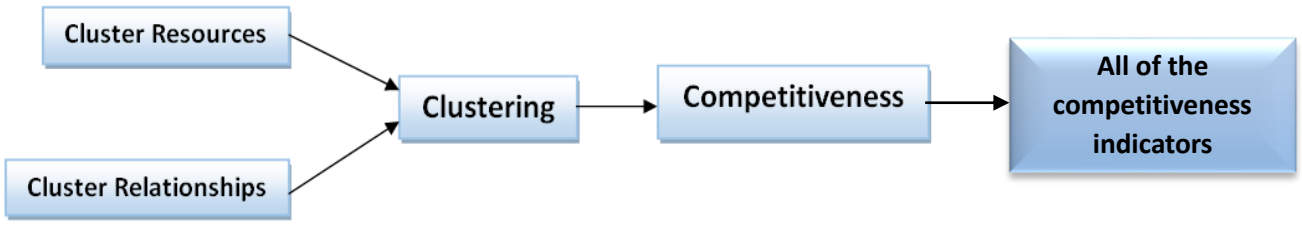


Fig 1.1

Conceptual framework

1- Clustering assessment.

As seen in fig 2.3 the clustering is the independent variable, where it could be assessed by the availability of clustering two main components; which are 1) cluster strategic resources, such as: access to HR, knowledge, technology infrastructure, capital resources, etc., and 2) cluster relationships, such as: geographic concentration, vertical integration, horizontal cooperation, and resource sharing.

2- Competitiveness assessment.

Literature has highlighted a number of firm's-specific factors, and models, in order to assess the competitiveness of the firms which is the dependent variable. However, the researcher had decided to apply the multiple indicator approach, where the indicators which have been selected to assess companies' competitiveness are based on the value chain model (Porter, 1985), in addition to the diamond model (Porter, 1990). Thus, the competitiveness indicators which will be studied in this thesis will be human resources, technological resources, technology & development, inbound logistics, outbound logistics, production and operation, services, marketing & sales, margin, firms' infrastructure, procurements of raw materials, support activities, and policy support. Each one of those indicators which are listed in table 2.3 represents a competitiveness point, and the company comprehensive competitiveness will be the summation of all of these indicators.

Table 2.3 firms' competitiveness indicators

Human resources	Technological resources	Inbound logistics
Outbound logistics	Operation	Services
Marketing & Sales	Margin	Firms' infrastructure
Procurements	Support activities	Policy support

On the other hand, the competitiveness will also be measured through analysing the financial indicators of the companies, such as profit, operating profits, and market share.

1.4 Research Questions and Objectives

Objectives:

The main objectives of this research are to measure the effect of clustering on Competitiveness in the selected Palestinian companies. Where the researcher chose Four Pharmaceutical Companies in Palestine as the population of the study in order to identify the research links between the Clustering and the Competitiveness with the context of the selected companies, based on the porter's diamond model, which is competitiveness assessment tool, that give a clear view about all the factor that affect the competitiveness, whether it were internal or even external factors, a more detailed description is in the next chapter.

Questions:

The main research questions are:

- To what extent does the Palestinian pharmaceutical industrial sector follow the clustering concept?
- To what extent does the Palestinian pharmaceutical industrial sector play as a potential cluster?
- How does the implementation of clustering concept enhance the competitiveness of the pharmaceutical companies?

1.5 Limitations and Obstacles

- The Middle East Pharmaceutical and Cosmetics Laboratories Ltd. (MEGAPHARM), was removed from the study due to the political situation there which may affect the research results, and the difficulty to reach the firm there.
- Due to the high competency between the companies most of them said they have no disadvantages.
- The interviews were made with the middle level management due to the difficulty in meeting the higher level management.
- The number of firms is four, and this is a small number to implement just a quantitative research approach, so the qualitative approach was used.

1.6 Research structure

Chapter one: presents the introduction, rationale, objectives, conceptual model, and limitations.

Chapter two: presents literature review which describes the clustering, pharmaceutical companies' situation, competitiveness, competitiveness assessment tools, and research structure.

Chapter three: describes in details the methods, methodology, population, data collection methods, data analysis techniques, and trustworthiness.

Chapter four: illustrates the data analysis of structured interviews, unstructured interviews, financial analysis, and answers of the research questions.

Chapter five: presents the conclusions, and recommendations.

CHAPTER TWO

2.1 INTRODUCTION

This chapter presents a comprehensive literature review of existing research covering three areas. The first review is of Palestine pharmaceutical industry. The second review is of literature related to theories of clustering. It is here that we first present the definition of—clustering, clustering initiatives, etc. The third review is of literature related to theories of competitiveness. as well as address the competitiveness of business organisations A series of theories of competitiveness are summarised first. Then, a comparison of competition evaluation methods is made. Based on this review, a theoretical framework for the competitiveness of pharmaceutical industry in Palestine is proposed.

2.2 Palestinian Pharmaceutical industry

The Palestinian pharmaceutical industry was established as a result of the shortages of certain drugs in the Palestinian market after 1967 war, which leaded to the isolation of the West Bank and Gaza from the rest of the Arab world. It began by a group of pharmacists who decided to start very small pharmaceutical businesses. And today it consists of five respected companies.

The firms which will be the subject of this study are the human pharmaceutical industries, where they are taken according to the MOH registration information. These firms are sorted in the following table 2.1:

Table 2.1: Palestinian Pharmaceutical Companies.

No.	Manufacturer	location	Date of establishment
1	Birzeit pharmaceutical company	Ramallah	1973
2	Jerusalem pharmaceutical company	Ramallah	1969
3	Dar Al-Shifa'a for the Manufacturing of Pharmaceuticals. (PHARMACARE)	Ramallah	1986
4	Chemical Jordanian factory company	Bet Jalla	1969
5	The Middle East Pharmaceutical and Cosmetics Laboratories Ltd. (MEGAPHARM)	Gaza	1981

The Palestinian pharmaceutical sector is an important and a successful sector among the Palestinian industrial sectors. The pharmaceutical industry according to the Palestine Central Bureau of Statistics (PCBS) (2013), consists of nine firms, two of them have stopped working, the first is Al-Jalil company stopped at 2010, and the other is Gama company stopped at 2012 according to MOH, and there is two companies made a merger with another companies, as will be mentioned below. These firms despite of their low number if compared to the large numbers of another industrial firms, a total of 16201 industrial firms in Palestine (PCBS, 2013). Contribute with 1.95% of the total industry's income PCBS (2013), While they contributes less than 1% to Gross Domestic Product (GDP) in 2006, This leads to understand that this sector is among the fastest growing industries in Palestine due to the duplication of its contribution of the

Palestinian GDP in less than 10 years despite of its low number of firms. This makes it a very promising industry.

Below is a more detailed literature on each one of the four companies of the West Bank, which have been collected from the annual discloser reports of each one of the companies (2013), where the fifth company which is Megapharm, that exists in Gaza had been ignored from this study; due to the political and economical situation in Gaza, which makes it hard to compare its situation with the status of the companies in the West Bank.

2.2.1 Jerusalem pharmaceutical co.:

Jerusalem pharmaceutical company is a public joint stock company established in 1969 and located at Ramallah, West-bank. The company operates in the fields of development, manufacturing and marketing of human pharmaceutical products and personal and household care, veterinary and agricultural products. The company produces more than 200 medicinal products of various forms, as well as more than 150 of other products. The company has many facilities in Palestine, Jordan, and Algeria. It employs more than 350 employees. The company holds a good manufacturing practice (GMP) certification, and ISO9001 and ISO14001 certificates .

Jerusalem Company is looking to be a leader in the field of pharmaceutical, cosmetics and personal home care at the local and regional levels, by contributing to the improvement of the overall health of people by offering the best prices with quality products in line with international standards.

The Company mission is to improve the quality of life, health and safety in the communities in which they serve by providing quality products, competitive prices, and facilitate access for the customers. They are working to be the first choice for customers. And consider their employees as a foundation stone in the continued development of the overall quality of their system. It also aims to access global markets with high quality products, competitive prices and excellent service.

Beside the main headquarter Jerusalem Company has four other subsidiary one locally and three international.

- Balsam Company :

  This branch is allocated at Ramallah region Industrial .Balsam joined Jerusalem in 1995. It was allocated for the manufacture of personal care, detergents, perfumes, cosmetics, personal care products and veterinary medicines. It produces more than 40 varieties of detergents and personal care products in different sizes include different production lines: (creams, liquids, sprays).it also produces a varieties of perfumes and deodorants, with distinction from the French Parour company.

  In 2004 a project was initiated to produce veterinary medicines through different production lines, including liquids, injections and powder according to international standards.

- Jordan River for Pharmaceutical Industries :

  Situated in the region of Ain Albasha- Jordan, with a registered capital of 2,000,000

JD. This branch employee's 107 employees. The company markets its products in addition to the Jordan market to the Gulf markets, especially Saudi Arabia, UAE, Bahrain, and Kuwait. JRPI holds a good drug manufacturing GMP certification, and marketing authorization certificate of the Gulf Cooperation Council. GCC, beside ISO 9001.1400 certificate.

- Sobrodam :

Sobrodam location is in the Boumerdes Ouled Moussa. Algeria . It was partially subsidized by Jerusalem Co. at the beginning of the year 2011. With 49% of its capital. And it's administrative is controlled by Jerusalem Co. by the Board of Directors. It is licensed by the Ministry of Health for the manufacture and production of solid preparations. Equipped with all the productivity and laboratory devices supporting the productive process and hardware.

- Jerusalem-Varm company:

This branch is situated in Sharaka area in the Algerian capital. The company was founded in 2006, and it is wholly owned by Jerusalem Pharmaceutical.

2.2.2 Birzeit Pharmaceutical Company (BPC):

Birzeit Pharmaceutical Company (BPC) is Palestine's manufacturer of generic medicines. With more than 300 products distributed among ten production lines and covering different therapeutic ranges. BPC targets all types of customers in the local Palestinian market. BPC market is not limited to the Palestinian Territory, the company

has export to different markets – mainly Algeria and East Europe. It employs more than 300 employees

BPC combines many factors in order to maintain its success. These factors include: obtaining the latest quality standards certificates such as GMP (Current Good Manufacturing Practices) and ISO quality systems, strong financial position of the company, highly educated and well trained staff members distributed among the different departments, management team with good experience and high credibility, many strategic investments and alliances; local and international, ongoing product development and market development initiatives, state of the art facilities with a total area of 16,000 square meters, modern production lines operating according to the latest technology in this industry, and approved suppliers of raw and packaging materials

BPC was established in 1974 in Birzeit village, 10km north of Ramallah as a private shareholding company with a total capital investment of USD 150,000. In 1979 Birzeit Pharmaceutical Company became a public share holding company with a capital of USD 0.5 million. Latter in 1992 The Company merged with the third largest pharmaceutical company in Palestine, Palestine Medical Company, in addition to establishing Medix Company for Beauty Care. Medix represents a number of international Companies, such as Maybelline, Vichy and INDOLA. In 2001 BPC acquired ISO 9001 certification, one year latter BPC took over 73% of Eastern Chemical Company, and later in 2004, the remaining 27% was acquired. BPC acquired ISO 14001 certification in 2004. In 2005 BPC became listed in Palestine Securities Exchange. Continuous investment in quality lead BPC to acquire GMP certification according to WHO standards in 2008. BPC doubles its export market share which

reflected on its revenues during 2010.

BPC manufactures and markets generic products in almost all therapeutic fields including a variety of dosage forms, the company manufactures and markets 300 products distributed among ten lines of production: Ampoules, Capsules, Tablets & Caplets, Syrups, Suspensions & Granules, Ophthalmic, Semi-solids, Powder vials, Suppositories and Powders. BPC's facilities are set on a total area of 16,000 square meters, equipped with modern production lines operating according to the latest technologies in this industry.

2.2.3 Beit Jala Pharmaceutical:

Beit Jalla Pharmaceutical Manufacturing Company– formerly Jordan Chemical Laboratory -. BJP is located in Beit Jalla /Palestine, few kilometers from Bethlehem. BJP conducts its operations in accordance with Good Manufacturing Practices (GMP) and is ISO 9001:2008 and ISO 14001:2004 certified. BJP employs more than 150 employees and produce more than 150 products.

Their vision is to serve humanity in enabling a better and healthier quality of life. And their mission is to

1. Manufacturing safe, pure, and effective branded generic drug pharmaceutical products in compliance with GMP regulations

2. Fostering a culture of team work achievements.

Beit Jalla Pharmaceutical was established in 1969, it was designed to manufacture generic drug pharmaceutical products of very high quality to the domestic market. Production lines for tablets, capsules, ointments and creams, syrups and suspensions, and suppositories were installed. In 1978 the company started the production of four different types of eye drops that proved to be a success further on. In 1992, decision was taken to start building a state of the art facility in compliance with GMP guidelines and relevantly to refurbish the old facility, all with the aim to produce PURE, SAFE, and EFFECTIVE drug pharmaceutical products.

2.2.4 Dar Al Shifa Pharmaceutical Industries PLC

PLC was founded in 1986 and registered under Number (562600288) under the Companies Act No. 12 of 1964. The registered address of the company (administration offices And factories) is: Bitounia – Ramallah. PLC activities Includes as stated in its Memorandum of Association, manufacture, sale, distribution, import and export of drugs and cosmetics ,And veterinary chemicals and materials.

During the years 2000 - 1999, PLC was looking to secure the necessary funding to complete its ambitious goal. At its new plant, and between different sources of funding for the company, "Dar Al Shifa" chose to get funding by to increase its paid up capital through an alliance with Mr. Michael Verdz and his family company owners "Gronnthal GMPH” from Germany.

Besides improving the financial aspect of the company, "Dar Al Shifa" company aimed through this alliance to meet with the challenges of globalization. The agreement with the Germans partners give them two seats on the board of “Dar Al Shifa " and that

attended a very important impact on the financial and administrative levels . And the most important thing to PLC which was addressed in this context, is technological support and training for “Dar Al Shifa ". And give the right to “Dar Al Shifa " for manufacture and distribution of some of the agreed products of" Gronnthal ", which led to accelerate growth in sales in the "Dar Al Shifa" In addition to improving quality and thus securing high ability to overcome the challenges of competition.

In late 2011, Verdz / owners Gronnthal family company decided to reduce the share of investment in PLC, and thus the company's management decided later to add new partners which was Bank of Palestine Inc. and Rich Investment and Development, where their re proportion in the company were 5.83% and 3.9% each, respectively, of the total Shares of the company, and the German partner's share became 23.92% of the total shares of the company.

During the first quarter of 2008, with the support of German partners, "Dar Al Shifa" Company got a European good manufacturing certificate (GMP) from the German Ministry of Health, which allows the company to market its pharmaceutical products in The European Union. Moreover, the company acquired in the same period the Palestinian GMP certification. The number of company employees is (273) employees.

2.3 **Clusters, clusters initiatives, and industrial clusters**

In the recent years, clusters are considered to be an important factor in enhancing the economic development worldwide, where many governments and strategy development institutions regard clusters as potential drivers for the development of companies, and enterprises, and increase of innovation, and innovative activities within a specific area, or economic sector. (UNIDO, 2013)

Such development of economy, and increasing and supporting of innovation, which is the main target of the clustering process, could be achieved through policies, and activities that aim to support the whole cluster are called cluster initiatives, and they are considered to be effective instruments in gathering and concentrating of the resources, funding, and technological requirements in the targeted cluster area with a high growth potential to spread beyond its current locations. (UNIDO, 2013)

Clusters are seen as an important factor for the explanation of the empirical phenomenon of geographical concentration of economic and innovation activities that are related to each other, and as key drivers of competitiveness and innovation in a given region and therefore for the growth or increase / improve jobs and living conditions of the population (VLĂSCEANU, 2014). Many different cluster definitions exist, depending on the purpose and context in which they are used. However, in many of these definitions, there is no clear distinction between the definition of "cluster" and "cluster initiatives". This distinction should be clear, the cluster being considered as real phenomena and cluster initiatives as structures / entities that aim to build new clusters or its expansion. (Zahradník, 2012)

Clusters are a group of companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, R&D centers, and trade associations) in particular fields that are co-located in a specific geographic regions and linked by interdependencies in providing a relate group of products and/or services (Porter, 1990, 1998), while Tallman et al., (2004) defined clusters as a geographically concentrated firms that function as strategic entities in the industry, and share a considerable interest to regional economic development agencies, corporate managers, international strategy scholars, and support institutions, etc.

More generally, clusters can be defined as a group of companies, institutions and economic agents, which are located near each other and have reached a sufficient scale to develop specialized expertise, services, resources, suppliers and skills (Clipa et al., 2012). A common element in the cluster definitions is the aspect of a concentration of one or more sectors within a given region, as well as the emphasis on networking and cooperation between companies and other institutions in that cluster (Haviernikova, 2013).

On the other hand, cluster initiatives can be understood as "organized efforts to increase growth and competitiveness of clusters within a region, involving cluster firms, economic and political and / or the scientific community" (Sölvell et al., 2003). The cluster initiatives often play an important role as providers of services to support clustering. Cluster initiatives can be defined as a legal entity that supports, manages and directs a given cluster (Adumitroaei et al., 2013).

The concept of cluster and its economic benefits have been firstly described by Marshall (1890) by the concept of “industrial districts”, where the cluster is an agglomeration of companies that operate in the same industry sector in a well-defined and small geographical area, and mostly was an urban area, and the benefits are reduction of the transportation costs, access to more resources, a pool of qualified work force, and access to information.

Since cluster is often related to the industry, both terms are combined with each other and formed the concept of industrial cluster, which is a concentrated area of technical, economic, human resource, knowledge, etc., which reflects the level of development of the enterprise, the comprehensive development of the region, and offers the environment to improve the innovation capacity and competitive ability in the region (Zhang & Luo, 2014).

Industrial clusters could be defined also as national industries that are linked together through vertical buyer-supplier or horizontal (common customers, technology etc.) relationships. Industrial cluster is based on the economic, not territorial criteria. It presents a group of enterprises for which the membership inside the group is the important element to each firm for its competitiveness. (EC, 2002:3)

Clusters gain tangible and intangible benefits due to its proximity in geographic location and its activities, such benefits could be access to specialized human resources and suppliers, knowledge spillovers, pressure for higher performance competition, and

learning from the close interaction with specialized customers and suppliers (Ketels, 2003). Clusters also could be considered as one of the important sources for improving competitiveness of firms within cluster due to its potential for facilitating the development of market oriented and innovative behaviour. (Najib et al., 2011).

According to Ketels (2003) Clusters could be classified into many dimensions: (1) the type of products and services they produce, (2) the locational dynamics they are subject to, like some industries which are tied to their location due to its local market, or due to its natural resources, or that industries which are traded industries that serves markets in many regions and countries, (3) their stage of development which depends on the business environment that the cluster operates in. however in other literatures clusters could be classified in many ways such as knowledge-driven clusters, trade-driven clusters, low-and high-tech clusters, and geographic and non-geographic clusters. (Aylward & Glynn, 2005).

Although the term of cluster becomes more popular recently, there is no unique or standard model of clusters, but each country and region has a different set of clusters, shaped by historical background, national characteristics, the strength of the knowledge base, size, R&D, connectedness, and share of innovative products (Aylward & Glynn, 2005). In addition to these types of clusters, Mytelka & Farinelli (2000) had pointed two main distinctions between cluster types. These are:

1- Spontaneous groupings of firms, suppliers and public sector bodies around a growth industry.

2- Constructed clusters such as industrial parks and incubators, originating through policy mechanisms with specific objectives in mind.

Mytelka & Farinelli (2000) had divided the spontaneous clusters into three useful categories: Informal, Organized and Innovative. Based on innovation measure. While Aylward & Glynn (2005) had described these categories of clusters, such that the informal clusters are those where the firm size is small to medium, skill levels tend to be low, innovation levels are traditionally low, where the organized clusters could be found in niche industry sectors, like marine manufacturing and equipment and the microelectronic industry, this type have a higher measure of innovation, small and medium firms with a growing level of innovative activity, and relatively high levels of exports. And the third type is the most advanced one with large firm size, skill levels range across low, medium and high, linkage levels are medium to high, exports are high, but another core criterion the "cooperation" is poor.

According to Long & Zhang (2011) in their literature, industrial clusters has many positive effects such as better access to the market and suppliers, human resources, and easy technology spillover know-how. While they say that the main advantage of clustering in developing countries with limited financial development is to overcome some financial obstacles that face firms within clusters.

Hsu & Lai (2013) had argued that clustering is the trend of the future. Where industry clusters have experienced rapid growth over the past ten years. The pace has remained relatively fast despite the impact of the global financial crisis. In fact, clustering is one of the paths to the enhancement of companies' competitiveness. However, Hsu & Lai

(2013) had explained that companies within cluster gain a competitive advantage over other companies because it can benefit from the resources of the cluster, and cluster relationships that exist between parties within cluster.

Based on the many definitions of cluster, cluster initiatives, and industrial clusters, the researcher had made the following comparison between the definitions, as in the tables below:

Table 2.2: cluster definitions.

No.	Reference	Definition
1	Marshall, 1890	An agglomeration of companies that operate in the same industry sector in a well-defined and small geographical area, and the benefits are reduction of the transportation costs, access to more resources, a pool of qualified work force, and access to information.
2	Porter, 1990	A group of companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, R&D centers, and trade associations) in particular fields that are co-located in a specific geographic regions and linked by interdependencies in providing a related group of products and/or services
3	Tallman, 2004	Geographically concentrated firms that function as strategic entities in the industry, and share a considerable interest to regional economic development agencies, corporate managers, international strategy scholars, and support institutions, etc.
	Clipa, 2012	Group of companies, institutions and economic agents, which are located near each other and have reached a sufficient scale to develop specialized expertise, services,

		resources, suppliers and skills

From the above table, it is clear that all of the definitions share common aspects related to the cluster meanings, which are:

- Geographic location proximity.
- Related industries, or service providers.
- And share considerable interests and linked together through some interdependences.

Table 2.3: cluster initiative definitions

No.	Reference	Definition
1	Sölvell, 2003	Organized efforts to increase growth and competitiveness of clusters within a region, involving cluster firms, economic and political and / or the scientific community.
2	Adumitroaei, 2013	A legal entity that supports, manages and directs a given cluster.

From the table above, it is clear that cluster initiative is a management effort that aims to increase growth, and competitiveness of the cluster, and manage and direct the cluster.

Table 2.4: industrial cluster definitions

No.	Reference	Definition
1	European Commission, 2003	National industries that are linked together through vertical buyer-supplier or horizontal (common customers, technology etc.) relationships.
2	Zhang, 2014	A concentrated area of technical, economic, human resource, knowledge, etc., which reflects the level of development of the enterprise, the comprehensive development of the region, and offers the environment to improve the innovation capacity and competitive ability

From the table above, it is clear that industrial clusters are the industries in a specific area that are linked together through vertical and horizontal relationships, and it gives an indication on the development level of the area. And offers the environment for improvement and innovation.

2.3.1 Industry cluster resources

A cluster's set of valuable resources constitutes its potentially strategic resources, (Fensterseifer & Rastoin, 2013), where they also defines the strategic resource as a valuable resource which contributes to the value creation by clustered firms", and hence to their competitive advantage. Porter (1990) had described the cluster resources through his diamond which consists of four interconnected factors that illustrates the elements of cluster formation, these factors are the production conditions, demand conditions, related and supporting industries and firm strategies, and structure and

rivalry. Where production conditions consists of the main resources that gives the cluster an important competitive advantage, these are "human resources", natural resources, knowledge resources, capital resources, and firm infrastructure.

Fensterseifer & Rastoin (2013) had categorized the resources of wine clusters in five categories; institutional capital like professional associations, training centers, research centers, and technical assistance centers. Specialization capital such as specialized labour, equipment, consulting, spillover of knowledge and technological know-how. Social capital which indicate the quality of social interactions inside the cluster like horizontal and vertical interactions. Reputational capital like the quality of the wine and customer trust. And Natural capital that includes climate, soil, water, etc…

Firms that exist in a geographic cluster takes the advantages of tangible and intangible resources available in the cluster through exchange and combination of resources, cluster firms are able to optimize, reduce costs and improve innovation using the intangible resources of the cluster such as knowledge resources, and increasing efficiency of the resources for cluster firms because exchange and combinations of resources enables firms to use resources possessed by others within the cluster, Li & Geng (2012) argue that the resources shared among the cluster are sorted into six categories: common reputation, intensity of exchange and combination of resources, mutual trust between firms, collective learning and knowledge-sharing, dense of competition, and participation and support of the local institutions.

ST. John & Pouder (2006) argue that some clusters are formed due to the availability of many restricted resources that are a key driver to the specific industry needs, and gives the cluster an industry identity, these resources could be:

1- Physical resources such as coal fields in Pennsylvania, and oil industries in Gulf States.
2- Labour with a unique skills and experiences.
3- Abundant of low-cost labour and raw materials.
4- And favourable climatic and soil conditions as in grape growing in the Napa Valley.

And many other examples like steel, wine, furniture, carpet, etc., where cluster growth may be constrained by the capacity or availability of the key resources.

On the other hand there are some clusters like photonics clusters in Tucson, Ottawa, and Tampa-Orlando, depends mostly on the technological development which gives it a technological identity. These clusters rely mainly on resources that give it an innovation and competitiveness advantages, such as knowledge, university research, and national laboratories. (ST. John & Pouder, 2006)

In addition to that, Olson (1998) had demonstrated that technology based industries depend on four strategic resources which play the main role to the competitiveness of the cluster, that are 1) skilled workforce, 2) universities & R&D centers, 3) transportation and communication infrastructure to stay close to customers, and 4) high-quality life where many companies can gain a competitive advantage in recruiting highly skilled technicians, professionals, and other personnel if they can offer an exceptional place to live, as well as to work.

Clar et al. (2008) had also argues that companies within clusters principally benefit from cluster strategic resources which are: (1) specialized workers, (2) specialized suppliers and customers that is in other words the vertical supply chain infrastructure, (3) the specific infrastructure with training institutions, research and development organizations, and venture capital providing organizations etc. (4) and the spillover of knowledge.

Hsu & Lai (2013) while studying the Effects of Industry Clusters on Company Competitiveness in Taiwan economic zones suggested that the main strategic resources that are required for clusters are (1) human resources; (2) knowledge resources, (3) technological infrastructure, (4) capital resources, and (5) firm infrastructure.

The researcher through his literature on the main cluster resources that are considered to benefit the firms, and companies within the cluster, refers to the research and definitions by Fensterseifer and Rastoin (2013), Porter (1990), Li and Geng (2012), ST. John & Pouder (2006), Olson (1998), Clar et al. (2008), and Hsu & Lai (2013) regarding industrial cluster resources, and constructs a list of key factors of the strategic resources of the industrial clusters, which are:

- Specialized workers (human resources).
- Abundant of low-cost raw materials.
- Firm's infrastructure.
- The specific infrastructure with training institutions, research and development organizations, and venture capital providing organizations etc.
- And technology resources.

2.3.2 Industry cluster relationships

All clusters are made up of a group of firms that work with and share common suppliers and distributors. While it consists of the firms and organizations which have a strong local networks of association and are looking to work as a group in a collaborative way to achieve the best results of the regional industries development and to penetrate new export markets, because they share the same commonalities such as core competencies, strategic infrastructure, regional risk and economic development opportunities (Enright & Roberts, 2001).

Anderson (1994) had classified the relationships between companies within the industrial cluster into three main categories, which are: 1. buyer-supplier relationships, which exist between companies that produce goods and services from earlier stages to the final stages in the value-adding chain 2. competitor and collaborator relationships, exists between companies that produce the same or similar goods and services, because they could share information which leads to improve their innovativeness, such as new processes, and work together to build new associations, and alliances that help all of them. and 3. shared-resource relationships. These relationships exist between firms in the cluster that deal with the same sources of raw materials, technology, human resources, etc. Anderson also indicated that these relationships benefits from geographic proximity.

Jacobs & De Man (1996) reviewed the research literature of the cluster concept and pointed out six dimensions that represent the major activities and interactions between firms within cluster. Which could be illustrated as follow:

1- Horizontal, Which indicate to the direct competitors in the same or related industries
2- Vertical, firms that exist in the several phases of the supply chain from up to bottom.
3- Lateral, firms in different industries that relies on common resources.
4- Technological, firms in a collection of industries that share a basic technology
5- Focal, firms are concentrated around a central entity such as, research center, or educational institution.
6- Network quality, which indicates to the degree of cooperation that exist between firms within cluster.

Boari (2001) Had discussed the growth of the industrial clusters and argued that it consists of different stages with different roles played by focal firms and suppliers inside the clusters, these stages are: unplanned vertical relationships with suppliers, in the second stage these relationships becomes planned, in the third stage the horizontal relationships among suppliers becomes relevant, and the fourth is the increase in the hierarchical character of the cluster. While she also argues that these relationships between firms and suppliers tend to foster cooperation and trust between them. And they do more investments in a common specific assets, because of their mutual

expectation of future profits, awareness of switching costs, and realization of the role of their relationship in the process of new product development.

Hsu & Lai (2013) had reviewed many studies about cluster relationships among companies and summarized these relationships into four points; that are the geographic concentration of manufacturers, vertical integration from upstream to downstream, horizontal cooperation and competition, and resource-sharing relationships.

According to Newlands (2003) the most important advantages to firms within clusters comes from the horizontal relationships which particularly focus on competition and cooperation, Collaboration between firms can help them become more innovative helping them to capture and sustain their competitive advantages, and to overcome the negative effects of corrosive competition, in other words there is no necessary contradiction between collaboration and competition, but cooperation will increase the degree of competition within industries.

The researcher had adopted four types of cluster relationships in this thesis based on the aforementioned literature, where these relationships are described in the table below, in addition to the corresponding definitions of these relations that mentioned in the literature.

Table 2.5 Cluster Relationships

#	Relationship type	Anderson 1994	Jacobs & De Man 1996	Boari 2001	Hsu & Lai 2013
1	Vertical integration across supply chain	buyer-supplier relationships	Vertical between supply chain phases.	Vertical relationships.	Vertical integration
2	Horizontal competition and cooperation	competitor and collaborator relationships	Horizontal between competitors, and network quality.	Horizontal relationships.	Horizontal competition and cooperation
3	Resource sharing relationships	shared-resource relationships	Lateral, technological, and focal.	Investments in common assets.	Resource-sharing
4	Geographic proximity	benefits from geographic proximity			Geographic concentration

Table 2.5 shows that the clustering relationships are mainly four relationships, which are the vertical or could be called buyer-supplier relationships, the horizontal or could be called also competitor- collaborator relationships, resource sharing or any collaborative relationships, and finally geographic location proximity, which is the first part of the cluster definition.

2.4 Competitiveness

Various studies have been conducted on the subject of competitiveness. These can be categorized into three levels: micro, meso, and macro. These can be further characterized as being applicable to organization competitiveness "micro level", industrial competitiveness "meso level", and national competitiveness "macro level" (Nelson, 1992). As mentioned by Man et al. (2002) whatever the levels of focus are, competitiveness is eventually concerned with the long-term performance of the subject relative to its competitors, the result of being competitive.

Different definitions of competitiveness apply to these different levels. From a macro perspective, such that a national viewpoint, competitiveness enhances the prosperity of the nation by improving the real income of its citizens whose performance comprise the social, cultural, and economic variables in international markets (Nelson, 1992). In early 1990s, Porter developed a diamond framework to specify the role of the national environment in influencing the international competitiveness of an industry. Porter (1990) reveals that four attributes of the home country environment have an effect on the context which allows firms to gain and sustain competitive advantage. These are: factor conditions, demand conditions, related and supporting industries, and context for firm strategy and rivalry. In Porter‘s view, two exogenous factors, government and chance, influence the functioning of these four major determinants of the diamond, figure 2.1.

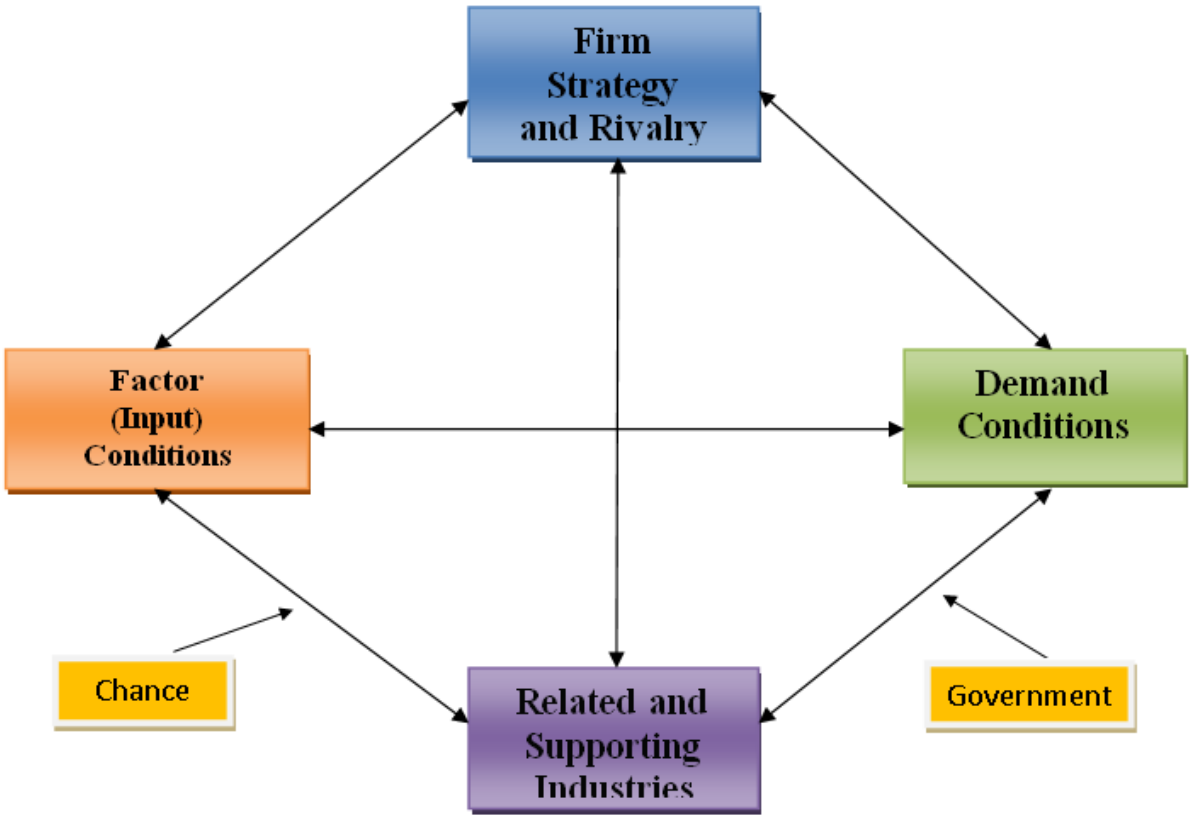


Figure 2.1 Porter's diamond

Source: Porter (1990)

From a micro-meso perspective, the concept of competitiveness at the company and industry levels has also been adopted in different contexts. Industrial competitiveness is considered as the ability of a company or industry to meet challenges posed by foreign competitors (Ketels, 2006). Najib et al. (2011) defined firm competitiveness as; "The degree to which a firm can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously maintaining or expanding the real incomes of its employees and owners."

Industry bodies and firms are supposed to understand and improve their competitiveness, as competitiveness is the key to the success or failure in a market economy (Porter,1990). Therefore, competitiveness at the firm level is mainly measured by the competitive capability of a firm to earn desired competed results (profits, and market share) and ensure its future development.

The researcher in study decided to choose porter's model in order to assess the competitiveness of the industry, that is because this model covers the whole criteria that could affect the competitiveness of the firms, and the industry, starting from factor conditions, to the strategy of the firms, to demand and the status of the market, and ending by the surrounding environment from the physical infrastructure to the government and supporting policies.

But because the focus of this study is the competitiveness of pharmaceutical companies, competitiveness was reviewed in more detail from a micro Perspective, such as organization or firm competitiveness.

2.4.1 Corporate Competitiveness

At the individual firm level competitiveness concept includes various disciplines such as comparative advantage, price competitiveness perspective, strategy and management perspectives, and the historical and socio-cultural perspectives (Man et al. 2002).

Different micro perspectives of competitiveness have been proposed in existing literature. Flanagan et al. (2007) have reviewed and provided valuable insights into firms' competitiveness. They summarized three main schools of thought in corporate competitiveness, these are 1) competitive advantage and competitive strategy models

such as (Porter, 1980), 2) resource-based view (RBV) and core competence approach as (Barney, 1991), and 3) the strategic management approach like (Wheelen and Hunger 2002).

First, Porter‘s theory for corporate competitiveness is characterized as the industrial organization view of competitive advantage (Flanagan et al. 2007), It was supposed that competitive advantage comes from the competitive strategy a firm adopts to neutralize threats or to exploit opportunities presented by the industry (Porter, 1980). Major components in Porter‘s theory are: 1) the five competitive forces model; 2) the three generic competitive strategies “cost-leadership, differentiation, and focus on cost or differentiation”; and, 3) the value chain.

However, in analysing the competitiveness of firms, Porter‘s theory has been the dominant tool for the past two decades. Because it has various merits such as its simplicity, and its strong theoretical underpinnings (Miller & Dess, 1993), on the other hand, Porter‘s theory has got so much criticism due to its openness, for example it does not address the internal mechanisms by which a company converts the influence of a challenging external environment into useful internal abilities (Lado et al., 1992).

Second, Resource-Based View “RBV” assumes competitive advantage does not depend on market and industry structures but stems from the resources inside a firm (Flanagan et al. 2007). The resource-based competitiveness theory considers the corporation‘s unique resources as the source of its organisational core competitiveness (Barney, 2001), Barney (1991) classifies firm‘s resources into three categories: physical capital resources (such as plant, equipment), human capital resources (such as training, experience, judgment, intelligence, relationships, and insight of individual managers and

workers in a firm), and organizational capital resources (such as formal and informal planning, and the controlling and coordinating systems of a firm).

According to Barney (2001), the resource-based view offers a useful framework to gain sustained competitive advantage. However, there are limitations on the resource-based view. Firstly, the resource-based theory is based on the incapacity to do an empirical study on measuring the performance. Because of the heterogeneity of firms, composing a homogeneous sample is hard or even impossible. Secondly, the resource-based view is focused on the internal organization of a firm and it does not consider the external factors like the demand side of the market. So even if a firm has the resources and the capabilities to gain a competitive advantage, it might be that there is no demand, because the model does not consider the “customer”. Thirdly, the resource-based view has a limited ability to make reliable predictions.

However, Barney (2001) states that “resource-based logic can help managers more completely understand the kinds of resources that help generate sustained strategic advantages, and help them use this understanding to evaluate the full range of resources their firm may possess, and then exploit those resources that have the potential to generate sustained strategic advantage".

The third school of corporate competitiveness theory focuses on strategic management (Flanagan et al. 2007). As defined by Wheelen and Hunger (2012), strategic management refers to a set of managerial decisions and actions that determines the long-run performance of a corporation. It comprises some generic procedures such as environmental scanning, strategy formulation, strategy implementation, and evaluation and control (Wheelen & Hunger, 2012). The three generic strategies are approaches

that are frequently used. Interestingly, the evolution of strategic management theory has embraced Porter‘s theories and RBV as components (Wheelen & Hunger, 2012). Anyway, Flanagan et al. (2007) conclude that all three schools of theories are useful in their own way for achieving competitive advantage for firms and none of them on its own can fully explain a firms‘ competitiveness.

The researcher had made the following comparison between the three strategies, as in the following table:

Table2.6: competitiveness assessment schools

Name	competitive advantage and competitive strategy models	Resource-based view (RBV)	Strategic management approach
Components	1) the five competitive forces model; 2) the three generic competitive strategies “cost-leadership, differentiation, and focus on cost or differentiation”; and, 3) the value chain.	considers the corporation‘s unique resources as the source of its organisational core competitiveness	set of managerial decisions and actions that determines the long-run performance of a corporation
How it used	simple	competitiveness comes from: • physical capital • human capital • organizational capital	Comprises of environmental scanning, strategy formulation, strategy implementation, and evaluation and control
Criticism	Criticism on its openess	limited ability to make	Uses RBV and

		reliable predictions	porter theories as a components

This study was designed based on the first school of corporate competitiveness theories, which is porter's theory “the industrial organization view of competitive advantage”, because it is an open theory, simple, have a strong theoretical underpinnings (Miller & Dess, 1993), and covers every part in the value adding chain of the industry, while the Resource-Based View “RBV” have been not used because it assumes competitive advantage does not depend on market, and industry structures, while these are the most factors that affects the pharmaceutical industry, and it has a limited ability to make reliable predictions. On the other hand the third school which is the strategic management is so wide theory and uses Porter‘s theories and RBV as components of it.

2.5 Competitive advantages of clusters

Hsu & Lai (2013) suggested that industry clusters had an important effect on cluster's firms' performance, due to their proximity they have better exchange of goods and services, better access to the information which enhances their cooperation and competition, and better problem solving to the shared problems. Where SDAG (2001) illustrated that clusters lead to innovation because of its core characteristics of close collaboration and close competition, whereas cluster develops a new demand for new types of products and services will be created. Such demand will be supplied by the existing firms where the other demand will motivate for establishing new companies to

enter the market. In other words clustering gives the region a competitive advantage through having more innovation which lead to inject more capital, and raising the economic profit.

Hsu & Lai (2013), and SDAG (2001) had measured the competitive advantages of clusters by measuring their effects on the company's performance, these effects are: Revenue increases, Operating profit increases, Operating cost decreases, Profitability improvements, Overall technology upgrades, Innovation and R&D. competency enhancements, and as an overall enhanced competitiveness.

Schmitz (1995) illustrated that clusters build a competitive advantages in two ways, the first one is referred to as joint action and the second as collective action. Where joint actions are typically undertaken in cooperative efforts by firms inside the cluster, while the collective actions are not limited to firms but can involve them, and may even be led by other actors and entities of the cluster. Fensterseifer & Rastoin (2013) explained that collective actions refers to those actions that are economically or politically motivated for the benefit of the cluster as a whole such as promotion of the region’s products, and cluster-wide strategic planning, where these types of actions typically involve public agents and business associations. on the other hand, joint actions involve firms within the cluster that strategically interact, horizontally or vertically, in order to share benefits that could be achieved in group working, such actions could be joint development, experimentation, co-production, joint purchasing of inputs, and joint marketing.

Clar et al. (2008) demonstrated that the cluster firms apply the concept of Marshallian external economies, due to its geographic proximity, and this fundamentally lower the transaction costs. And give the companies the opportunity to actively collaborate to benefit from joint activities such as: joint sourcing of materials, services etc. joint marketing activities, such as starting a cluster initiative to attract attention, new business, etc. and joint innovation activities, like starting an interactive learning process which could lead to unique localized capabilities (Prendergast, 1993). Maskell & Malmberg (1999) explained that companies build their competitiveness in interaction with localized capabilities, where these capabilities could be based on:

1- The region's infrastructure and built environment.
2- The available natural resources in the region.
3- The region's specific institutional facilities.
4- And the knowledge and skills available in the region.

According to the literature of Yang & Wang (2008) cluster competence comes mainly from innovation, learning and sources integration, the ability of improving productivity and innovation performance, applying positive specialized effect, pushing positive externality and knowledge overflow, enhancing corporate coordination effect, and occupying global market share. Where they also discusses that cluster competence could be based on the size of many issues such as: knowledge flow, return on scale, increasing return, economic integration, market capacity, decreasing transaction costs, etc.

Clusters increase the competitiveness of all the cluster members and play an important role in the economic growth of the whole region, while this is possible because of the following reasons. (Stejskal & Hajek, 2012)

1- clusters increase productivity through the possibility of having access to specialized inputs (including human capital), information, and institutions,
2- clusters increase innovative capacities (due to competitiveness inside the cluster)
3- clusters stimulate quick production and attract new firms to the cluster,
4- Clusters make regional strategic planning of higher quality possible; this is caused by knowledge of the entrepreneur environment.

Clusters also adds a competitive advantage to the industry by producing a conditions that leads to more developments and innovation, such conditions are: sheer pressure, peer pressure, competitive pressure, comparison between firms, better contact with the market needs, attraction of public institutions like investment in training and education, formation of new businesses, and good attraction of the related businesses. (Porter, 1998)

Finally the concept of clusters had become more obvious and attractive after Porter's Competitive Advantage of Nations (1990), where Porter highlighted that multiple factors beyond the ones internal to the firm may improve its performance in his diamond model figure 2.1. Which consists of four sets of interrelated forces that are brought forward to explain industrial dynamics. These are associated with factor input conditions, sophisticated local demand conditions, related and supported industries, and firm structure, strategy and rivalry (Andersson et al., 2004).

The four elements of Porter's (1990) diamond figure 2.1 represents the most important facets, which enables firms, or cluster to create their competitive advantages. Such factors are: (1) firm strategy, structure and rivalry, which indicates the nature of the firm, how it is organized, and managed, and its attitudes toward competition, market's institution, and the degree of competition in the main markets, etc. (2) Factor conditions –inputs-, this element indicates the input factors of the industry process, such as human resources, physical resources, administrative infrastructure, information and technological infrastructure, and other resources, etc. (3) Demand conditions, where this element indicates the sophisticated and demanding local customers, unusual local demand etc. (4) Related and supporting industries, such as presence of capable local based suppliers and competitive related industries. Other than four factors, two other factors, government and chance plays a vital role while shape up the competitiveness (Porter, 1990), (Ketels, 2006).

2.6 Competitiveness assessment:

Intense competition among industrial firms requires these firms to improve their competitiveness. Competition not only forces firms to improve themselves, but also exerts a direct positive impact on the competitiveness of the industry as whole. There has been some debate as to how the competitiveness of organizations should be measured and what factors affect their competitive performance. (Dess et al., 2010).

Recognizing which factors primarily affect competitiveness remains debatable. Particularly, measuring only a single performance criterion such as profitability or financial indicators such as return on investment or return on assets is insufficient to

determine the excellence of an industry. A number of non-financial performance indicators are also important. These non-financial performance indicators include: overall customer satisfaction, productivity, performance in sales, growth of sales, market share, growth of market share, and overall competitiveness (Sirikrai & Tang, 2006).

Man et al. (2002) suggested that three key aspects contributing to a firm‘s competitiveness which are: the internal firm factors, the external environment and the influence of the entrepreneur. The internal aspects of a firm‘s competitiveness, which are represented by the capital and resource dimensions, where the external environment is the availability of opportunities to generate increased long-term profitability inherent in the external environment. And the third aspect is the influence of the entrepreneur and the key player in the market.

To measure the competitiveness of a company, the researcher should select the most appropriate approach to his case. Through reviewing the existing literature on competitiveness assessment approaches, two main approaches are the mostly used, which are the indicator approaches, and the modeling approaches.

2.6.1 Indicator Approaches (IA)

The indicator approach is widely used to assess the competitiveness of an organization or industry. It can be employed in one of two ways: the single indicator method and the multi-indicator method (Rappaport, 1983). Indicators such as profitability, organizational structure, knowledge management, cost advantage, HR management, innovation

capability, market share, total assets and profitability are often used to appraise the competitiveness of an organization from a specific perspective (Zhang et al., 2009).

The method for adopting a single attribute to examine the competitiveness of an organizational is called the single indicator approach (SIA). The limitations of the SIA are obvious, because it can‘t be used to evaluate an organization's comprehensive competitiveness.

To overcome this limitation, multiple indicators are used to assess the competitiveness of an organization from multiple perspectives. This method can precisely represent the overall competitiveness of an organization. To distinguish the relative importance of the individual contributors, each indicator is given a different weight. This is called the Weighted Summation (WS) method, which is a quantitative method (Rappaport, 1983).

2.6.2 Modeling Approaches

In addition to the indicator approach, many other methods have already been developed and used for measuring and assessment of the competitiveness of firms in different industries, modeling is an assessment method for organizational or company's competitiveness. A number of different models have been listed below with brief description.

2.6.1.1 Value Chain Model (VCM)

Value chain modeling was presented by Porter (1985) to examine the competitiveness of an organization based on the production process and it shows the organization as a sequential process of value creating activities. The VCM consists of two different

categories; primary and support activities, the primary activities include five major production processes, including: internal logistics; production; external logistics; marketing and post-sale services; and four support activities, comprising infrastructure such as administration, HR management, technology R&D and material procurement. The core principle of VCM is that an organization's competitiveness accumulates through conducting all these value adding activities. Therefore each activity is important and studied alone and should be taken in order to increase the overall competitiveness (Dess et al., 2010).

2.6.1.2 Competence Pyramid Model (CPM)

CPM was used at the first to assess the competitiveness of organizations in manufacturing (Walsh & Linton, 2001). Where in their research four aspects of an organization are applied to evaluate competitiveness: materials, fabrication and assembly, knowledge-based services and knowledge-embedded services. Each of these aspects had two dimensions: managerial capability, and technical competency.

2.6.1.3 Portfolio Matrix Model (PMM)

PMM was created by a leading consultant firms during the 1970s and early 1980s to analyze the competitive portfolio of a businesses, and products. PMM evaluates the competitiveness of a portfolio business organization from two dimensions: The strength of the business; and the attractiveness of the industry. The strength of the business is evaluated by indicators such as market share, productivity, profitability and customer

loyalty, while the attractiveness of the industry is determined by such indicators as potential market size and a predictable market growth rate (Udo-Imeh et al., 2012).

2.6.1.4 Enterprise Model (EM)

The enterprise model (EM) was used by Hatten & Rosenthal (1999) to analyze business functions and processes in order to understand the competitiveness of an organization. The model established a schematic network comprising horizontal and vertical axes which represent business processes and functions respectively. Horizontal units express business processes such as production, sales, logistics and post-sales service, while vertical units related to business functions, such as R&D, finance and marketing. The enterprise model provided a basis for measuring the competitiveness of an organization as well as identifying opportunities for leveraging its performance.

2.6.1.5 Industrial Competitiveness Model (ICM)

The industrial competitiveness model (ICM) measured the competitiveness of a manufacturer from an industry perspective (Oral, 1993). The ICM model considers competitiveness as a mathematical function of the firm‘s position in its operating industry. This includes its present position, present comparative position, potential position, and potential comparative position.

2.7 Selection of best competitiveness assessment method

The effectiveness of application of a specific competitiveness assessment method will depend upon whether the principles of the method are suitable to the characteristics of the pharmaceutical industry,

- Value chain model (VCM).

The value chain model is considered suitable to find out the sources of competitiveness for pharmaceutical industry as pharmaceutical industry operates a complicated process which composes various value-added activities (Zhang et al., 2009). In addition to that, value chain approach has been considered traditionally effective in analysing the competitiveness and activities of production enterprises (Chiang & Trappey, 2007).

- Portfolio matrix model (PMM)

PMM model is for measuring the competitiveness level between different business activities from perspective of attractiveness and strength (Zhang et al., 2009), which means that this model could be used when the firm work in various fields, and want to study the competitiveness of each one alone, in order to help in making its strategic decisions. This means that it can't be considered applicable in analysing the competitiveness of pharmaceutical companies since this study focuses on one field "pharmaceutical industry", and aims to classify the competitiveness of each company, and study them.

- Enterprises model (EM)

EM helps organizations to identify competitive strategies by examining unique resources in the organizational functions and processes (Zhang et al., 2009). Since the

pharmaceutical industry is a high-tech industry which means it has a unique resources, this makes it applicable to the EM analysis. But the situation in Palestine, "where there is no intellectual rights and the production is almost by producing just generic products", makes the industry relies mainly on the production, not on high investments in R&D, or even in acquiring a unique resources, and this makes the EM not the preferred choice.

- Industrial Competitiveness Model (ICM)

ICM method presents a framework of integrating multiple attributes for assessing organizational competitiveness at an industry level through mathematical models. As for the macroscopic attributes (oral, 1993), so this method is considered not applicable for application in assessing pharmaceutical companies' competitiveness at enterprise level.

- Indicator approaches (IA)

Indicator approaches are divided into two approaches: First, single indicator approach which suggests adopting one indicator for measuring an organization’s competitiveness. It is applicable to measure firm's competitiveness from a specific dimension but not a holistic view. However, the pharmaceutical industry's competitiveness is formed by many aspects, thus SIA is considered not effective in analysing its competitiveness. Second, multiple indicators approach which could be categorised into weighted summation and key competitiveness indicator, both methods are considered an effective indicators and present a weighted index value for measuring firms' competitiveness, nevertheless, both of them are a quantitative methods.

By referring to the literature of the assessment methods the researcher decided to use the a combination of the value chain model plus the indicator approaches, where the indicators that have been used are based on the porters diamond model, because it is the most convenient model that is designed to measure the competitiveness of the companies based on the production process, and it shows the company as a sequential process of value creating activities, where it measures these activities in detailed and separated form, which enables a deep understanding of the strength and weakness points of the firm in all of its value adding activities, and therefore help in diagnosing the firm's competitive advantages. In other words it helps to understand the firm's issues involved with the promise of making customer value.

On the other hand the value chain model was developed by Michael Porter and it was one of the most used methods in clusters assessment worldwide. The figure below shows the value-chain model.

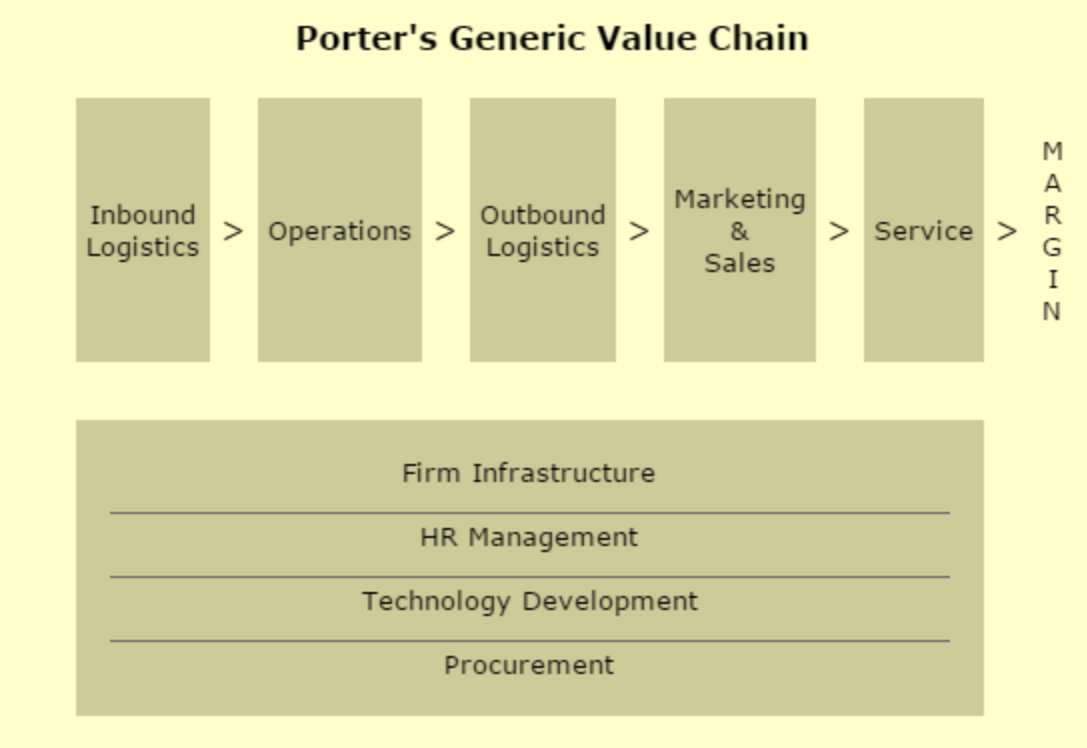


Figure 2.2 Value-Chain Model

Source: porter (1998)

The researcher had chosen twelve dimensions in order to assess the competitiveness of each company, where these are based on the value chain model and the diamond model, where they are illustrated below:

The primary value chain activities are:

1. Logistics/ Inbound: the distribution of manufacturing after the raw materials are received and warehoused.
2. Operations: the transformation process of inputs into services and finish products.
3. Logistics/ Outbound: The warehousing and distribution of the finished goods.

4. Marketing and sales: Placing the product on the market generating sales reaching the right people interested to buy it
5. Service: The tool used to offer the product on the market and the service offered after the product is sold (customer service)

This Primary Activities are supported by:

6. The infrastructure of the firm: organisational structure, control system, company culture etc.
7. Human resource management: employee recruiting, hiring, training, development and compensation.
8. Technology development: technologies to support the value chain activity
9. Procurement: purchasing input such as materials, supplies, and equipments.

The other competitiveness dimensions of the company

10. Margin: the percentage of profits out of the total price.
11. Support activities: like association support, consultation support, services
12. Policy support: tax and investment incentives, legal support, government support services.

2.8 Research framework

The research structure consists of three dimensions.

. Dimension 1: assessment of current clustering situation, through:

- Assessment of clustering relationships of each one of the companies, such as:
    - Geographic concentration.
    - Vertical relationships across the supply-chain.
    - Horizontal relationships between companies.
    - Resource sharing.
- Assessment of cluster strategic resources, such as:
    - Human resources.
    - Abundant of low-cost raw materials.
    - Firm's infrastructure.
    - The specific infrastructure with training institutions, research and development organizations, and capital providing organizations, etc.
    - And technology resources.

. Dimension 2: Companies' competitiveness assessment through:

- Assessment of competitive advantages, and competitiveness of each one of the companies based on the 12 dimension competitiveness.
- Assessment of the competitiveness of each company through financial analysis.

Dimension 3: Effects of clustering on companies' competitiveness.

CHAPTER THREE

Methodology

3. Methodology

3.1 Introduction

Research methodology according to Polit and Beck (2006) could be explained as: “techniques used to structure a study and to gather and analyse information in a systematic fashion”. The research methodology for this thesis followed the logical procedure that is suggested by (Yin, 2009), which is: plan, design, prepare, collect, analyse and share.

The carefully analysed and chosen research methods and techniques are described in the sections below, including the rationale behind the chosen research approach. Additionally, the chosen data collection methods, and analysis methods are also characterized.

3.2 Research purpose

This thesis will go through different stages of research. The thesis will first describe the area of research which is the Palestinian pharmaceutical companies; In order to create a general understanding of this area, the study then will try to make generalizations from the data collected and draw a picture of the current situation of the companies. Such things make this study apply to the basis for the descriptive research (Yin, 2003). The research will also be exploratory in its methods as it seeks to explore what is happening, and to ask questions about it. This will be useful when not enough is known about a phenomenon (Gray, 2013). The thesis will also try to explain the different reasons or underlying causes for the observed events, which is synonymous with explanatory research (Gray, 2013).

This research has started with the available literature on the cluster, and competitiveness' concepts, the main reason for this process is to deeply understand the context of the research and to highlight on previous literature that will help the researcher to adapt the model that will be used in this research.

After building up the model and identifying the indicators which are demonstrated in the previous chapter, the research measures and analyses the current situation, and measures the indicators that have been specified in the literature. The main objective of this research is to investigate the extent of clustering on companies' competitiveness. The researcher uses different methods in order to answer the research questions, which will be using a questionnaire, making interviews, documentary analysis, and on-site visits and observation.

3.3 Exploring the available methodologies

The research explores some research alternative methodologies, these methodologies according to Saunders et al. (2009), Goodman & Kruger (1988), Bell (1999), and (Gray, 2013) are:

- Experiment research

  It "attempts to provide a blue print that enables the researcher to structure a research problem in such a way that the outcome is the production of valid, objective and replicable answers" adapted form Hill (2004), and from Gill & Johnson (1997) which consists of four basic steps:

  1. Delineate the research question or problem

2. Identify the factors that explain or cause variation in the dependent variable.
3. Operationalize the dependent and independent variables
4. Neutralise the effects upon the dependent variable.

- Analytical surveys

  This is the most popular and common methodology and most frequently used, it allows you to collect quantitative data which often can be obtained by (Saunders et al., 2009):

  1. A questionnaire that admitted to a sample
  2. Structured observation associated with organisation and methods (O&M) research.
  3. Structured interviews, where standardised questions are asked for all interviewees
  4. Observation technique

- Case study

  Case study could be qualitative which leads to detailed descriptions of specific situations using interviews, observations, document review, or it could be quantitative which gives a numerical description such as frequency, and average, etc. (Guest et al., 2013).

- Histories

  The use of administrative records and documents as a primary source of data (Bryman, 1989), this research method have three broad stages (Goodman & Kruger, 1988):

1. Formulate research question
2. Examine evidence
3. Compare evidence and research question

- Action Research

  The action research strategy explicitly focuses on action, in particular promoting change within the organisation (Saunders et al., 2009). As described it is "essentially an on-spot procedure designed to deal with a concrete problem located in an inadequate situation. This means that ideally, the step-by-step process is consequently monitored over varying periods of time and by a variety of mechanisms (questionnaires, diaries, interview and case studies, for example) so that the ensuing feedback may be translated into modifications, adjustments, directional changes, redefinitions, as necessary so as to bring about lasting benefit to the on-going process itself rather than to some future occasion" (Cohen & Manion, 1994) .

- Narrative inquiry

  According to Hill (2004) Narrative inquiry involves the collection and development of stories, either as a form of data collection or as a means of structuring a research project. Informants often speak in a story form during the interviews, as the researcher, listens and attempts to understand their stories.

3.4 Selecting the most appropriate methodology

As already stated in the literature review, and since this research is a descriptive research, the researcher adopted a case study method in the research in order to be able to describe the characteristics of the current situation of the companies. The study can involve single or multiple methods, and numerous levels of analysis (Creswell, 2012). The case study may combine more than one data collection method such as interviews, observation, documentary analysis and questionnaires, which allows using multiple sources of data (Saunders et al., 2009). Such thing is called triangulation, which is collecting of data over different times or from different sources, which will help answering the different research questions, and to balance out any of the potential weaknesses in each data collection method (Gray, 2013).

3.5 Exploring the available data collection methods

The data collection methods could be classified according to the nature of the collected data and to the method that was used into three types: quantitative, qualitative, and a mixed method. Brief descriptions of each of them are in the following section.

- **Quantitative**

  Many definitions of quantitative research are actually exists. However most of them are defining quantitative research as numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect (Sukamolson, n.d.). Creswell (1994) has defined the quantitative research as a type of research that is "explaining phenomena by

collecting numerical data that are analysed using mathematically based methods (in particular statistics)".

Sukamolson (n.d.) illustrated that because of the nature of the quantitative research which depends on numerical data, it seems to answer particular questions that looks like, how many ... ?, what is the percentage of … ?, and on average is there a significance difference between ... ?, etc.. Note that all of these questions need to be answered quantitatively.

Sukamolson (n.d.) also indicated that there are several types of quantitative research. And it could be classified as 1) survey research, 2) correlational research, 3) experimental research and 4) causal-comparative research. Anyway, none of these types are applicable to our study.

- **Qualitative**

Qualitative research has been defined in a variety of ways. In one definition, Strauss and Corbin (1998) identified qualitative research as: "Any type of research that produces findings not arrived at by statistical procedures or other means of quantification. It "qualitative research" can refer to research about persons' lives, lived experiences, behaviours, emotions, and feelings as well as about organizational functioning, social movements, cultural phenomena, and interactions between nations."

Strauss and Corbin (1998) also illustrated that it is the best to use qualitative research when the methods are: (a) complementary to the preferences and personal experiences of the researcher, (b) congruent with the nature of the

research problem, and (c) employed to explore areas about which little is known. In addition to the reasons mentioned above, Miles and Huberman (1994) indicated that qualitative research is conducted to: (a) confirm previous research on a topic, (b) provide more in-depth detail about something that is already known, (c) gain a new perspective or a new way of viewing something, and (d) expand the scope of an existing study. Based on this collection of reasons, qualitative methods were appropriate for this study.

- **Mixed Method**

  This method uses quantitative and qualitative data collection techniques and analysis procedures, either at the same time or one after the other but not combine them (Saunders et al., 2009).

3.6 Selection the most appropriate data collection method(s)

Through reviewing the above literature, it is clear that the selection of the research method that should be used in order to accomplish the research objectives is not an arbitrary decision, and don't depend on the researcher's mind to decide what he wants to do. On the contrary it should be done after a carefully investigation of the research nature, research context, research questions, and how the answers of the research it would be.

This research as stated earlier is a descriptive research, which means it tries to describe the current situation of the pharmaceutical industry in Palestine, and give a clear picture on it, which is a qualitative issue and couldn’t be answered just by

numbers. On the other hand, the research context is just four companies, which is considered to be small to apply quantitative methods, and quantitative analysis. Finally, and the most important is the research questions, which are asking about qualitative answers, such as, To what extent does …?, and how? questions which needs to have a qualitative answers. Nevertheless, the researcher used the case study research method, which enables the use of triangulation strategy, which as stated before, refers for using multiple sources of data by using different techniques (Saunders et al., 2009).

The multiple methods provide better opportunities to answer the research questions and allow to better evaluating the extent to which research findings can be trusted and inferences made from them (Tashakkori & Teddlie, 2003).

A qualitative research may use several data collection methods (Gill & Johnson, 1997), (Hill, 2004), (Bell, 1999). The following shows the five methods that had been used in this study, where usually two or more approaches could be used as a part of the investigation (Hill, 2004):

Table 3.1: methods for data collection

Method	Description
Structured interviews, also known as a standardized interview or a researcher-	Fixed format interview in which all questions are prepared beforehand and are put in the same order to each interviewee. In this case,

administered survey	the data is collected by an interviewer rather than through a self-administered questionnaire. It could be quantitative or qualitative research methodology.
Unstructured interviews	Interviews are undertaken in an informal style in that respondents are allowed considerable latitude in the aspects addressed in the discussion. There may even not be a pre-determined set of questions or aspects to be systematically discussed during an interview.
Semi-Structured interviews	Unlike the last method, semi-structured interviews comprise more specific and precisely formulated questions around which discussion is built.
Observation	The researcher observes relevant activities within an organisation in either a structured or unstructured format.
Archival information analysis	This method concerns the systematic analysis of existing materials. Typically, this constitutes prime data that are records of transactions and activities together with contemporary and historical controls and

	measures of performance per se or derived from source data.

Note: Taken from (Hill, 2004)

3.7 Research Population

The Palestinian pharmaceutical companies that exist in the West Bank are Birzeit pharmaceutical company, Jerusalem pharmaceutical company, Dar Al-Shifa'a for the Manufacturing of Pharmaceuticals (PHARMACARE), and the Chemical Jordanian Factory Company. These four companies represent the context of the study. Since the population is small; the researcher had conducted all of it, and no sampling techniques were utilized.

3.8 Data collection

Qualitative research can be conducted by utilizing a variety of data collection techniques or by choosing one technique in particular. Marshall and Rossman (1999) suggested that data collection methods in qualitative research could be categorized into four categories: (a) participation in the setting, (b) direct observation, (c) in-depth interviews, and (d) document analysis. According to Yin (1994), there is “no single source has a complete advantage over all the others. In fact, the various sources are highly complementary, and a good case study will therefore want to use as many sources as possible”.

The researcher used different data collection methods in-order to provide the majority of data. The methods were structured, semi-structured, and unstructured, also the Triangulation strategy were used. The main used methods are

- Interviews: The researcher had utilized in-depth, individual face to face interviews as a primary method of qualitative data collection, and had made a criteria to select the participants in the interviews in order to achieve the best results of the study and enhance its trustworthiness, such criteria are:
    - ❖ Working in the management, to be in contact with most of the details related to the industrial process.
    - ❖ Have a sufficient work experience in his position in the company,
    - ❖ Easily available, so can reach him when it is needed for the study.

Such criteria was mostly applicable to the production managers of each company, who were in touch with the whole processes of the industry, from planning of the products, until it reaches the market, the higher level of management was excluded from the interviews because of its difficulty to be reached and have their time.

In order to have the willingness of the interviewees to participate in the interviews, the researcher had contacted them through different ways such as social relations, friendships, or through referring of the pharmaceutical industries inspector of the ministry of health. The interviews were held between 25 November to 10 December 2014, where they were held on site in closed offices, where there is no interruption, and it lasts between 1.5 to 2.5 hours.

The interviews' questions were designed in structured, semi-structured, and unstructured ways, where these questions have been adopted from an existing study that was developed by the Palestine cluster project which was executed by the "Palestinian Federation of Chambers of Commerce, Industry, and Agriculture". The interviews have been divided into two sections as follow:

1- Structured: where this part have been designed in order to measure the dependent variable according to the theoretical framework, which is the competitiveness of the companies. Where it includes 12 Pillars which were illustrated in the previous chapter which are; Firm Infrastructure, HR Management, Technology Development, Procurement, Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, Service, Margin, Support Activities, and Policy Support, and it was ranked numerically in order to enable comparison between companies in each value chain activity. See (appendix 1).
2- Unstructured, and semi-structured: this part had been designed in order to measure the independent variable according to the theoretical framework, which is the clustering of the pharmaceutical industry. Where the questions have been designed to measure the strategic resources such as knowledge, and technology, infrastructure, and the clustering relationships, such as the geographic location, vertical and horizontal links, and any collaborative projects had been undertaken.

   And the interviews' questions had also concentrated on some general information about the needs for change, cost of raw material, future plans, barriers facing competitiveness, accessing new markets, and understanding clustering, in order

to answer the question of the possibility of forming cluster of the pharmaceutical industry. To see questions, see (Appendix 2). Finally, an interview protocol was utilized during the interviews.

- Site visit and observation: The researcher had made an on-site visit to each one of the companies, and evaluated the actual situation of the companies' different sections and departments such as the operation, warehouse, laps, sales, procurement, etc. to be more aware and familiar with industry to answer some of the questions that could be answered by observation.
- Document Analysis: Document analysis refers to the documents, whether public or private records, about the participants in a research study (Creswell, 2012). The retrieved documents used in this study were the pharmaceutical companies' profiles, financial disclosures, Palestinian Central Bureau of Statistics reports, etc. The documents were reviewed as a means of gaining additional insight into the economical and financial situation of the pharmaceutical companies, to help in analysing the competitiveness of the companies.

3.9 Data Analysis

Data analysis has two purposes: (a) to understand the participants' perspectives, (b) and to answer the research questions. Marshall and Rossman (1999) defined qualitative analysis in terms of organizing and attributing meaning to the data. To accomplish these tasks, I followed the three-phase procedure described by Miles and Huberman (1994) which includes: (a) data reduction, (b) data display, and (c) conclusion drawing and verification.

Data Reduction

Data reduction is the first phase of qualitative data analysis (Miles & Huberman, 1994). Data reduction involved the process of selecting, simplifying, and extracting themes and patterns from written field notes, transcripts, and other available resources. To accomplish this task, I read and re-read interview transcripts while searching for similarities and differences in themes. Then I assigned code names to those themes that were detected and then organized into categories of related topics, patterns, concepts, and ideas that are gain from the interviews.

Data Display

Identified by Miles and Huberman (1994) as the second phase of data analysis, data displays are tools for presenting the results of the data reduction. Displays are used to convert information into an accessible summary to facilitate later conclusion drawing. Display techniques include matrices and networks. Matrices are rows and columns of data that have been extracted from coded transcripts and are organized according to themes. Networks are charts that summarize information by providing a picture of reduced data, as it exists within the context of the collected data.

According to Miles and Huberman (1994), a particular technique must be dictated by the research questions and the related concepts. Once the appropriate technique was identified, data displays were created within each case or for each individual, as well as across each case, to demonstrate findings across all available sources of information.

Conclusion Drawing and Verification

The final phase of data analysis, according to Miles and Huberman (1994), consists of drawing initial conclusions based on cross-case data displays and then subjecting these initial conclusions to verification procedures. These procedures are intended to verify that findings are appropriate before they are labelled as conclusive results. In qualitative research, results are verified and considered appropriate by evaluating their trustworthiness. The following section is dedicated to discussing the establishment of trustworthiness of results.

3.10 Trustworthiness

While quantitative research relies on measures of reliability and validity to evaluate the utility of a study, qualitative research can be evaluated by its trustworthiness (Lincoln & Guba, 1985). The establishment of trustworthiness is necessary to confirm that the research outcomes are the truth and will enhance the professional practice (Holloway & Wheeler, 2010). The model of Lincoln and Guba (1985) was implemented to ensure validity and reliability. The model uses four constructs credibility, transferability, dependability and conformability. A description of each of these concepts is included in the following paragraphs.

Credibility

Credibility or truth–value in qualitative research asks how confident the researcher is with the truth of the findings based on the research design, methods, and the context in which the study was undertaken (Lincoln & Guba, 1985), which in other words corresponds to the concept of internal validity in quantitative research. The researcher relied on triangulation and referential adequacy to enhance credibility, which are described below.

- Triangulation: Lincoln and Guba (1985) explain triangulation as “the use of multiple methods to collect and interpret data about a phenomenon so as to converge on an accurate representation of reality”. In this study data was collected by multiple methods; interview, survey, observation, and document analysis.
- Referential adequacy: According to Lincoln and Guba (1985) the raw data collected must be adequate to allow “later analysis and interpretations”. In this study interviews was recorded and transcribed ensuring that the raw data can undergo further analysis and interpretation.

Transferability

Transferability or could be known as applicability is similar to the concept of external validity in quantitative studies, transferability seeks to determine if the results relate to other contexts and can be transferred to other contexts (Lincoln & Guba, 1985), Steps

taken to ensure transferability include thick description and purposive sampling (Lincoln & Guba, 1985).

- Thick description: refers to a rich, thorough description of the research setting, and the transactions and processes observed during the inquiry (Miles & Huberman, 1994). In this study the researcher presented a thick description of the setting, participants involved in the study, method of data collection and methodology.
- Purposive sampling: According to Miles and Huberman (1994), this requires “a non-probability sampling method in which the researcher selects participants based on personal judgment about who will be most informative”.

Dependability

Similar to the concept of reliability in quantitative research, dependability refers to whether or not the results of the study are consistent over time and across researchers (Lincoln & Guba, 1985; Miles & Huberman, 1994). To address dependability in this study, the researcher relied on a peer examination which was suggested by Lincoln and Guba (1985) and he made use of expert supervisors to reinforce dependability of the study.

Confirmability

Confirmability or neutrality assumes that the findings are reflective of the participants' perspectives as evidenced in the data, rather than being a reflection of the researcher perceptions or bias. In this study to avoid bias, the researcher audited the research process under supervision of the research supervisor.

CHAPTER FOUR

4.1 Results and discussion

4.2 Interviews Results

4.3 Survey Results

4.4 Financial analyses

4.5 The answers of the research question.

4.6 Cluster map

4. 1 Results and discussion

The results from the structured and unstructured interviews, observation, and documents are provided and analysed in this chapter. The first section presents the unstructured interviews results which illustrates the clustering situation of each company, and the whole industry, according to the first dimension of the research structure mentioned in chapter two, then the second section displays the survey results "structured interviews", which were designed in order to measure the competitive advantages of each company, and to get and overall view on the competitiveness of each company as in dimension two, finally the third section displays financial analysis of each company to compare with the results gained from the structured interviews.

4.2 Interviews Results

The interviews have been done with the operation and professional manager in every one of the four pharmaceutical firms, because of the difficulty in meeting the higher level of management. The interviews were hold in the manager's offices, and it took the shape of semi-structured and unstructured format. The time of the interview was between 60-150 minutes.

The questions and answers of the interviews are as follow:

Q1. Why did you establish your business in this area?

The respondents –interviewees- demonstrated that their factories were started in these areas since the beginning of their manufacturers, when they were just a simple labs, in other words they didn't change their locations from city to another one. Most of them said that they were supposed to work in Jerusalem – the capital of Palestine -, but due to the political situation in the West Bank because of the Israeli occupation it was difficult to work in Jerusalem, thus Ramallah was the best option to start this business in. On the other hand most of the beginners in the pharmaceutical industry in Palestine were Christians, where Ramallah and Bethlehem were the concourse of the Christians. So they were started in these areas. And according to Pharmacare which is the newest one among the other manufacturers, it was established in Ramallah to be in the middle of the West Bank, therefore the main reason for selecting the location of the manufacturers was its closeness from the residence area of its founders.

Q2.What are the specific benefits of being located where you are?

The interviewees that exists in Ramallah said that their place is a strategic place, because it is in the middle of the West-Bank (their Main Market) , and it is also relatively stable city among others, attracts most of the Business Development Services (BDSs), closeness to the decision making people, and it is also have one of the best infrastructure compared with other cities.

For BJP most of the benefits apply, however, it is gain more advantages for the southern cities.

Q3.What disadvantages do you face because of your location?

They said that there is no disadvantage for the place, because they considered the West Bank as a small area so that they can reach everywhere easily, and they have the infrastructure that the industry needs.

Q4.What links do you have with other businesses in your sector?

They considered that most of the relationships with the other competitors are limited, since there is an aggressive competition between manufacturers, on the other hand they have a good links with other related industries, such as printing, packaging, transportation, IT developers, etc. However, Birzeit Company had owned the company of Palestine for printing and publication, and they work with Al-Barq company for transportation of medicines, while they have no exclusive distributer, and have a direct contact with the customers, on the other hand JPC had become a partner with Ugarit in "Dar Al-Qalam" printing company, and all the companies have a relationships with plastic manufacturers, in order to get containers of the medicines, while Birzeit has a machine for tablet plastics in its manufacturer which is the only manufacturer that have such machine. However, for the sake of lobbing there are few organizations that put them under the same ceiling. Such as, Chamber of commerce, and the union of pharmaceutical industries.

There is also some links with IT companies, such that BPC work with Bisan company to develop their inventory control and marketing control.

On the other hand BJPC work with Sukhtian company as their exclusive distributer to the local market where they sell about 87% of their total sales locally and 13% are exported.

Q5.Do you have links with the Universities or R&D facilities in the governorate?

Most of them said that they offer practical training opportunities for many Universities students in many fields such as engineering, pharmacy, and physics.

For a long time Birzeit university was testing the medicines sold to MOH in its laboratories as a third party between the company and the ministry of health. Currently In Al-Najah University there is a plan to build a Biowaver “clinical testing” unit. Where all the companies need clinical testing for the medicine to be able to register it in the ministry, and get the licenses needed to produce it commercially, where currently they test their products in Jordan, with an average cost for each test of 30,000 USD. For example just BPC makes 50 tests yearly, that is about 1,500,000 USD. On the other hand BJPC covers some of the travelling expenses of pharmacy, and medicine students to take training courses in other countries, and this is done in a collaborative way with the universities,

JPC is a partner with Palestine Polytechnic University, "the biotechnology center" in a project of a business incubator for the students of biotechnology unit funded by the

world bank. And some of the biotechnology master degree students are working in the JPC.

Finally, the researcher found that there is no real R&D activities shared between the manufacturers, and the universities. On the other hand there is no private or even public R&D center which work for producing new formulas, or even for testing medicines.

The production manager of Birzeit company said that we can't work with the universities if they follow us, but if they took a step forward and produced the formulas, and tested it and even registered it we sure can buy it from them, this save so much time for us and makes money for the universities and the manufacturers.

Q6.What do you consider to be your main competitive advantage?

Most of them answered we have the advantages of

-Wide variety of products, quick response system for new order.

-Quality: functionality, shape, color, dose, etc

-Price less 30% of foreign medicines.

Q7.What are your major problems and barriers to……?

•Increasing your competitiveness?

•Access more markets?

All of the interviewees agreed that the Palestinian market is a saturated one but there is an opportunity to enter new markets and make new medicines. However, this needs more capital.

Some markets to invest in needs to build firms there in order to be able to sell in these markets, like Algeria. Where BPC, and JPC, have firms there. JPC had also a complete firm work in Jordan, while Pharmacare bought a 10% of the Iraqi pharmaceutical manufacturer to enter the Iraqi market which is considered as a promising one, and they established Pharmacare premium in Malta, to be able to enter the euro market because many countries want to visit the manufacturer before give him the license to export, and this is hard due to the political situation,

Another so important factor is the Israeli occupation, which controls the boarders and makes it hard to get the required raw materials at the time they need it, and put many limitations on exportation. Therefore it makes the general economic situation in the Palestinian territories to be instable one.

Q8.If you could make three major changes to your business what would they be?

They gave common answers which are:

- Establish a research center.
- New production lines.
- The best solution is commercial collectivity in the Arab countries to be able to sell there without limitations.

Q9. Do you have any investment plans for the next 12 months?

Most said yes, investing in new lines, registering new products, testing the stability of new products, where this is done in Jordan. some said that they invest now in Algeria market, because it is new market and many companies are targeting it. Others like Pharmacare are working on their firm in Malta,

Q10. How do you see your competitors in the next 5 years?

All of the interviewees answered that they see their competitors are expanding, in both the local and the outside markets through producing new products, entering more markets, such as: Jordan, Algeria, Iraq, Belarus, Russia , Uzbekistan, Pakistan, Armenia, Kazakhstan, Europe and ……etc.

Q11. Who are your main customers and markets?

they sell to the MOH, local UN office, private pharmacies, and drug stores.

Birzeit and Pharmacare said 75% of the their production is sold in the Local market while 25% is exported to Algeria, Jordan, Bella Russia ; Uzbekistan, Pakistan, Armenia, Kazakhstan, etc. While Pharmacare demonstrated that its exportation which is 25% of its production is divided as 11% to Bella Russia, and 14% to Europe. BJPC is the only one with lower percentage of production which is going for exportation which is 13% of the total production.

Q12.Who are your main competitors?

They see that their competitors are the Israeli Companies, and the imported products from USA, Europe, which takes more than 45% of the local market, and of course the local competitors; which are the four manufacturers.

Q13.What is the percentage of the total cost that is made up by the raw materials and components?

The raw materials only makes 15-20% of the total cost, Most of the cost goes for power, such as electricity, and fuel which is used for air conditioning and ventilation, and there is a much cost for supporting and logistic operations, And not to forget the Testing and R&D cost which is basically for developing new formulas.

Q14.What do you understand about the Clustering?

They mostly understand that clustering is a collaboration effort which aims to increase their competitiveness through innovation, and lowering production costs.

Q15.What Benefits do you think that the clustering will bring for your business?

1- Competitiveness enhancement.
2- Reduction of production costs.
3- Increasing of profit margin.
4- And development of production technologies.

Q16. Currently, are you practicing any collaborative projects or assignments?

The only collaborative practice that they have is a collaborative marketing to the Belarus markets, which is done through "Care" company. Care is a Belarus company for Palestinian pharmacists who live there, they buy drugs from all local manufacturers and sell it Belarus, Armenia, Uzbekistan, and other eastern Europe countries. There is also an experience done in the beginning of 2001 where the firms agreed on the allocation of several products, 30 for each plant so that no other firm produce these types, and this raise the efficiency and lowered the cost of production, but this stopped because the administration found that some types have sold more than others, and there is also an experience of merger between BPC, and JPC, but it also failed before being a truth.

On the other hand they said we can't buy together because of the complexity of the process of procurement, for example BPC buy about 2000 raw material, and it is not easy to buy them with others. On the other hand the director of union of pharmaceutical industries said that every raw material comes to every firm has a license for just this firm, and can't be used with others.

To know more about this issue the researcher had asked the production manager of pro company for Veterinary medicines in Hebron, and he said we work on the same principles of human medicines, as in all over the world there is just four pharmacopoeias, and we all work on them. But we can't buy from another manufacturer, because there is some active materials we put in the formula, but we didn't put them in the ingredient paper to keep our secret, so if there is a local supplier we will work with him, but he must keep our secrets, and don't let other manufacturers to know what we bought.

To understand the differences between companies in a better way the researcher had made the following comparison between companies in terms of clustering relationships of each company, where these comparisons have been summarized from the unstructured interviews results.

Birzeit Company

Relationship type	Description		
Location	Ramallah	Reasons	Benefits
		• Center of the West Bank.	• Middle of the West-Bank.

		• Closeness to the residence of the founders. • Closeness to Jerusalem.	• Stable city. • Attractiveness of the BDSs. • Closeness to the decision making people.
Vertical relationships	• Relations with plastic manufacturers, and the only one that have a plastic machine inside the manufacture. • Ownership of the company of (Palestine for printing and publication), • Contract Al Barq Transportation Company. • Have a contract with Bisan Company for IT development for inventory and marketing control.		
Universities & R&D relationships	• Birzeit university was a testing center between MOH & BPC • The manufacturer is a training center for some of the university students. • Make clinical testing in Jordanian labs. • There is no real R&D between manufacturers and the universities.		
Collaborative projects	• Just collaborative marketing to Belarus markets. • There is no any resource sharing efforts.		

Source: interview with Birzeit Company production manager.

Jerusalem Company

Relationship type	description		
Location	Ramallah	Reasons	Benefits
		• Center of the West Bank. • Closeness to the residence of the founders. • Closeness to Jerusalem.	• middle of the West-Bank. • Stable city. • Attractiveness of the BDSs. • Closeness to the decision making people.
Vertical relationships	• Partner with Ugarit printing company. • Relations with plastic manufacturers. • Distribute medicines directly.		
Universities & R&D relationships	• Partner with PPU biotechnology center in a project of business incubators. • Make clinical testing in Jordanian labs. • There is no real R&D between manufacturers and the universities.		
Collaborative projects	• Just collaborative marketing to Belarus markets. • There is no any resource sharing efforts.		

Source: interview with Jerusalem Company production manager.

Pharmacare Company

Relationship type	description		
Location	Ramallah	Reasons	Benefits
		• Center of the West Bank. • Closeness to the residence of the founders. • Closeness to Jerusalem.	• middle of the West-Bank. • Stable city. • Attractiveness of the BDSs. • closeness to the decision making people.
Vertical relationships	• No exclusive printing company. • Relations with plastic manufacturers. • Distribute medicines directly.		
Universities & R&D relationships	• Make clinical testing in Jordanian labs. • There is no real R&D between manufacturers and the universities.		
Collaborative projects	• Just collaborative marketing to Belarus markets. • There is no any resource sharing efforts.		

Source: interview with Pharmacare Company production manager.

Beit Jalla Company

Relationship type	description		
Location	Beit Lehem	Reasons	Benefits
		• Closeness to the residence of the founders.	• Stable city. • Closeness to the southern areas.
Vertical relationships	• No exclusive printing company. • Relations with plastic manufacturers. • Distribute via Sukhtian company, have no direct distribution.		
Universities & R&D relationships	• Covers travelling expenses of medicine students to get training courses in other countries. • Make clinical testing in Jordanian labs. • There is no real R&D between manufacturers and the universities.		
Collaborative projects	• Just collaborative marketing to Belarus markets. • There is no any resource sharing efforts.		

Source: interview with Beit Jalla Company production manager.

From the tables above, the researcher had found that Birzeit Company had the best cluster relationships through the vertical relationships, and universities R&D relationships, where it enjoys some contracts with supporting industries, such as plastic

manufacturers, transportation, and IT developing companies, and own complementary industries such as printing and publishing company. Whereas the other companies don't have such strategic relationships.

On the other hand, Jerusalem, Pharmacare, and Birzeit companies have a good geographic location, due to its location in industrial zones in Ramallah, in the middle of the West Bank, and close to the decision makers, and business development services. While only Beit Jalla is in another city which is Beit Lehem in southern of the West Bank, and there is few collaborative actions between the companies that is marketing to Bella Ruse, where this is not done from the companies themselves, but from the marketing company in Bella Ruse.

4.3 Survey Results

In this section the main characteristics and answers of the participants in the survey will be explored. All data will be disaggregated by the factory name.

The below tables shows the firms competitive advantages score "out of 5" in different dimensions according to the survey questions, where the score 1 means "low", 2 means "low to medium", 3 means "medium", 4 means "medium to high, and 5 means "high".

Table 4.1 shows the score of companies' overall competitiveness based on the 12 dimensions of the survey results with the mean of each dimension.

Table 4.1: Firms' overall competitive advantages Score.

Firms' overall competitive advantages Score							
N	Questions	JPC	BPC	BJPC	PLC	M.	M. %
1	Firm Infrastructure	3.8	3.9	3.31	3.69	3.68	73.6
2	HR Management	3.3	3.67	3	3.4	3.35	67
3	Technology Development	3.25	3.5	2.75	3.25	3.19	63.8
4	Procurement	2.83	3	2.83	2.67	2.84	56.8
5	Inbound Logistics	3.8	4	3.67	3.83	3.83	76.6
6	Operations	3.73	3.91	3.82	4	3.87	77.4
7	Outbound Logistics	3.6	4	3.4	3.6	3.65	73.0
8	Marketing + Sales	3	3.26	3.04	2.96	3.07	61.4
9	Service	3.25	4	3.5	3.25	3.5	70
10	Margin	2	2	2	2	2	40
11	Support Activities	2.4	2.8	2.4	2.4	2.5	50
12	Policy Support	2	1.8	2.2	2	2	40
	Individual Company average score at all Dimensions	3.09	3.32	3.01	3.08	3.13	62.5
	Individual Company average score at all Dimensions %	61.8	66.4	60.2	61.6	62.5	

Note: scale of 0-5, where 5 is the best

Through studying table 4.1 which summarizes the 12 dimensions of competitiveness of each company, the researcher found that all of the companies' scores are almost similar to each other; this is because all of the companies are considered to be big companies, and have a good percentage of the market share. But while comparing the companies to each other, it was clear that Birzeit Company has got the best score of competitiveness compared to the other companies; this was achieved because of its better results in infrastructure, HR management, inbound and outbound logistics, marketing and sales, services, procurement, and support activities. However, to have a better understanding, and a more clearer view on the situation of each company in each one of the 12 dimension, the following tables show the scores of each company in every dimension of the survey.

Table 4.2 shows the score of companies' infrastructure competitiveness based on 12 dimensions with the mean of each dimension. The score of the companies are very close to each other and reflect the similarity of the companies' situation. Jerusalem mean score was 3.8, Birzeit got 3.9, while Beit Jala scored 3.31, and Dar Al Shifa 3.69. The overall mean for all the companies for firm Infrastructure is 3.5 out 5 or 70% which considered to be above medium "good" according to the scores.

Table 4.2: Firm Infrastructure Score.

Firm Infrastructure Score							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M. %**
FI1	Adequacy of physical infrastructure	4	4	4	4	4	80.0
FI2	Adequacy of ITC systems employed	4	4	4	4	**4**	80.0
FI3	Adequacy of quality / H&S / CSR certificates	3	4	3	4	**3.5**	68.0
FI4	Adequacy of trade association(s) membership	2	2	2	3	**2.25**	45.0
FI5	Adequacy of strategic planning practices	3	4	3	4	**3.5**	68.0
FI6	Adequacy of working capital	3	4	3	4	**3.5**	68.0
FI7	Adequacy of cash flow planning practices	4	4	3	4	**3.75**	75.0
FI8	Adequacy of access to banks and commercial credits	4	2	3	2	**2.75**	55.0
FI9	Adequacy of knowledge of breakeven sales	4	4	3	3	**3.5**	68.0
FI10	Adequacy of accounts receivable and payable situation	2	3	3	4	**3**	56.7
FI11	Adequacy of quality management system	4	4	4	4	**4**	80.0
FI12	Adequacy of knowledge of the cost of poor-quality products or service	4	4	4	4	**4**	80.0
FI13	Adequacy of governance by industry standards or regulation	3	4	4	4	**3.75**	73.3
	Individual Company average score at this Dimension	3.8	3.9	3.31	3.69	3.68	73.5

Note: scale of 0-5, where 5 is the best

Through studying the table 4.2 results, which reveals the infrastructure strengths or weaknesses, which will affects in its turn the competitiveness of the industry, will see that the adequacy of trade associations membership got the minimum score 2.25 of 5, or 45%, this mean that the pharmaceutical industry suffers from the ineffectiveness of such associations, and don't benefit from their activities. While the next infrastructure disadvantage is the inadequate access of banks and commercial credits. On the other hand the industry enjoys an advantage in management systems, management knowledge, physical infrastructure, and IT systems.

Another point is that the firms in Ramallah district; PLC, JPC, and BPC, have an overall infrastructure advantage – the scores are 3.69, 3.38, 3.62- better than BJPC which is located in Bet Jala and has a score of 3.31 out of 5.

Table 4.3 shows the six dimensions that reflect Human Resource Management at the companies, and the mean for each dimension. The mean of the score for the companies are as following, Jerusalem was 3.30, Birzeit 3.67, Beit Jala 3.00, and Dar Al Shifa 3.40. The overall mean for all the companies for HR Management is 3.35 out of 5.

Table 4.3: HR Management Score.

HR Management Score							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
HR1	Adequacy of method for recruiting the right person for the right job	3	4	3	2	3.00	56.7
HR2	Do you have a stable labour force	4	4	3	3	3.50	68.0
HR3	Adequacy of appropriate and regular training provided to personnel	3	4	3	4	3.50	68.0
HR4	Adequacy of the structured payment system	4	4	3	3	3.50	68.0
HR5	Adequacy of the disputes or grievance procedure	2	4	2	3	2.75	51.4
HR6	Adequacy of number of sufficiently skilled personnel needed to run the business	2	2	3	2	2.25	42.9
	Individual Company average score at this Dimension	3.4	3.67	3	3.3	3.35	67

Note: scale of 0-5, where 5 is the best

The human resources competency of the pharmaceutical industry is 3.35/5, or 67%. where the lowest competency comes from the high number of sufficiently skilled personnel needed to run the business, where this type of industries needs a special knowledge, training, and experience, which makes its hard to get new workers, and will be a big loss if loose such experiences from the work. While the companies enjoy a good stable labour force, training, and good payment systems. Another thing it is clear that the bigger companies, BPC, and JPC have better HR competency than PLC, and BJPC.

Table 4.4 shows the companies' score for Technology Development. In order to observe the technology development on the companies, eight aspects were looked at .and their means were calculated. Jerusalem mean score is 3.25, Birzeit got 3.50, while Beit Jala scored 2.75, and Dar Al Shifa 3.25. The overall mean for all the companies for firm Infrastructure is 3.09 out 5.

Table 4.4: Technology Development Score.

Technology Development							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
TD1	Adequate and easy access to technology	3	4	3	3	3.25	63.3
TD2	Adequate to in house designers or product development engineers	3	3	3	3	3.00	60.0
TD3	Adequacy of understanding of intellectual	3	3	3	4	3.25	63.3
TD4	Level of introduction of new products or processes in the last 5 years	4	4	3	3	3.50	68.0
TD5	Adequacy of firm level innovation	2	3	2	3	2.50	50.0
TD6	Level of pursuit of new systems, trends or technology to upgrade processes	3	3	3	4	3.25	63.3
TD7	Level of tracking industry innovation and trends	3	4	3	4	3.50	68.0
TD8	Level of capitalization on innovative / new technology opportunities	3	3	2	2	2.50	50.0
	Individual Company average score at this Dimension	3.25	3.5	2.75	3.25	3.19	63.8

Note: scale of 0-5, where 5 is the best

The above table shows that technology Development Score in the industry is 3.19 out of 5, or 63.8%. Where they suffer from low Level of capitalization on innovative and new technology, and low level of firm's innovation, and lack of R&D. And enjoy a good advantage in producing new products which actually are totally generic products, and tracking industry innovation and trends. In an overall the best is Birzeit, and the lowest is bet Jala.

Table 4.5 with six dimensions reflect Procurement Management at the companies, and the mean for each dimension. The mean of the score for the companies are as following, Jerusalem with 2.83, Birzeit 3.00, Beit Jala 2.83, and Dar Al Shifa 2.67. The overall mean for all the companies for Procurement Management is 2.83 out 5.

Table 4.5: Procurement Score.

Procurement							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
P1	Length of lead time for procurement of equipment and spares	4	4	3	3	3.50	68.0
P2	Length of lead time for procurement of raw materials	3	3	3	3	3.00	60.0
P3	Geographical closeness of raw materials	3	3	3	3	3.00	60.0
P4	The ease of changing suppliers (0 difficult 5 easy)	1	2	2	2	1.75	35.0
P5	Level of use of raw materials which are unique or not offered by many others	2	2	3	2	2.25	42.9
P6	Level of use of sub-contractors. Specify what they provide	4	4	3	3	3.50	68.0
	Individual Company average score at this Dimension	2.83	3.00	2.83	2.67	2.83	55.64

Note: scale of 0-5, where 5 is the best

The procurement competency was 55.64% for the industry. Where this low competency comes from the difficulty of changing supplier, and the level of using unique raw materials which come from other countries, and every raw material have to get a special license in order to buy it, this also in addition to the difficulty in importing raw materials through the Israeli borders. On the other hand Birzeit Company got the highest score due to its high level of inventory capital, and biggest stores**.**

Table 4.6 shows the companies' score for Inbound Logistics. In order to observe the Inbound Logistics operations on the companies, six aspects were looked at .and their means were calculated. Jerusalem mean score is 3.8, Birzeit got 4.00, while Beit Jala

scored 3.83, and Dar Al Shifa 3.71. The overall mean for all the companies for firm Infrastructure is 3.83 out of 5.

Table 4.6: Inbound Logistics Score.

Inbound Logistics							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
IL1	Adequacy of storage facilities for raw materials and finished goods	4	4	4	4	4.00	76.7
IL2	Adequacy of an inventory control system	4	4	4	4	4.00	80.0
IL3	Adequacy of the area for quarantined goods and returns procedure	4	4	4	4	4.00	80.0
IL4	Adequacy of space for raw materials and materials handling	4	4	4	4	3.75	73.3
IL5	Adequacy of the goods inwards inspection system	4	4	3	4	3.75	75.0
IL6	Adequacy of performance on the number of days of inventory held (12 months, 6 months 3 months 6 weeks)	3	4	3	3	3.25	65
	Individual Company average score at this Dimension	3.8	4	3.67	3.8	3.83	76.6

Note: scale of 0-5, where 5 is the best

Table 4.6 shows that the industry has a good competitiveness in inbound logistics, where they have a good inventory control, adequate area for materials and finished goods storage, where it suffers from long time of holding the inventory due to the process of procurement, and manufacturing. All firms almost the same.

Table 4.7 shows the score of the companies' operations based on 11 dimensions with the mean of each dimension. The score of the companies are very close to each other and reflect the similarity of the companies' situation. Jerusalem mean score is 3.73, Birzeit got 3.91, while Beit Jala scored 3.82, and Dar Al - Shifa 4.00. The overall mean for all the companies for firm Infrastructure is 3.86 out 5.

Table 4.7: Operations Score.

Operations							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
O1	Adequacy of current technology. (Dilapidated, old, serviceable)	3	4	3	4	3.50	68.0
O2	Adequacy of operating capacity	3	3	4	4	3.50	68.6
O3	Adequacy of operating efficiency	4	4	4	3	3.75	73.3
O4	Adequacy of production / process planning	4	4	4	4	4.00	80.0
O5	Adequacy of the materials requirements planning system	3	4	3	4	3.50	68.0
O6	Adequacy of the computerized system for handling business processes	4	3	4	4	3.75	72.0
O7	Adequacy of quality checks and systems	4	4	4	4	4.00	80.0
O8	Adequacy of appearance and housekeeping of premises	4	4	4	5	4.25	86.7
O9	Adequacy of flow visibility with dedicated work stations	3	4	4	3	3.50	68.6
O10	Adequacy of Just In Time or similar quick response system	4	4	3	4	3.75	72.0
O11	Adequacy of Health and Safety system	5	5	5	5	5.00	100.0
	Individual Company average score at this Dimension	3.73	3.91	3.82	4.00	3.86	76.1

Note: scale of 0-5, where 5 is the best

Table 4.7 shows that the industry has a high competency in operation process, a score of 76.1%. where the lowest competencies comes from low operating capacity, machine technologies, material requirements, planning systems, and flow visibility between work stations. Whereas they have a very good health and safety systems, quality checks systems, and production planning.

Table 4.8 Outbound logistics score is shown in table 4.7. Jerusalem mean score is 3.4, Birzeit got 4, while Beit Jala scored 3.6, and Dar Al Shifa 3.4. The overall mean for all the companies for outbound logistics is 3.60 out 5.

Table 4.8: Outbound Logistics Score.

Outbound Logistics							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
OL1	Adequacy of storage facility for finished products	4	4	4	3	3.75	73.3
OL2	Adequacy of system for order processing	4	4	4	3	3.50	68.6
OL3	Adequacy of system for scheduling deliveries	4	4	3	4	3.75	73.3
OL4	Adequacy of On Time Delivery (0 often late 5 always on time)	3	4	3	4	3.50	68.0
OL5	Adequacy of delivery system	3	4	3	4	3.50	68.0
	Individual Company average score at this Dimension	3.6	4	3.4	3.6	3.60	73.00

Note: scale of 0-5, where 5 is the best

According the table 4.8 of Outbound Logistics all the firms enjoys high competencies, of 73.00% as overall score for the cluster where this is because every company has its own system for distribution, and due to the availability of pharmaceutical warehouse that exists in every city. However, Beit Jala Company depends on unique reseller which is Sukhtian to reach every place in the West Bank. But Birzeit enjoys the best because it has a complete department for selling and order processing, with direct contact up to the final customer.

Table 4.9 With twenty three aspects reflect the companies' performance at marketing and sales. Jerusalem mean score is 3.0, Birzeit got 3.26, while Beit Jala scored 3.04, and Dar Al Shifa 2.96. The overall mean for all the companies for outbound logistics is 3.07 out 5.

Table 4.9: Marketing & Sales Score.

Marketing + Sales							
N	Questions	JPC	BPC	BJPC	PLC	M.	M.%
MS1*	Do you receive orders from sub-contracting (High is 0 Low is 5)	3	3	2	4	3.00	60.0
MS2	Adequacy of a good spread of customers/clients	4	4	3	3	3.50	70.0
MS3**	Is there a significant change in your market?	3	3	4	3	3.25	65.0
MS4***	Is there pressure from customers to make changes (5 For low pressure, 0 High pressure)	4	4	4	4	4.00	80.0
MS5	Adequacy of strategic partner	2	2	1	3	2.00	40.0
MS6	Adequacy of market research undertaken	2	3	4	2	2.75	55.0
MS7	Adequacy of identification of target customers and consumers	3	4	3	2	3.00	60.0
MS8	Level of selling of niche products	3	3	2	2	2.50	50.0
MS9	Geographical closeness of markets	4	4	3	4	3.75	75.0
MS10	Adequacy of analysis of competitors and other market players	3	4	3	3	3.25	63.3
MS11	Adequacy of monitoring changing consumer behaviour	2	3	3	3	2.75	54.3
MS12	Adequacy of the branding policy	3	3	3	3	3.00	60.0
MS13	Adequacy of catalogues, leaflets and other printed materials	4	4	4	4	4.00	80.0
MS14	Adequacy of channels used for advertising	2	1	2	1	1.50	30.0
MS15	Adequacy of trade fair attendance	3	3	2	2	2.50	50.0
MS16	Adequacy of company web site / web presence	2	3	4	3	3.00	60.0
MS17	Adequacy of knowledge of potential importing countries' standards, customs and packaging requirements	4	4	3	4	3.75	75.0
MS18	Adequacy of sales target setting	3	4	3	3	3.25	63.3
MS19	Level of company's perception of the quality of their product(s) / service(s) compared to those of competitors	4	4	4	4	4.00	80.0
MS20	Adequacy of packaging labelling and information (e.g. indicating ingredients, etc)	4	4	4	4	4.00	80.0
MS21	Level of sales to end users/consumers (as opposed to intermediate customers such as distributors, wholesalers, agents, etc)	3	4	3	3	3.25	63.3
MS22	Is there an adequate marketing plan	3	3	4	3	3.25	65.0
MS23	Adequacy and monitoring of channels of distribution	3	4	3	3	3.25	63.3
	Individual Company average score at this Dimension	3.00	3.26	3.04	2.96	3.07	61.4

Note: scale of 0-5, where 5 is the best

*. Since the buyer's pressure is considered a disadvantage to the company, and when working with subcontractors, there will be a high buyer's pressure, rather than having a direct contact with the customers which decrease this pressure.

**. If there is more significant change "growth" in the market, then this is the best situation.

***. If there is a high pressure from customers on the firm to make changes, then this is considered a disadvantage for the firm, while the best situation is when there is no pressure from customers on the firm to make changes on its products.

According to the table 4.9 the overall score competency level is 61.4% in marketing and sales, that is due to the absence of strategic partners, low levels of market research, low level of niche products due to low R&D, low channels of advertising, low sharing in trade fairs, while they have a good competence of knowing the regulations of other countries for exporting, good packing and labelling, catalogues, and brochures, a good but not so high branding policy, marketing plans, setting target market, etc.

Table 4.10 shows the companies' score for service the companies provide for their customers. In order to observe the service, four aspects were looked at .and their means were calculated. Jerusalem mean score is 3.25, Birzeit got 4, while Beit Jala scored 3.50, and Dar Al Shifa 3.25. The overall mean for all the companies for firm Infrastructure is 3.5 out 5.

Table 4.10: Service Score.

Service							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
S1	Adequacy of after-sales service	4	4	3	4	3.75	75.0
S2	Adequacy of customer / consumer training in product	3	4	4	3	3.50	70.0
S3	Adequacy of product / service set up operations	3	4	3	2	3.00	60.0
S4	Adequacy of company product / service guarantee	3	4	4	4	3.75	75.0
	Individual Company average score at this Dimension	3.25	4	3.5	3.25	3.50	70.0

Note: scale of 0-5, where 5 is the best

Table 4.10 shows that pharmaceutical industry service competency is 70% which is high, where it is high in after sale services, and monitoring, where they have a quick response to the claims of customers. And they not provide product setup facilities, where the customers "pharmacies" have to do so.

Table 4.11 shows the companies' score for Margin. Jerusalem score is 2.0, Birzeit 2.0, while Beit Jala scored 2.0, and Dar Al Shifa 2.0. The overall mean for all the companies for firm Infrastructure is 2 out of 5.

Table 4.11: Margin Score.

Margin							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
M1	What is the company's net margin? score (1=0-20, 2=21-40, 3=41-60, 4=61-80, 5=81-100)	2	2	2	2	2	40
	Individual Company average score at this Dimension	2	2	2	2	2	40

Note: scale of 0-5, where 5 is the best

According to 4.11 the margin competence is 40%, because all the products are generic, and they aim to be price competence compared to the Israeli, and foreign competitors. And this is not a low competency because it provides price competitiveness to the industry.

Table 4.12 Support Activities score is shown in table 4.11. Jerusalem mean score is 2.2, Birzeit got 2.8, while Beit Jala scored 2.4, and Dar Al Shifa 2.4. The overall mean for all the companies for outbound logistics is 2.45 out 5.

Table 4.12: Support Activities Score.

Support Activities							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
SA1	Adequacy of trade association support services / activities	2	2	2	3	2.00	40.0
SA2	Adequacy of government support services / activities	2	3	1	1	1.75	35.0
SA3	Adequacy of suppliers' support services / activities	3	4	3	3	3.25	65.0
SA4	Adequacy of consultants' support services / activities	3	3	3	3	3.00	60.0
SA5	Adequacy of agencies' support services / activities	2	2	3	2	2.25	45.0
	Individual Company average score at this Dimension	2.4	2.8	2.4	2.4	2.5	50.0

Note: scale of 0-5, where 5 is the best

According to table 4.12 the pharmaceutical industry support activities competency is low 50%, where there is an inadequate government support, low trade associations support, low agencies support, with a good supplier's support.

Last table 4.13 shows the score for policy support from the companies point of view based on 5 dimensions with the mean of each dimension. The score of the companies are very close to each other and reflect the similarity of the companies' point of view. Jerusalem mean score is 2, Birzeit got 1.8, while Beit Jala scored 2.2, and Dar Al Shifa 2.0. The overall mean for all the companies for firm Infrastructure is 2.0 out 5.

Table 4.13: Policy Support Score.

Policy Support							
N	**Questions**	**JPC**	**BPC**	**BJPC**	**PLC**	**M.**	**M.%**
PS1	Adequacy of preferential trade agreements for the sector	3	3	4	3	3.25	65.0
PS2	Adequacy of inward investment incentives	1	1	1	2	1.25	25.0
PS3	Adequacy of tax incentives	1	1	2	1	1.25	25.0
PS4	Adequacy of the legal system to support enterprise	2	2	2	2	1.75	35.0
PS5	Adequacy of employment incentives	3	2	2	2	2.25	45.0
	Individual Company average score at this Dimension	2	1.8	2.2	2	2	40.0

Note: scale of 0-5, where 5 is the best

According to table 4.13 shows that the policies support to the pharmaceutical industry got the lowest value of all the factors that contribute to the value chain of the pharmaceutical industry 40%, where there is very low tax incentives, except Beit Jalla which benefits from some tax incentives "the low of encouraging investment" but it ends by 31/12/2014 according the their discloser info 2013, and there is a low inward investment incentives, inadequate of legal system support, and employment incentives.

4.4 Companies financial analysis

The researcher in this section had analysed the competitiveness of the four pharmaceutical companies according to their profits, market share (sales) as (Porter, 1990) , and the operating profit, (Hsu et al., 2013). In order to achieve the best reliability for the results of the research and to compare it with the results of competitiveness gained from the survey. The results are as follow.

Table 4.14. Companies' financial information.

No.	Manufacturer	# of employees	Sales*		Gross income "profit"		Operating profit		Net income		Operating profit % of the total profit	
			12**	13	12	13	12	13	12	13	12	13
1	BPC	283	22936	25123	9740	10200	5741	5183	4976	5480	59	51
2	JPC	150	18072	22018	8316	10514	631	2358	195	2248	8	22
3	PHARMACARE	277	15364	16221	4754	6484	341	447	2027	1688	7	7
4	Beit Jalla	159	7981	8876	2552	2918	886	863	810	821	35	30

*. Sales are in thousands of dollars.

**. Years 2012 and 2013

Source: companies closer declarations. (2013) "Palestine capital market authority".

Table 4.14 shows all of the financial information of the four companies, which are the sales, gross income, net income, and operating profits, such information are illustrated and demonstrated more clearly in the following sections.

4.4.1 Market share analysis

The following figure shows the revenue of each company "sales". In the years 2012, and 2013 in 1000's USD.

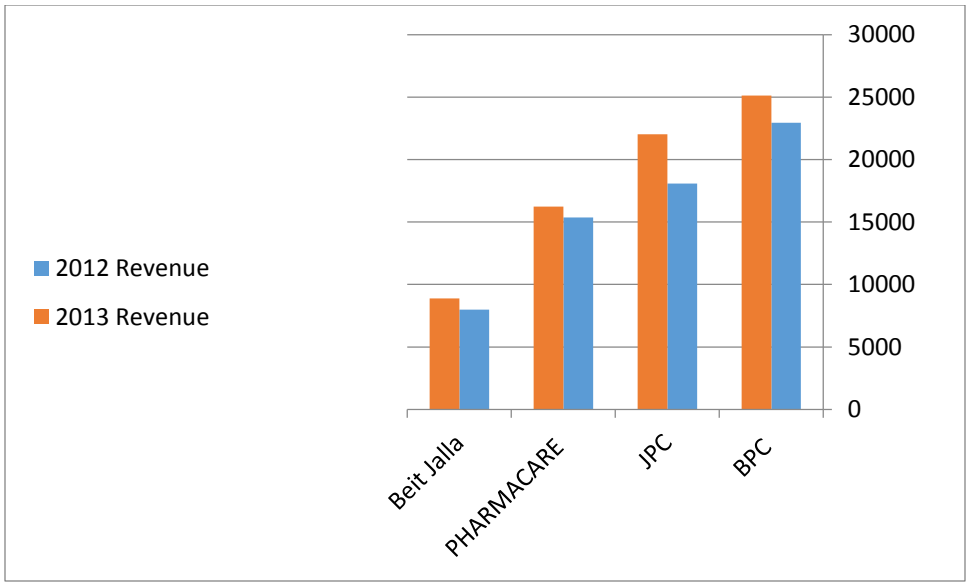


Figure 4.1: firms' sales in 2012, 2013

Source: Table 4.14

According to the (PNA, 2011) the domestic manufacturers held 50 % of the market share by the value produced, and this market share have been distributed between these manufacturers as follow in figure 4.2.

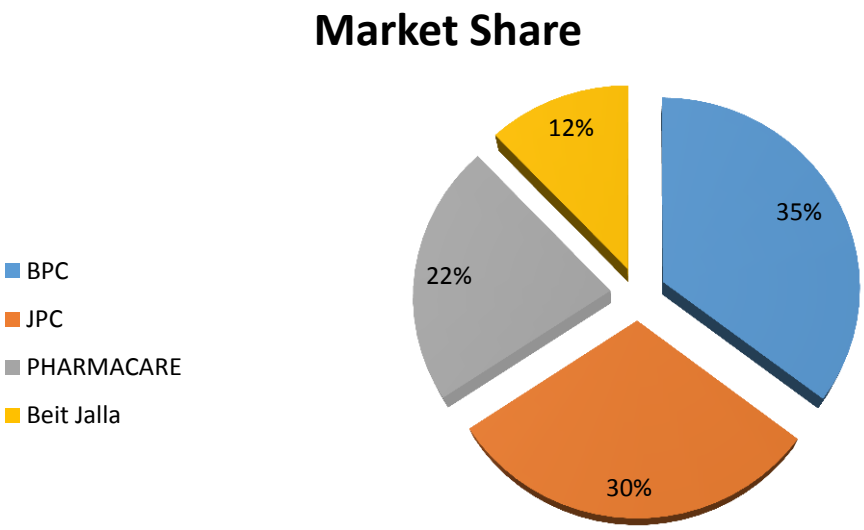


Figure 4.2: local market share distribution between the local manufacturers.

Source: Table 4.14

From the table 4.13 and figure 4.2 it is clear that Birzeit company hold the most market share, and then comes JPC, Pharmacare, and Beit Jalla.. so according to (Porter, 1990), (Hsu et al., 2013), and (SDAG, 2001), the Birzeit company is the most competitive among the others.

4.4.2 Profitability analysis

The following figure 4.3 shows the profit of each company. In the years 2012, and 2013 in 1000's USD.

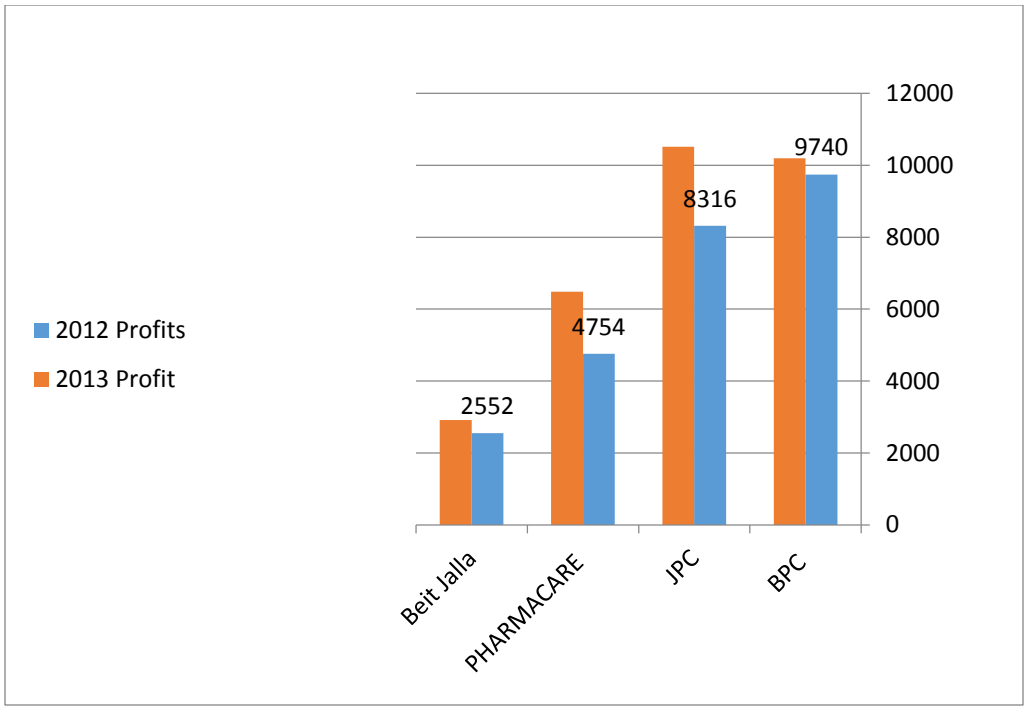


Figure 4.3: pharmaceutical companies profits is 2012, 2013.

Source: Table 4.14

Figure 4.3 shows that Birzeit Company had the most profit among the others in 2012, while the Jerusalem Company had got the most profits in 2013 but a little exceeded the Birzeit Company with 2.99% which makes them both in the top of the companies related to their achieved profits. Therefore the competitiveness of the companies could be ordered from high to low according to the profits achieved as follow: BPC, JPC, Pharmacare, and Bet Jalla.

4.4.3 Operating profits analysis

The following figure 4.4 shows the operating profit of each company. In the years 2012, and 2013 in 1000's USD.

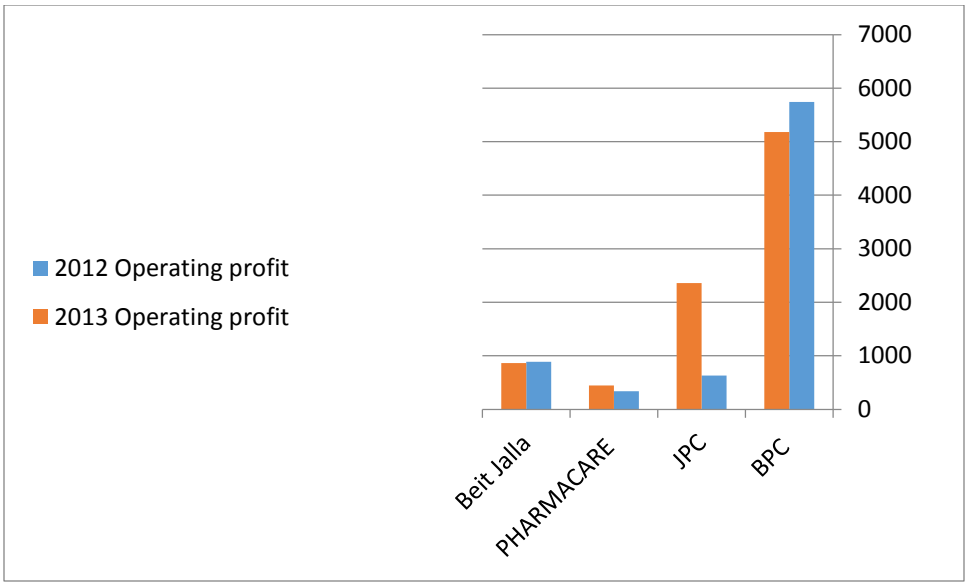


Figure 4.4: the operating profit of the companies in 2012, 2013.

Source: Table 4.14

The figure 4.4 shows that Birzeit Company has the best operating profit, among the other companies, while Jerusalem Company which has almost the same profit with BPC had operating profits so much below BPC, which means its operating costs, are so much higher. On other hand Pharmacare and Bet Jalla got operating profits below 1,000,000 USD. In order to understand the operating profits more clearly, the researcher had made them as a percentage of the profits "gross income". Where the values are as follow in figure 4.5.

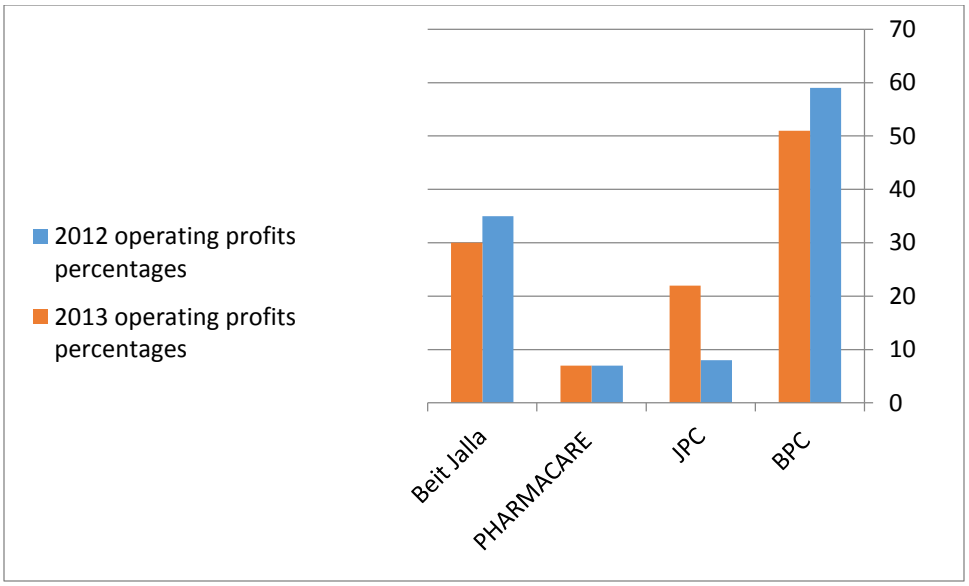


Figure 4.5: operating profits percentages in years 2012, 2013.

Source: Table 4.14

The figure 4.5 illustrates the meaning of operating profits more clearly according to (Hsu et al., 2013), where it shows that BPC got the higher percentage, which means it has the best profitability, and lower operating costs. Where Beit Jalla Company comes next which means that related to its profits size, its profitability is better than Jerusalem, and Pharmacare companies. Therefore the Birzeit Company has the best profitability competitiveness, and then comes Beit Jalla, Jerusalem, and Pharmacare, respectively.

From the above analysis the researcher found that Birzeit had got the best competitiveness, because it got the best results in the market share, profits, and operating profits, while the next one was Jerusalem company "JPC", and the third Pharmacare, and finally is Beit Jalla, but the researcher found that in JPC, Pharmacare they have so much high costs which lower their competitiveness status.

4.5 Answers of the research question.

Q1: To what extent does the Palestinian pharmaceutical industrial sector implement the clustering concept?

From the results shown above in the first section of data analysis, which is the assessment of the clustering situation of the pharmaceutical companies, and through reviewing the (Porter, 1990) definition of clusters as a group of companies, specialized suppliers, service providers, firms in related industries, in particular fields that are co-located in a specific geographic region and linked by interdependencies in providing a related group of products, it is clear that the term of clusters exists if three conditions are available, which are:

- Firms in related industries, in a particular field.
- They are co-located in a specific geographic region.
- They are linked by interdependencies.

The Palestinian pharmaceutical companies are all working in the same field, which is the pharmaceutical industry, which means that they apply to the first condition. And according to the second condition, three of them which are: BPC, JPC, and PLC exist in a small area which is Ramallah city, which mean that they apply to the second condition, just BJPC which exists in Beit Lehem don't apply to this condition due to its existence in another city. Finally the third condition is that the firms should be linked by interdependences in providing a related group of products, where this condition which ensures the horizontal relationships and collaborative actions between firms is totally missing, because of the absence of such interdependences between firms due to the

high competition between them, even there is a union of pharmaceutical industries in Palestine, but its role approximately goes to zero, where it hasn't any tangible effect on the industry and this is clear in the dimension 11 which is support activities.

This leads to say that the Palestinian pharmaceutical industry doesn't implement the clustering concept, because of the absence of the joint activities that collect them, where every one source from his special sources, and has its distribution network, and there are no tangible effects of agencies, or associations that make them work together, etc.

Q2 To what extent does The Palestinian pharmaceutical industrial sector play as a potential cluster?

Based on the distinctions between cluster types that have been pointed by (Mytelka & Farinelli, 2000) which are: spontaneous grouping of firms, suppliers, and public sector around a growth industry, and those spontaneous clusters could be informal, organized, and innovative, and the other type is a constructed cluster such as industrial parks and incubators. The Palestinian pharmaceutical companies are potential of the first category, where they are not a constructed cluster, but they are a group of firms, and related industries that produce the same types of products, and exist in a small geographic area.

While according to (Aylward & Glynn, 2005), the Palestinian pharmaceutical companies as a spontaneous cluster couldn't be described as an informal of organized cluster, that is because these types are low innovative and for small and medium companies. But the most appropriate category that is applicable to the pharmaceutical companies is the innovative cluster, which has large firms, a wide skill level range, where each company

has a Ph.D., M sc., B sc., diploma, high school, and below high school degrees. And these firms have medium linkage between them, such as MOH, MONE, and the pharmaceutical union. And have some exports, but have also a poor cooperation.

Another thing and based on the

This description makes the Palestinian pharmaceutical companies so much potential to the innovative spontaneous cluster definition. (Aylward & Glynn, 2005), (Mytelka & Farinelli, 2000) since the companies are all a related firms, producing a related groups of products, located in same geographic area, which is not constructed areas as in the industrial parks situation, and they all work in an innovative industry.

Q3: How does the implementation of clustering concept enhance the competitiveness of the pharmaceutical companies?

To answer this question the researcher had made a comparison between companies based on their competitive advantages, and their individual clustering situation, while the results show that BPC has the most competitiveness among others due to its better vertical relationship. Where the advantages were in the dimensions of:

- Firm's infrastructure, which is the results of its size which made it to work as a complete cluster and have a very strong vertical relationships, such as its complementary action by acquiring Palestine for printing and publication company, marketing and sales department which deals with every customer directly, and finally the technological requirements that are needed to acquire the special certificates needed for the industry.

- Outbound logistics. Where BPC had got this advantage through its strategic relationship with one of the best transportation companies, which is Albarq Company which enabled the company to have a fast response to every order in the West Bank.
- Inbound logistics. Due to its big stores, and advanced control on it, where BPC had a contract with Bisan Company the IT specialists control its stores and inventory.

However BPC had the best vertical relationships which enabled it to get the best competitive advantage. But by looking to the data collected on the pharmaceutical companies, the researcher found that the companies don't have horizontal relationships, or even any resource sharing relationships, and all of the companies don't have a good advantage in the following dimensions

1- Technology development
2- Procurement.
3- Support activities.
4- And policy support.

(SDAG, 2001) Illustrated that clusters lead to innovation because of its core characteristics of close collaboration and close competition, whereas cluster develops a new demand for new types of products and services will be created. This is so applicable to the Palestinian pharmaceutical companies, where all of them are looking to expand their market share through new products, and by entering new markets. They have a good example of joint marketing through the company "care" which work with all

the manufacturers to market in Bella Russia, on the contrary BPC, and JPC are building in Algeria to be able to sell there, but they was able to build one manufacture and sell together. So clustering can help them entering new markets with less cost.

Another thing, they could have a common firms for their supplies in plastic, printing, transportation, and even in R&D and testing their new formulas, the clinical testing. And they could become a force to establish a common local supplier for the raw materials, where right now each company needs a license for every material they need, but if there is local supplier, then these certification could be saved, and a single service window will be available. Many other action could be done collectively and collaboratively in order to increase innovation, profits, decrease cost, technology transfer, etc. (Schmitz, 1995).

So clustering will enhance the competitiveness of the pharmaceutical companies through horizontal relationships, resource sharing, and common interdependences that will help all of them, such as:

- Establish a domestic supplier for the raw material "collaborative sourcing", which will help them not to delay their orders in the event of waiting not available raw materials.
- Effective union or cluster management, which will help improving the negotiation power with the decision makers, to enhance the related legislations, such as enabling a domestic supplier of raw materials, and clinical testing.
- Establishment of shared companies, or even shared trademarks "collaborative marketing" which will enable more access to the international markets, instead of

separately entrance to the markets which will cost more to the companies, such as BPC, and JPC entrance to Algerian market, and PLC to the Iraqi market.

- Establishment of local research and development center, which will offer the clinical testing for the new products, and may offer also producing and registration of new products.
- Establishment of firm which will manufacture some of the starting raw materials.

4.6 cluster map

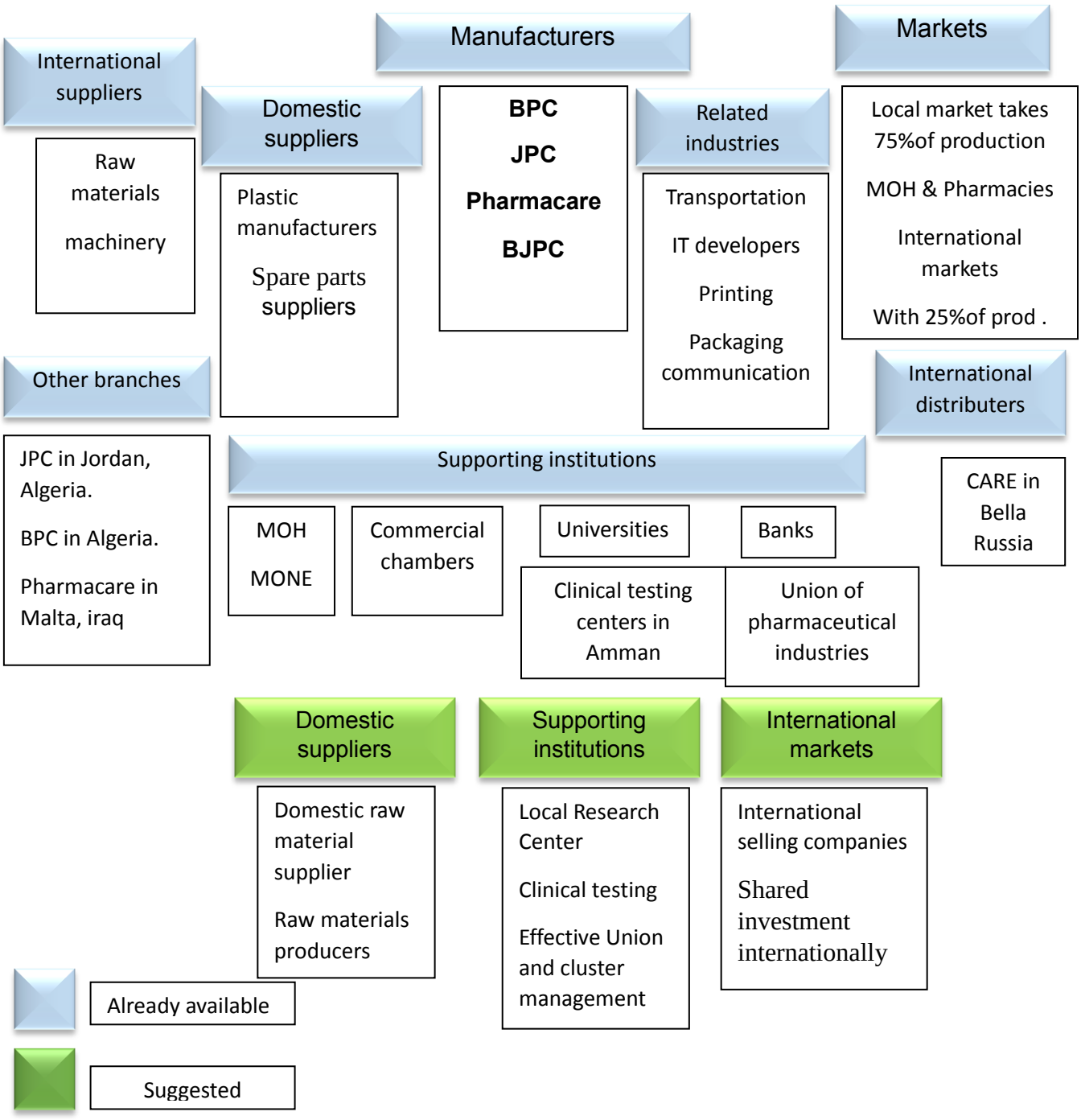


Figure 4.6 : Cluster map

CHAPTER FIVE

Main Conclusions

Recommendations

Future Research

5. 1 introduction

The researcher has measured Firm Infrastructure, HR Management, Technology Development, Procurement, Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, Service, Profit Margin, Support Activities, and Policy Support for the four surveyed companies. The researcher has calculated the average percentage for all the dimensions for each company, in order to know the strength points which give the firms its competitive advantages and the weakness points in order to know what is needed to achieve a better competitiveness for the companies, and the industry as a whole. Then the researcher compared the current situation in all factories in regards to all the dimensions.

Table 5.1: Overall score for all the companies.

Company	Score		Overall Score
	Out of 5	Percentage %	
Beit Jala	3.01	60.2	62.45
Birzeit	3.32	66.4	
Jerusalem	3.08	61.6	
Dar Al Shifa	3.08	61.6	

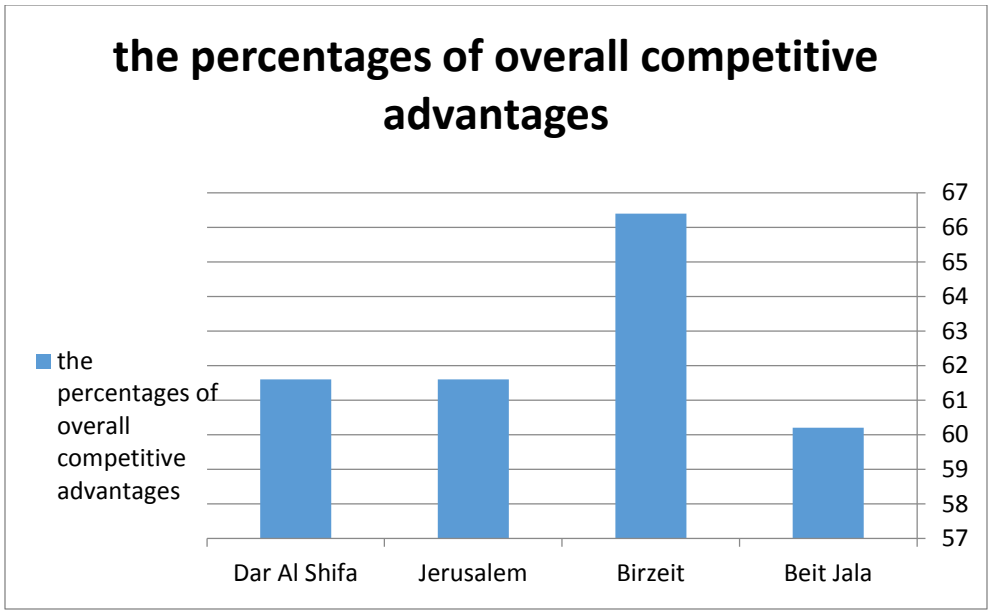


Figure 5.1: Overall Score for surveyed companies

Table 5.1 shows the overall score for the surveyed companies. Jerusalem got 3.08, Birzeit got 3.32, Beit Jalla got 3.01, and Dar Al-Shifa scored 3.08. out of 5

Table 5.1, and figure 5.1 show that there is no much difference between firms of Ramallah and Beit Jalla, which mean that the geographic location is not the most important competitive advantage for the pharmaceutical firms, where this could be due to the small area of the West Bank as a whole, and the distance between Ramallah and Beit Jalla is not so much far. However it is clear that the Birzeit Company got the best competitive advantages among the others as illustrated in the previous chapter, followed by Pharmacare, and Jerusalem, and finally Beit Jalla. This reflects that it has got the best competitiveness among the other companies.

But to know the factors that could enhance the competitiveness of the industry we need to investigate all of the factors separately, as in the following tables from 5.2 to 5.14.

Table 5.2 shows the overall score for all the surveyed companies based on each dimension. For firm infrastructure the sore is 73.6%, for HR Management 67%, Technology Development got 63.8%, Procurement is 56.8%, for inbound logistics 76.6%, their operations scored 77.40%, outbound logistics got 73%, Marketing and sales is 61.4% , services is 70%, profit margin is 40 % , support activities got 50% , and last policy support got 40%.

Table 5.2: Overall score for all the companies.

Dimensions	Score %
Firm Infrastructure	73.6
HR Management	67
Technology Development	63.8
Procurement	56.8
Inbound Logistics	76.6
Operations	77.4
Outbound Logistics	73
Marketing + Sales	61.4
Service	70
Profit Margin	40
Support Activities	50
Policy Support	40

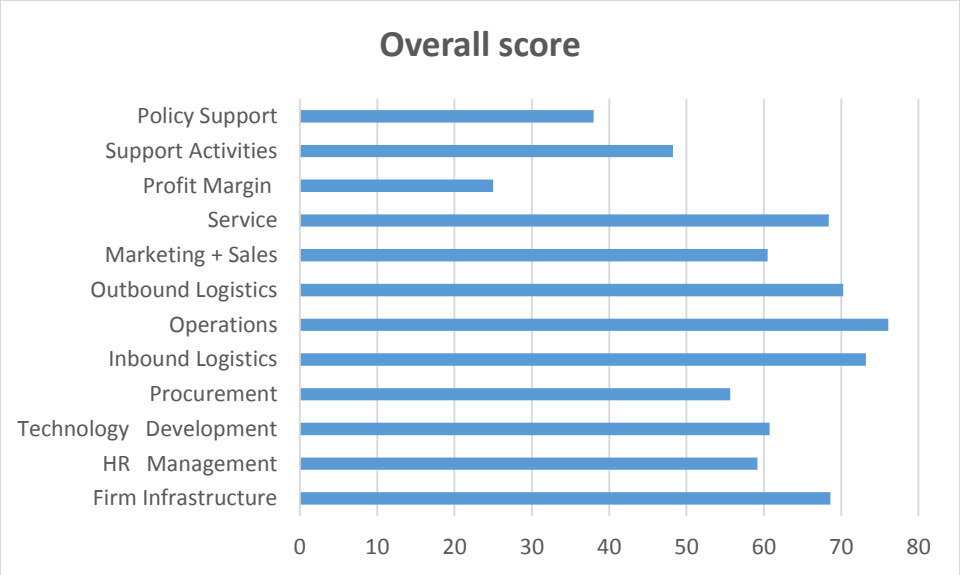


Figure : 5.2 Overall Scores for deferent dimensions

5.2 Firm infrastructure Dimension

As shown in table 5.2 the overall average in firm infrastructure dimension is 73.6%, It is clear that all the companies scored relatively well in this dimension, and that goes to the natural of this industry which required a massive capital to get the required facility and production line. And it is a must for the pharmaceutical companies to get quality certificates. Moreover, all the manufacturers which were considered in this study got GMP certificate which force them to keep a good infrastructure with a very good control and monitoring system. However, it was notice that the membership in different associations does not bring a lot of benefit for the manufacturers, since their services are very limited and not up to expectations.

Table 5.3: Firm infrastructure

Firm infrastructure			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
76%	78%	66.15%	73.85%

5.3 HR Management Dimension

As shown in table 5.4 the overall average in HR management dimension is 67%. This industry is mainly depend on graduate degree holders, with continues training to develop them and improve their productivity. All the companies with some minor differences keep a good care about their staff through different training programs. However, the recruiting process is still very traditional and need to be improved.

Table 5.4: HR Management.

HR Management			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
66%	73.4%	60%	68%

5.4 Technology Development Dimension.

The overall average in this dimension is 63.8%. Productivity, cost saving and innovation depend mainly on technology development. However, because of the close, and limited market, the pharmaceutical companies had to invest in less productive machines and not up to date technology.

Table 5.5 : Technology Development.

Technology Development			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
65%	70%	55.0%	65.0%

5.5 Procurement Dimension.

The overall average in this dimension is 56.8%. Procurement process is very complicated for the pharmaceutical companies; it needs permission every time under the company's name. Moreover, the material should pass the approval of Israeli control, which make their production flow very sensitive to the political situations. Moreover, Israeli policy is clearly in favour of the Israeli manufacturers who are one of the main competitors of the local manufacturers over the local market.

Table 5.6: Procurement.

Procurement			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
56.7%	60.0%	56.7%	53.3%

5.6 Inbound Logistics Dimension.

The overall average in this dimension is 76.6%. As it was explained in the Procurement process, the pharmaceutical companies try to overcome this challenge and to benefit from bulk purchasing, they made a quite big storage for the raw materials. Moreover, GMP practices required a clear separation between storage and production section, and to have a separate storage for quarantined returned goods.

Table 5.7: Inbound Logistics.

Inbound Logistics			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
76%	80%	73.4%	76.6%

5.7 Operations Dimension.

The overall average in this dimension is 77.4%. Most of the pharmaceutical manufacturers utilize over 80% of their production capacity with relatively good efficiency. However, they work for one shift only which result from the small market they got. Generally their premises are kept in a very clean and arranged situation. Again the GMP regulation was clearly reflected in the companies' operations.

Table 5.8: Operations.

Operations			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
74.6%	78.2%	76.4%	80%

5.8 Outbound Logistics Dimension.

The overall average in this dimension is 73%. To meet with the customers' needs, and to deliver the products as soon as they ordered, the pharmaceutical companies usually keep finished products in their storage, and Most of the pharmaceutical manufacturers have their own distributors with a good distribution channels. Moreover, the strong competition between the manufacturers, and the natural of the products, force them to quickly respond to the orders otherwise the customers will go to another supplier.

Table 5.9: Outbound Logistics.

Outbound Logistics			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
72.0%	80.0%	72.0%	68.0%

5.9 Marketing & Sales Dimension.

The overall average in this dimension is 61.40%. Mostly the pharmaceutical manufacturers depend on free sampling, face to face promotions, and discount price for marketing their products.

Table 5.10: Marketing & Sales.

Marketing & Sales			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
60.0%	65.2%	60.9%	59.1%

5.10 Service Dimension.

The overall average in this dimension is 70.00%. The pharmaceutical manufacturers provide all possible services to their customers, such as, brochures, posters to help them market their products, and guarantees.

Table 5.11: Service.

Service			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
65%	80%	70%	65%

5.11 Profit Margin Dimension.

The overall average in this dimension is 40%. Although some manufacturers have some unique products, but most of them have a lot of common products. That why they are forced to compete in prices in many cases. Which leave them with a very minor profit margin.

Table 5.12: Margin.

Service			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
40%	40%	40%	40%

5.12 Support Activities Dimension.

The overall average in this dimension is 50.0%. Usually the suppliers don't provide any services to the pharmaceuticals companies. No government support comparing to what

the importers get. Registration for new drugs needs long procedures comparing to the imported products.

Table 5.13: Support Activities.

Support Activities			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
44%	56%	48%	48%

5.13 Policy Support Dimension.

The overall average in this dimension is 40%. Israeli politics agenda to inflict the pharmaceutical industry with the Israeli industries, unfair competition in the market, the difficulty of importing raw materials. And the weak incentive that the Palestinian authority give to them .All this participated in making the score relatively low.

Table 5.14: Policy Support.

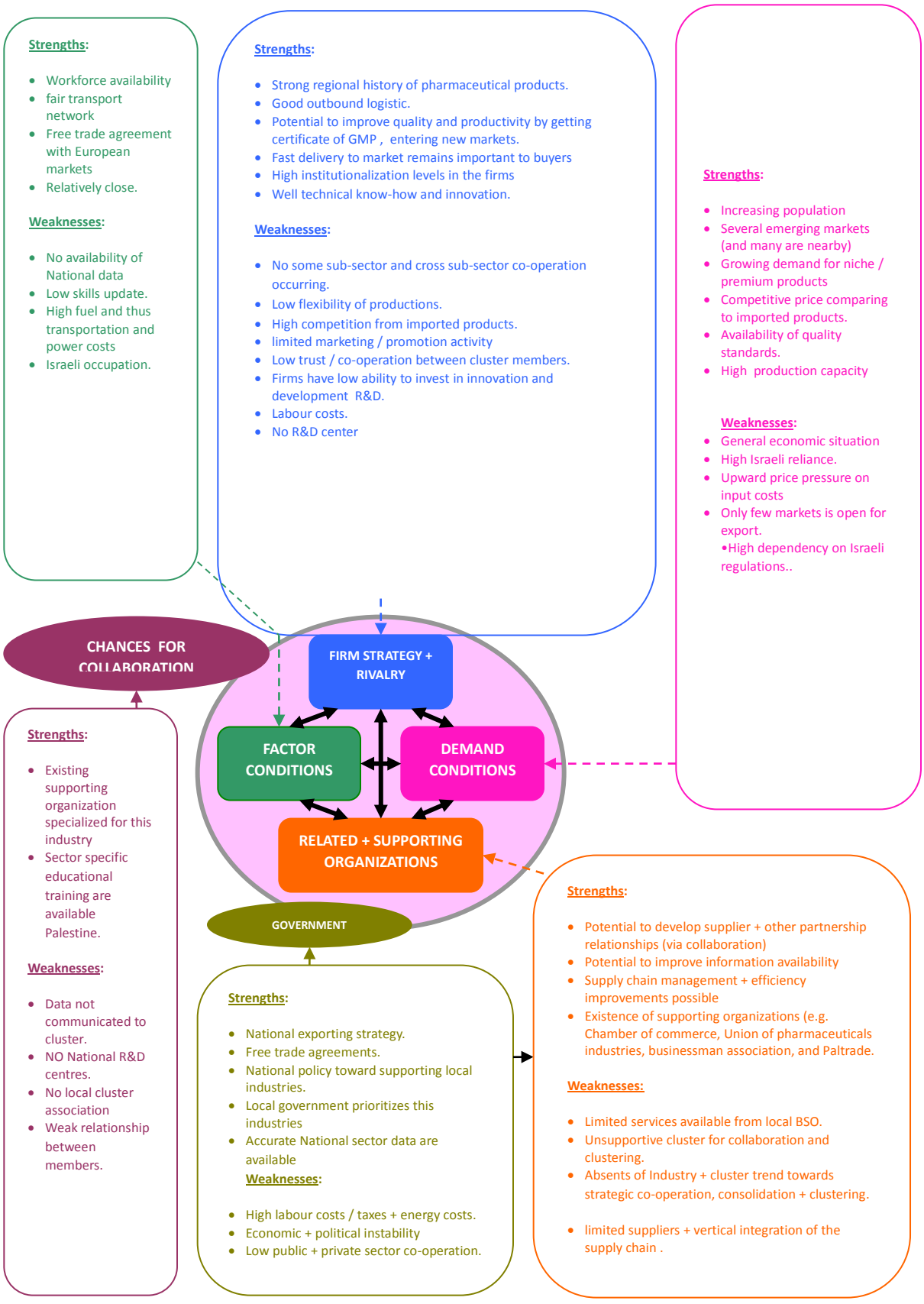
Policy Support			
Jerusalem	Birzeit	Beit Jala	Dar AL-Shifa
40%	36%	44%	40%

From the data displayed above it is clear that the main disadvantage is the low of policies support, support activities, the profit margin is low but this is due to the manufacturing of generic drugs, and not have special patents. Where this is not a weakness because the annual growth rate of total pharmaceutical market value is 7 %, while that of the generic pharmaceuticals market alone is 70 %. And the market share of the generic drugs is 50% (PNA, 2011). While the other factor which is a disadvantage is the procurement, that is because it is not easy change the suppliers, and they all are from outside and shall pass the Israeli approval to get it.

5.14 Conclusions.

Although there are slightly disparity at the companies' results. However, it was clear that they have common issue and face the same challenges. They scored relatively well in Firm Infrastructure, Inbound Logistics, Operations, Outbound Logistics, Marketing & Sales. However, they face some serious challenges in the other aspects. The following model summarizes the entire factors according to Porter diamond model to analyse the cluster competitiveness for pharmaceutical cluster.

Where this strengths, and weakness of the cluster have been summarized from the data of survey, interviews, and previous studies by the general directorate of pharmacy, (PNA, 2011).


Strengths:
Workforce availability
fair transport network
Free trade agreement with European markets
Relatively close.
Weaknesses:
No availability of National data
Low skills update.
High fuel and thus transportation and power costs
Israeli occupation.
Strengths:
Strong regional history of pharmaceutical products.
Good outbound logistic.
Potential to improve quality and productivity by getting certificate of GMP , entering new markets.
Fast delivery to market remains important to buyers
High institutionalization levels in the firms
Well technical know-how and innovation.
Weaknesses:
No some sub-sector and cross sub-sector co-operation occurring.
Low flexibility of productions.
High competition from imported products.
limited marketing / promotion activity
Low trust / co-operation between cluster members.
Firms have low ability to invest in innovation and development R&D.
Labour costs.
No R&D center
Strengths:
Increasing population
Several emerging markets (and many are nearby)
Growing demand for niche / premium products
Competitive price comparing to imported products.
Availability of quality standards.
High production capacity
Weaknesses:
General economic situation
High Israeli reliance.
Upward price pressure on input costs
Only few markets is open for export.
•High dependency on Israeli regulations..
CHANCES FOR COLLABORATION
FIRM STRATEGY + RIVALRY
FACTOR CONDITIONS
DEMAND CONDITIONS
RELATED + SUPPORTING ORGANIZATIONS
GOVERNMENT
Strengths:
Existing supporting organization specialized for this industry
Sector specific educational training are available Palestine.
Weaknesses:
Data not communicated to cluster.
NO National R&D centres.
No local cluster association
Weak relationship between members.
Strengths:
National exporting strategy.
Free trade agreements.
National policy toward supporting local industries.
Local government prioritizes this industries
Accurate National sector data are available
Weaknesses:
High labour costs / taxes + energy costs.
Economic + political instability
Low public + private sector co-operation.
Strengths:
Potential to develop supplier + other partnership relationships (via collaboration)
Potential to improve information availability
Supply chain management + efficiency improvements possible
Existence of supporting organizations (e.g. Chamber of commerce, Union of pharmaceuticals industries, businessman association, and Paltrade.
Weaknesses:
Limited services available from local BSO.
Unsupportive cluster for collaboration and clustering.
Absents of Industry + cluster trend towards strategic co-operation, consolidation + clustering.
limited suppliers + vertical integration of the supply chain .

5.15.1 Conclusion One:

According to the interviews currently the pharmaceutical companies do not apply any clustering action, except in the case of the marketing company “Care” which slightly involve some kind of clustering relationships, which is a collaborative marketing in Bella Russia, where this is actually not done by the companies or even directed by any one of them, on the contrary, this was done by the care company which aims to sell Palestinian medicines there.

5.15.2 Conclusion two:

The model that the researcher suggested in the previous chapter in the suggested cluster map shows that those companies will overcome those challenges and increase their competitiveness by forming a cluster initiative. They are a very strong potential cluster for the following factors:

- The number of companies is relatively small, with geographical proximity between them, and they have a high cultural cohesion factors.
- They have common threats and/or challenges.
- Potential for commercial development and potential of HR development.
- Potential for improving processes and products, by make every firms to have a number of products that it produce alone where this will enhance its competitiveness by minimizing time of lines setup, and focus on these products,
- Potential to optimize the supply chain. By establishing a joint supplier in the region, and a joint marketer, and a research and testing center.

- Common needs for public strategies and regulations to support the sector, such as allowing the clinical testing, and make incentives to support exports.
- Opportunities to improve the incentive framework for the activity.
- Opportunities and potential impact of local partnerships with public institutions.
- Common needs and challenging in accessing financial and non-financial services. Because the investment in this sector needs high capital to be injected for new lines. And there is no support for the long term investment in Palestine,
- Attractiveness for new external investment, especially the related industries, like packaging, transportation, etc.
- There is feasibility of a cluster initiative in term of cost reduction and improving production effectiveness. Where this is could be by joint marketing such as invest in Algeria in one company for all of the companies, instead of invest in many companies as occur with JPC, and BPC, and specialization of certain medicines types which will reduce the cost of production lines setup which consumes so much time and money to change from a medicine type to another.
- Local Public sector is encouraging private sector to work as cluster. Where there is currently a project from the French Government to support clusters in Palestine, and this project is done in collaboration with them Ministry of National Economy MONE, where they built their capitalization unit for clustering. Interview with the contact of cluster in MONE.

5.15.3 Conclusion three:

It is clear through the diagnosis carried out by the researcher that most of the local drugs are competitive in price, and in good quality however, some of the customers still don't trust the local products like the foreign products.

Although the pharmaceutical manufacturers have good number strengths, such as their continuous development, high adaptability to change, availability of skilled labour, with competitive wages good quality products, with and significant local market share.

The cluster's greatest obstacle is the absence of adequate R&D center, which is a key requirement for innovation. Nonetheless, there are opportunities for the cluster, including exports as well as increased local market share through greater participation in government tenders. Establishment of a national R&D center of the pharmaceutical cluster, use of local external common organization for recruiting, training, and developing Human resources .Divide the main products among the companies which will reduce the competition on those production line and let the individual company focus more on those products and invest in new products rather than competing on the exciting products. As well as import of raw material with bulk which will give them a better price. All in all, clustering will significantly improve the pharmaceutical companies.

5.15.4 Conclusion four

Clustering will enhance the relationship between the cluster members, and encourage them to undergo some collaborative and collective project which will enhance their competiveness. The current relation is very weak and do not promote sharing of

information, technology transfer, and co-production. However, with cluster approach those parameters will be possible, where there will be a support from the universities in R&D, testing, supplying the industry with a skilled workforce, and on the contrary the firms will supply the universities in training opportunities in the firms, and could supply some finance for the projects of the universities.

On the other hand the firms will talk as a one part, and can get more power in front of the public sector, another thing they could have a shared brand for the cluster which ease for them the export and entering new markets, and lower the operating costs,

5.16 Recommendations

Recommendation

- The researcher recommends that the pharmaceutical should work as cluster as suggested in the cluster map in the previous chapter, since it was proven by the research that it will increase the competitiveness by cost reduction, penetration of new markets, etc.
- Business Support Organizations (BSOs) that related to the pharmaceutical industry such as chamber of commerce, and union of the pharmaceutical industries should play a major role in creating and organizing a cluster initiative for the pharmaceutical industry in order in expanding this industry to reach more and more markets, and attract more investments, which will reflect positively on the Palestinian economy,
- The local government should encourage the pharmaceutical industries to work as a cluster and as a managed cluster through a set of incentive policies, such as tax incentive, building an R&D research and testing center, new regulation for the clinical testing, where this force all of the companies to work under the umbrella of the cluster, and take more collaborative projects, which would have a clear positive effect on the whole cluster.

Recommendations for future research

- More studies should be done in:
    - The effect of clustering using another clustering models other than porters one.
    - The effect of clustering on the competitiveness on other sectors which has firms smaller than the pharmaceutical firms.
    - The clustering of the high tech, and if the location have an effect on the clustering.

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Appendices

1. Survey questions
2. Interview questions

Appendix 1

Survey questions

		CLUSTER:								
		Location:								
		COMPANY:								
Outbound Logistics	7.1	Adequacy of storage facility for finished products								!!
	7.2	Adequacy of system for order processing								!!
	7.3	Adequacy of system for scheduling deliveries								!!
		Adequacy of On Time Delivery (0 often late 5 always on time)								!!
	7.4	Adequacy of delivery system								!!
Marketing + Sales	8.1	Do you receive orders form sub-contracting (High is 0 Low is 5)								!!
	8.2	Adequacy of a good spread of customers/clients								!!
	8.3	Is there a significant change in your market (5 positive 0 negative)								!!
	8.4	Is there pressure from customers to make changes (5 no 0 yes)								!!
	8.5	Adequacy of strategic partner								!!
	8.6	Adequacy of market research undertaken								!!
	8.7	Adequacy of identification of target customers and consumers								!!
	8.8	Level of selling of niche products								!!
	8.9	Geographical closeness of markets. Specify if local, regional or international (and if international, where): ……..…….... ……								!!
	8.10	Adequacy of analysis of competitors and other market players								!!
	8.11	Adequacy of monitoring changing consumer behaviour								!!
	8.12	Adequacy of the branding policy								!!
	8.13	Adequacy of catalogues, leaflets and other printed materials								!!
	8.14	Adequacy of channels used for advertising								!!
	8.15	Adequacy of trade fair attendance								!!
	8.16	Adequacy of company web site / web presence								!!
	8.17	Adequacy of knowledge of potential importing countries' standards, customs and packaging requirements								!!
	8.18	Adequacy of sales target setting								!!
	8.19	Level of company's perception of the quality of their product(s) / service(s) compared to those of competitors								!!
	8.20	Adequacy of packaging labelling and information (e.g. indicating ingredients, etc)								!!
	8.21	Level of sales to end users/consumers (as opposed to intermediate customers such as distributors, wholesalers, agents, etc)								!!
	8.22	**Is there an adequate marketing plan**								
	8.23	Adequacy and monitoring of channels of distribution								!!
Service	9.1	Adequacy of after-sales service								!!
	9.2	Adequacy of after-sales repair service								!!
	9.3	Adequacy of customer / consumer training in product / service usage								!!
	9.4	Adequacy of the spares and replacement parts service								!!
	9.5	Adequacy of product / service set up operations and / or adjustment post-sales								!!
	9.6	Adequacy of company product / service guarantee								!!
Margin	10.1	What is the company's gross margin? Specify: ……..…….. then score (1=0-20, 2=21-40, 3=41-60, 4=61-80, 5=81-100)								!!
	10.2	What is the company's net margin? Specify: ……..... then score (1=0-20, 2=21-40, 3=41-60, 4=61-80, 5=81-100)								!!
	10.3	What is the company's average added value (average sales price - cost of service inputs)? Specify: ……... then score (1=0-20, 2=21-40, 3=41-60, 4=61-80, 5=81-100)								!!
Support Activities	11.1	Adequacy of trade association support services / activities								!!
	11.2	Adequacy of government support services / activities								!!
	11.3	Adequacy of suppliers' support services / activities								!!
	11.4	Adequacy of consultants' support services / activities								!!
	11.5	Adequacy of agencies' support services / activities								!!
Policy Support	12.1	Adequacy of preferential trade agreements for the sector								!!
	12.2	Adequacy of inward investment incentives								!!
	12.3	Adequacy of tax incentives								!!
	12.4	Adequacy of the legal system to support enterprise								!!
	12.5	Adequacy of employment incentives								!!

CLUSTER:											
Location:											
COMPANY:											
PILLAR	NO.	ASSESSMENT CRITERIA	SCORE							Notes
			0	1	2	3	4	5		
		The interviewer should score the adequacy / level of each assessment criterion based on interviewee replies and / or interviewer observations on a scale of 0-4 and answer by putting an x in the relevant box	(none)	(low)	(low-medium)	(medium)	(medium-high)	(high)	ALERT	
Firm Infrastructure	1.1	Adequacy of physical infrastructure (state of buildings, access roads, electricity, etc).							!!	
	1.2	Adequacy of quality / H&S / CSR certificates							!!	
	1.3	Adequacy of ITC systems employed								
	1.4	Adequacy of trade association(s) membership							!!	
	1.5	Adequacy of strategic planning practices							!!	
	1.6	Adequacy of working capital							!!	
	1.7	Adequacy of cash flow planning practices							!!	
	1.8	Adequacy of access to banks and commercial credits							!!	
	1.9	Adequacy of knowledge of breakeven sales							!!	
	1.1	Adequacy of accounts receivable and payable situation							!!	
	1.11	Adequacy of quality management system							!!	
	1.12	Adequacy of knowledge of the cost of poor-quality products or service							!!	
	1.13	Adequacy of governance by industry standards or regulation							!!	
HR Management	2.1	Adequacy of method for recruiting the right person for the right job							!!	
	2.2	Do you have a stable labour force. (Low turnover 5 high turnover 0)							!!	
	2.3	Adequacy of appropriate and regular training provided to personnel							!!	
	2.4	Adequacy of the structured payment system							!!	
	2.5	Adequacy of the disputes or grievance procedure							!!	
	2.6	Adequacy of number of sufficiently skilled personnel needed to run the business							!!	
Technology Development	3.1	Adequate and easy access to technology							!!	
	3.2	Adequate to in house designers or peoduct development engineers							!!	
	3.3	Adequacy of understanding of intellectual property (e.g. patents, formulae, trademarks, designs, etc.)							!!	
	3.4	Level of introduction of new products or processes in the last 5 years							!!	
	3.5	Adequacy of firm level innovation (NPD, design, new process etc.)							!!	
	3.6	Level of pursuit of new systems, trends or technology to upgrade processes							!!	
	3.6	Level of tracking industry innovation and trends (e.g. attending trade fairs, internet searches, media usage, questioning suppliers / customers / consumers, contact with universities / sectoral bodies, etc)							!!	
	3.7	Level of capitalization on innovative / new technology opportunities							!!	
Procurement	4.1	Length of lead time for procurement of equipment and spares							!!	
	4.2	Length of lead time for procurement of raw materials							!!	
	4.3	Geographical closeness of raw materials suppliers (including packaging) Specify if local, regional or international: ……..							!!	
	4.4	The ease of changing suppliers (0 difficult 5 easy)							!!	
	4.5	Level of use of raw materials which are unique or not offered by many others							!!	
	4.6	Level of use of sub-contractors. Specify what they provide: ……..…….. ……..							!!	
Inbound Logistics	5.1	Adequacy of storage facilities for raw materials and finished goods							!!	
	5.2	Adequacy of an inventory control system							!!	
	5.3	Adequacy of the area for quarantined goods and returns procedure							!!	
	5.4	Adequacy of space for raw materials and materials handling							!!	
	5.5	Adequacy of the goods inwards inspection system							!!	
	5.6	Adequacy of performance on the number of days of inventory held (12 months, 6 months 3 months 6 weeks)							!!	
Operations	6.1	Adequacy of current technology. (Dilapidated, old, serviceable new)							!!	
	6.2	Adequacy of operating capacity							!!	
	6.3	Adequacy of operating efficiency							!!	
	6.4	Adequacy of production / process planning							!!	
	6.5	Adequacy of the materials requirements planning system							!!	
	6.6	Adequacy of the computerized system for handling business processes							!!	
	6.7	Adequacy of quality checks and systems							!!	
	6.8	Adequacy of appearance and housekeeping of premises							!!	
	6.9	Adequacy of flow visibility with dedicated work stations							!!	
	6.10	Adequacy of Just In Time or similar quick response system							!!	
	6.11	Adequacy of Health and Safety system							!!	

Appendix 2

Interview questions

– open questions –

O1	**Why did you establish your business in this area?:**
	History? Family? Other similar businesses in the locality? Access to raw materials? Other?
O2	**What are the specific benefits of being located where you are?**
O3	**What disadvantages do you face because of your location?**
O4	**What links do you have with other businesses in your sector?**
O5	**Do you have links to the Universities or R&D facilities in the governorate?**
O6	**What do you consider to be your main competitive advantage?**

O7	**What are your major problems and barriers to** • Increasing your competitiveness • Access more markets
O8	**If you could make three major changes to your business what would they be?**
O9	**Do you have any investment plans for the next 12 months :**
10	**How do you see your competitors in the next 5 years**
11	**Who are your main customers and markets?**
12	**Who are your main competitors?**
13	**What is the percentage of the total cost that is made up by the raw materials and components?**

14	**What do you understand about the Clustering?**
15	**What Benefits do you think that the clustering will bring for your business?**
16	**Currently, are you practicing any collaborative projects or assignments?** (For example: Collaborative Marketing, Collaborative Purchasing, Collaborative Sub-contracting, Collaborative Training, Others?)