# Evaluate Roles of Special Economic Zone Authority to Enhance Companies Supply Chain Integration

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Abstract— Companies around the world are getting more and more aware of the importance of implementing supply chain strategies, which happens to put companies into the map of the world. In order to respond effectively and efficiently to customer needs, companies have to select their supply chain strategies wisely. One of the key supply chain strategies is the decision concerned with selecting sites and locations of facilities in which their operations are held. In many countries, Special Economic Zones (SEZs) were founded to host the operations of those facilities. SEZs have to attract companies by improving themselves to meet companies' criteria. The study explores strategies that the Special Economic Zone Authority (SEZA) implemented for the current companies to successfully sustain their position in the global market. Internal and external integration for these companies are the main focused criterion. A model to evaluate the opportunity for the internal and the external integrations in a SEZ is the main contribution of this paper, this model can be used by companies as one criterion of its criteria to select where it can locate its branched. As well, this model will promote SEZA to attract new investors and companies to land their operations within its premises. Generally, the role of the SEZs to support the supply chain integration system. The model is tested on the Aqaba Special Economic Zone Authority (ASEZA), the opportunities to improve ASEZA capabilities to enhance the supply chain integration are identified as a result of implementing this model.

**Keywords**— Special Economic Zone; Supply Chain strategies; Global Supply Chain; External Integration; Internal Integration.

## 1. Introduction

Important of the Special Economic Zones (SEZs) and its roles in developing the economy of countries are explained by Hoekman in his book "Trade policy developments in the Middle East and

North Africa" [1]. He explained the gap between Middle East SEZs and other SEZs in developed counties. Despite this book was written in 2000, but still, the gap is there, this is appearing by analysing the Foreign Direct Investment (FDI) which is reported in World Investment Report 2018 [2]. The second motivation of this study is the number of SEZs, these days there are over 4,500 SEZs worldwide[3], so the competition between these zones becomes increasingly fierce. The third motivation is the new behaviour of companies where companies these days are transiting from pure export processing zones to value-added zones continues[2]. Final motivation and the most important one for this study is the Supply Chain (SC) excellence evaluation, where integration or sharing information is one of the main criteria which is used to evaluate the excellency level, SEZs' role is very important to support the integration [4, 5, 6].

Aqaba Special Economic Zone (ASEZ) is a global centre, with three continents converging and forming a global hub for investors. The zone lies on the Aqaba Gulf, which flows into the Red Sea. It forms a strategic logistics provider for domestic and global markets, maximizing business and opportunities in all sectors, plays a leading role at the administrative and governmental level in Jordan and applies the principle of good governance based on transparency and effectiveness in the decisionmaking process. The Authority is an independent institution that deals with the development and management of the ASEZ and provides integrated services to investors and registered companies. The Vision of ASEZA is to become a leading institution to enabling the ASEZ to become an investment, tourism and global tourist destination on the Red Sea [7].

This study investigates and hopefully measures the degree of how much the SEZs become an investment destination through its support to the supply chain integration. Our assumptions to achieve this objective, a leading free zone institution shall: 1. Have successful management of Global Supply Chain operations, 2. Have sustainability of its operations, 3. Have suitable tools for improving coordination and collaboration within its supply chain companies, 4. Have the ability to evaluate internal Integration inside companies that are located in the SEZ, 5. Have the ability to evaluating Viability of transferring Organizational Operations to the SEZ.

The basic question in this study is to investigate the degree to which Authority achieves its vision of making the SEZ a global place for investment. The investigation is based on the following dimensions: 1. A Global Supply chain is the chain when the relation between institutions has reached the highest level of coordination and collaboration. External Integration is another name for this relation [8]. Any global Free Zone shall enhance external integration. 2. The global supply chain is the chain when the institution systems operate as an integrated system or have Internal Integration [8]. Any global Free Zone shall enhance internal integration. 3. Logistic operations shall be supported by the free zone management to make sure the sustainability of the supply chain and to encourage other companies to move investments to the free zone.

The problem and objectives of this study aroused due to the number of global companies in Aqaba Free Zone (AFZ) and the decrease in received shipments by more than 10% during 2018 [7]. A thorough evaluation of the role of SEZA will certainly point out to chances for improvement in global SCoperations, maintain sustainability of the operations, improve and adopt the technological tools for improving coordination and the collaboration for its SC companies, enhance the Internal Integration of companies, and enhance the viability of transferring organizational operations.

There are many criteria are used to evaluate the SEZ[9], these study focuses only on the capability of the SEZ to support the internal integration and the external integration for the company who are looking for value-added SEZ. A model is

developed in this study. This model can be used by companies as one criterion of the criteria which are used to select the SEZ, furthermore, it can be used by the SEZs' authorities to find opportunities for improvement and opportunities to be more value-added Zone.

#### 2. Literature Review

Areas where freights are inbound, stored, processed assembled, produced and re-exported companies deriving several advantages are called Free Trade Zones (FTZ) which is a class of SEZ [10]. FTZs are designed to improve export and allow production and business to attract overseas investments and adoptive high-tech and economic growth [11]. FTZs play an important task in connection SCs by operative as logistics hubs, marketing and technology development. Moreover, the advantage of a well-organized free zone is to help the Supply Chain (SC) to minimize inventories and costs. This is accomplished through information visibility and effective control for the demand of inventories [12]. Advancements in ecommerce along with the extension of trade path joints has amplified FTZ growth [13, 14].

Jordan government had planned to rise the logistics services performed at ASEZ by forming an environment that simplifies logistic services and presents competitive logistics and supply services. In 2000, Jordan's Parliament established the ASEZA [7]. Several free zones now goal to become local and global centre ports, to accomplish a developed market share which inspires competition [12]. SC management performance plays a dynamic role in the growth of the economy [15]. Thus, companies apply international strategies whereby their goods which are intended for international markets are shaped where costeffective mechanisms can be located [16]. Modern SC empowers global companies to produce products overseas with a market in other places. This leads to amplify the demand for the free zone to benefit from its competitive advantages to optimize productivity utilizing manufacture offshore [17, 18, 19, 20, 21]. The free zone plays a vital role in the success of global companies and FTZ infrastructure is significant in the integrating of SC[22, 23]. The benefits which accomplished from adequate infrastructure improve the network of SC and enhance the integration and coordination of SC. Organizations look to be

located around logistics centres to guarantee quick and reliable distribution of their products to the end user. Furthermore, a country's stage of increase is consistently tied to the size of its FTZ [24].

Tompkins [25] explained that there are six levels of supply chain excellence: business as usual, link excellence, visibility, collaboration, synthesis, and velocity. Moving from level to the next one is depending on sharing and managing information through the supply chain. Internal and external integrations are one of the main tools for sharing and managing information. Upgrading the supply chain excellence level means improving supply chain integration. This is why evaluating integration is the objective of this study[26, 27].

#### 3. Model and Discussion

Qualitative methods were used in this research, Document Analysis as a Qualitative Research Method was mainly used, and in addition to that interviews with field experts were used [28, 29], this methodology was selected because most of the companies will use the publicly available data when they are looking to select the SEZ. The answer to our research questions is concluded by generating new questions related to the five assumptions for the leading free zone, then comparing the findings with the answers to these questions from the official website of our case study. The model of this paper has three parts as shown in Figure 1. The first part is for the requirements for integration. There are two main requirements: the first requirement is the capability of FTZ to manage a global Supply chain operation, and the second requirement is the Sustainability of the FTZ. These two requirements should be available before any integration. The second part is the internal and the external integration [30, 31, 32]; this part is related to how FTZ supports the integration inside the company and the integration between the supply chain institutions; for the external integration, the highest levels for the external integration is adopted which are the Collaboration and Cooperation between companies [8]. The final part is to measure the attractiveness of the FTZ.

The model of this study has five criteria (as mentioned earlier in the Introduction section of this article) and explained hereafter:

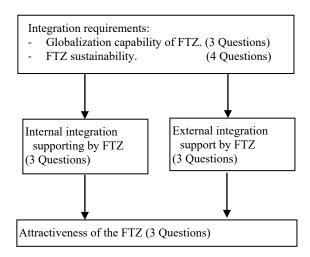


Figure 1. The model Parts

The institution shall have successful Management of Global SC Operations: Many companies move away from vertical integration to third-party logistics providers. These providers are also called Logistics Service Providers (LSPs) [33]. LSPs provide services like Transportation, Warehousing, Pick and pack, Light manufacturing, Vendor managed inventory, Customs clearance, Trade financing, Managing reverse logistics, Parts distribution, and Inventory management [8]. Agaba Free Zone (AFZ) is hosting to more than 3800 companies [34, 35, 36]. Therefore, SEZ's Authority must have measures to guarantee meeting global requirements. It is of vital importance to adopt a strategy for ensuring the successful management of global SC operations at SEZ. Global SC operations management reflects the capability to store and transport goods throughout commercial networks. Furthermore, Global SC operations strategy focuses on global marketing and other related functions. As a conclusion, to gather data on SEZA's management of operations, the focus will be on the following points which evaluate the capability of SEZ's Authority to enhance the global operations for the companies which are operating in Aqaba: (a) One of SEZA's responsibilities is to ensure that companies in free zone align themselves to the requirements of global market needs. (b) SEZA has to develop policies in which companies must report their understanding of global commerce practices before the permeation to operate in the free trade zone. (c) SEZA shall play a role in mixing companies from different conditions, languages, and cultures.

b. SEZA has to manage the operational Sustainability: Sustainability is the case when

companies manage their resources maintainable way. Furthermore, an effective supply chain can enhance the sustainable competitive advantage for SEZ [37]. SEZ should play host to hundreds of companies in different sectors of the world. The following points are prepared to evaluate SEZ's sustainability: (a) SEZA shall present its contribution to ensure that companies working in the FTZ have planned their SC sustainability strategies. (b) Managers of SEZA have to transfer their expectations to FTZ's companies. (c) SEZA shall inspire collaboration among companies in similar segments. (d) SEZA shall have a plan to develop the local society in a way providing the free zone with the requested workforce.

- c. Enhance the Collaboration and Cooperation between companies: SEZA shall offer customized services that are planned to achieve specific B2B partners' needs. Technology offerings an effective system for applying global SCM aims that have been set out by the workforce employed at SEZ [38]. Many companies are planning to change their market negotiations, from price-based to coordination and collaboration relations relations. Collaboration means the supply chain integration, joint planning between companies, and technology sharing [8]. To evaluate technological tools used to confirm Collaboration and Cooperation in FTZ, the following points will be investigated: (a) SEZA shall use proper technological tools that promote Collaboration and Cooperation [8]. (b) SEZA shall ensure that there is a good level of collaboration and cooperation among companies in FTZ. (c) SEZA shall be able to measure how commerce is affected by technology.
- d. Enhance the Internal Integration or ERP of Organizations located in FTZ: FTZ is expected to be a house for many companies that hold its integration system. The degree of integration between organizational departments determines the level of collaboration showed among companies [31, 39, 40]. Companies in SEZ must establish internal integration to increase the growth of SC. To evaluate the degree of internal integration, the following points will be investigated: (a) SEZA shall help companies resolve issues that prevent them from integrating their system. (b) SEZA has to understand the impact of integrated systems on

quality. (c) SEZA shall enhance the proper integration between companies' functional areas.

e. Enhance the Viability of transferring logistic activities to SEZ: Companies working in the FTZ are tax-granted and enjoy infrastructural incentives. Many companies have transferred their operations to FTZ due to motivations and ease of doing business in the FTZ [41]. To explore the feasibility of transferring logistic activities to Aqaba free zone, the following points will be investigated: (a) SEZA shall have a proper environment for companies to improve their SC. (b) SEZA shall offer incentives to companies FTZ. (c) SEZA shall enhance the diversity approach among different companies established in the FTZ.

## 4. Analysis and Results

The model of this study was based on five criteria, mentioned earlier in the Introduction section and explained in the Methodology section of this study). Those criteria are thoroughly analysed, and the following findings and results are classified accordingly:

a. The institution shall have successful Management of Global Supply Chain Operations: After reviewing ASEZA's annual reports and strategic plan, collected data showed that there opportunity by improving the policies to be more clear policies for companies within the FTZ to develop their products to meet customer requirements. Companies positioned at FTZ made decisions about generating new varieties of products, to improve global sales and revenues. ASEZA provides more than 70 services to support the globalization of the companies which are in the free zone, more than 60 services are operational services providing like residence permit. The rest of them are logistic services provided to the companies [7]. Aqaba Transport and Logistics Services Company (ATLS), The Ben-Hayyan Laboratory and Aqaba Logistics Village (ALV) are examples of enhancements in the Global Supply Chain Operations [34, 35, 36]. Unfortunately, there is no evidence that any one of the top global thirdparty logistics providers (3PLs) are working in the Aqaba free zone [42], this is opportunity to make an online list of the companies which are located in the FTZ, and to communicate with the top 3PLs and invites them to invest in the FTZ, because these top 3PLs will encourage other companies to move

the business to the FTZ. Furthermore, there is an opportunity to have Fourth-Party Logistics (4PLs) because there is no 4PLs found working there, as well. Finally, the total number of shipments has dropped around 10% from 2009 until the time of this study [34, 35, 36]. Experts' opinions have shown that companies in FTZ rely on the local market and some near markets only. Companies in Aqaba free zone have to understand global commercial operations and working with a diversity of cultures and languages should be one of the authority's promising strategies.

- **SEZA** has to manage operational Sustainability: To enhance operations' sustainability, authority managers must effectively transfer expectations to companies located in FTZ. ASEZA provides 13 services to Aqaba local community, two of these services have a direct impact on the sustainability of ASEZA's operations. It is recommended as an opportunity to have public statistical data on how many services provided [7]. ASEZA plays an active role in enhancing the sustainability of companies operating in FTZ. Communication between ASEZA managers and companies listed in the free zone is conducted through many meetings and conferences [7]. ASEZA coordinators tried to encourage global companies to operate in the free zone, it is recommended to improve these activities to a significant result. Experts' opinions show that Authority has to extend their effort to increase the FTZ sustainability, to extend their effort to narrow the gap between Authority and investors in the free zone, segmentation will help Authority to achieve their strategies, and Authority has to increase their effort to improve the local community.
- Enhance Collaboration and Cooperation c. for companies: Authority upgraded the internal communications system used at the Logistics and Warehouses Directorate into IP Technology and connected the Authority Land Directorate with the Amman Land and Survey Directorate to ensure integration between both systems by using Microwave Technology, and the Information Systems Directorate is also developed [34, 35, 36]. Computerized shipping and tracking technologies as some of the most widely used technological tools by companies. Unfortunately, there are no significant results found to enhance Collaboration and Cooperation for companies. Experts' opinions have revealed that a systematic

work shall be done by Authority to encourage the external integration of the free zone companies, the level of external integration is not measured before, it is recommended to have key performance indicator to measure the external integration, and Authority shall invest more in integration technology.

- d. Enhance the Internal Integration or ERP of Organizations located in FTZ: Process integration among companies located in FTZ is important because it contributes to quick business development, which leads to increase the market share and revenue. Process integration arises after a company adjusted its structure [30]. Data found during the study has given more evidence of factors affecting a company to integrate its processes. Some of the subjects cited included customer satisfaction and service top management commitment to enhancing communication. It is recommended as an opportunity to invest more, consequently, a significant result will be found for the enhancement of internal integration for companies. Experts' opinions have shown that there are some companies in the free zone having an Enterprise Resource Planning system (ERP), it is recommended to proclaim about these companies which have an ERP system.
- Enhance the Viability of transferring e. logistic activities to SEZ: companies are expected to have FTZ that have a trade diversity, and to be a favourable location to many global companies. FTZ becomes a global FTZ if it provides a quality product, increases the organization's SC, and minimize operational costs, among other factors [42]. After reviewing Authority annual reports and the strategic plan. SEZ presented a stable location for steering commercial activities, among global companies. Many conferences and meetings are holds, and many policies and producers are developed, unfortunately; these efforts do not have a clear effect on the number of international and local companies located in Aqaba free zone. Most of the experts compared between the free zones in Aqaba and Dubai, they explained that both of them were established on the same period, but there is a difference between their achieves, analysis studies can help the authority to understand how to become a leading global FTZ.

This result can transfer to a qualitative data for the companies by scale the model questions, then give

a wight for each question based on their judgment, or a weighted matrix can be utilized to get a number to represent the model as a criterion of their criteria, finally comparing between FTZs to one which one is the best.

#### 5. Conclusions

The competition between FTZs today is not just based cost of housing companies, many factors are affecting the companies' decisions to select an FTZ host their branch or their logistic providers. This paper explained the integration of the system as a criterion to select the FTZ, and how the authority of the FTZ shall enhance the internal integration and the external integration.

During the past 18 years, the Authority's vision is still in the way to become a global free zone host for global companies. Most of the inbound goods to the free zone are for local use, and it is not intended for re-export. Supply chain operations and services should be enhanced by the authority to encourage the companies opening branches in SEZ. Supply chain sustainability should be one of the objectives of the authority. Internal and external integrations have not been reached and are not pinned to be one of the Authority strategies. Integration infrastructure and investment environment are requested for SEZ to be adequate and encouraging the global companies to transfer its logistic activities to SEZ. Proper communication for FTZ is requested to conduct to encourage companies to decide to place their investment into FTZ. Understanding of markets is the main feature that would inspire a company's decision to move operations to FTZ. Most of the indicators reflected that diversity should be considered. Most of services, reports, and activities are developed by using Arabic languages. The approach does not encourage commerce in the region. Conferences and meetings are not enough to attract the global companies, strategies shall be developed and implemented to achieve Authority incentives system and diversity shall be parts of these strategies.

Companies can adopt this model and add it to their criteria when they are selecting an FTZ for their business. Investment in an FTZ is a strategic decision, this strategic decision shall support companies' supply chain excellence level and upgrade it, where the integration environment and

support provided by the authority of the SEZ is a core point for supporting the company's excellence level

SEZA can adopt this model as one of their clients' requirement, then it is becoming an objective of their plan to achieve their vision.

This study is a first step in investigating the gap between any SEZ's vision to become a leading FTZ and the actual position it is standing on. SEZ is highly urged to review its strategies and practices in order to achieve its promising and yet challenging vision. Further and suggested work can be made by stratification of the preliminary obtained results and obtaining detailed perceptions of existing companies and expected new ones who are looking for a solution for their supply chain operations.

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