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Success Links Between Public and Private Sector Partners in Transportation in Libya

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Abstract
This study aims to analyze the determinants for developing the transport sector on Libya, Based on the literature discussed, the four factors considered as the important elements influence the Developing of transport sector that need to be investigated. The research question lies in whether each of those factors has a simultaneous and partial effect on the developing of transport sector on Libya. Using the quantitative method, the population of this study was 360 respondents. The primary data gathered in the form of questionnaires with a Likert typed-scale were then analyzed using the multiple regression method, The findings reveal that the value of the determination coefficient test is 60.6 percent, indicating that the developing the transport sector is explained by infrastructure and informatics, experience of human resources and decision-makers factors, while the remaining 39.4 percent are linked with other factors, Moreover, the F test shows that the partnership infrastructure and Informatics (X1), the partnership experience of human resources (X3) and the partnership decision-makers variables (X4) simultaneously influence developing the transport sector, whereas the partnership rules and regulations variable (X2) has not significant with developing the transport sector.
Keywords: Infrastructure and Informatics Rules and Regulations, Experience of human resources and Decision-makers, Developing the transport sector

1. Introduction

Man, as a social animal, is always on the move to fulfill personal and societal obligations. Each one of his movements outside domestic environs results in a trip that is no longer his exclusive prerogative. The domain of transportation planner starts right at the doorstep of every single individual. The individual trips, when aggregated, complicate the planning of the transportation needs of a town or a region. The complexities multiply when resources made available are scant – more often in underdeveloped and developing countries. Transportation problems of developing countries differ from that of developed nations, whose networks and infrastructure facilities were developed over the years with their own resources. Limited resources and economic constraints of the governments whose priorities are often pronounced towards providing basic amenities in social sector than improving communications – especially in Africa - often hamper the growth of transportation systems in the third world countries.

One of the fundamental principles of provision of transportation facilities is to create a living city and region - on a human scale – that is accessible to everyone and providing a good quality of life through basic amenities to its citizens. This vision is shared by developed and developing nations. Although transport's potential to meet travel demand needs dynamic progression for effective implementation, it is evident that such progression has its price, A number of transport technologies implied high-energy consumption and required substantial capital inputs in production and operation. As a result, travel became expensive to ordinary road users. This has created imbalances across the population groups whose affordability of meeting transportation cost requirements varied across the spectrum. It often hindered the trip making abilities and resulted in reduced number of motorized trips. One of the key elements of development strategies is to achieve sustained economic growth by encouraging the private sector to increase and improve transport investment and operations, with an aim to provide an appropriate and affordable standard of accessibility to locations of importance of daily life. It is essential that developing countries draw from the experiences of developed nations in encouraging public private participation in transport sector to facilitate optimization of resources available to the governments towards development.

1.1 The Transport Sector in Libya.

Libya has had no railway in operation since 1965, all previous narrow gauge lines having been dismantled. Plans for a new network have been under development for some time (earthworks were begun between Sirte and Ras Ajdir, Tunisia border, in 2001-5), [1] and in 2008 and 2009 various contracts were placed and construction work started on a 1,435 mm (4 ft 8 1⁄2 in) standard gauge railway parallel to the coast from the Tunisian border at Ras Ajdir to Tripoli, and on to Misrata, Sirte, Benghazi and Bayda. Another railway line will run inland from Misrata to Sabha at the centre of a mineral-rich area.[2]

There are about 83,200 km of roads in Libya, 47,590 km of which are surfaced. 234 out of 1000 Libyans have

[1] *"Earthworks 60% complete on first section of Libyan network". Railway Gazette International. 2001-01-01.*
[2] Jump up^ *"Work starts on Libyan railway". Railway Gazette International. 2008-09-01. Retrieved* 2009-01-24.

cars, which is the highest rate in Africa. The best roads run along the coast between Tripoli and Tunis in Tunisia; also between Benghazi and Tobruk, connecting with Alexandria in Egypt. A fairly efficient bus service operates along these routes, with two main bus transport companies. One covers long-distance, international routes, while the other is chiefly engaged in shorter trips between towns. Bus fares are low and the standard of comfort, particularly on international routes are good, with air-conditioned vehicles and good service.Taxis are available in the larger towns, and are usually hired on a shared basis, although individual hire can be negotiated. Driving skills of taxi drivers are extremely variable. Taxis may have meters, but these are rarely in use. Car hire for self-drive is not recommended in Libya, although it is possible to hire a vehicle from agents in larger hotels. Vehicles are often old and poorly maintained, however, and are unequal to long-distance driving. Driving itself can be hazardous and there is a high rate of road accidents. Figure 1 shows the Public Transport in Libya.

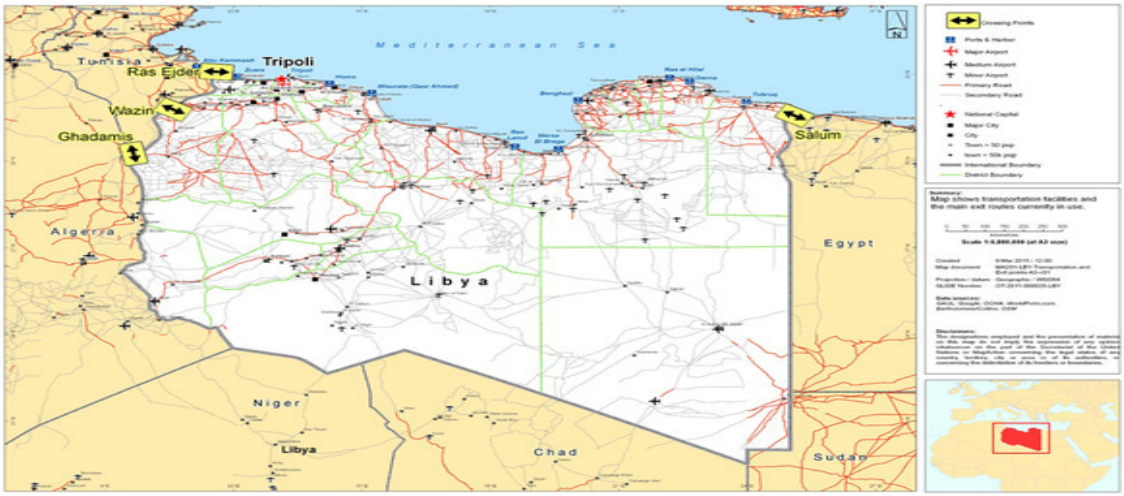

Figure 1: The map of transport sector in Libya

2. Theoretical Background and Hypotheses

Public Private Partnerships (PPPs) have been adopted world wide as an alternative form of public infrastructure delivery. In a typical PPP setup, the private sector partner is invited to bring his capital and technical capabilities to accomplish specific public sector infrastructure project in association with related public sector agencies. Consequently, the public and private partners share the project risks and benefits. The benefits for the private sector partner are usually in the form of toll collection from users of facilities developed via PPP framework or in the form of payments directly from the government or public sector client. The benefits for public sector partners are achieved in the form of developing public infrastructure facilities and gaining extended value for money (VFM) in comparison to the conventional procurement systems commonly adopted by the public sector agencies for procuring public infrastructure. Public Private Partnerships (PPPs) models are becoming a vital toll for governments around the world, especially in developing countries, to enhance, develop and manage urban and national transportation networks.

The World Bank's database for Private Participation in Infrastructure (PPI) indicates total US$273,596 million of investments in transportations sector in developing nations since 1990. The figure of US$273,596 million indicates total investment commitments made in last three decades, excluding cancelled and distressed transportation PPP projects. Figure 2 shows the regional distribution of total investments, excluding cancelled and distressed transportation PPP projects, reflected by PPI database.

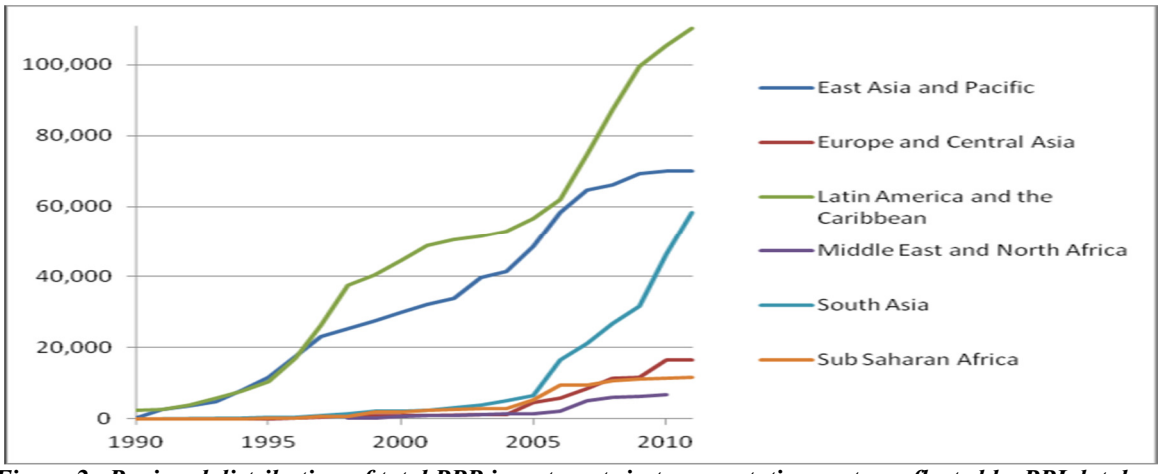

Figure 2. Regional distribution of total PPP investments in transportation sector reflected by PPI database

The proven success and VFM delivered by the PPPs in last three decades have attracted many researchers to workout code of conduct for private business in public infrastructure. In pursuit of successful implementation of PPPs, numerous fundamental researches have been published; among them most highlighted success factor research publications are as follows;

Tiong [1996] identified six critical success factors (CSFs) in winning BOT contracts: (1) entrepreneurship and leadership, (2) right project identification, (3) strength of the consortium, (4) technical solution advantage, (5) financial package differentiation, and (6) differentiation in guarantees. This approach of identification of potential success factors was succeeded by Zhang [2] by broadening the scope to other forms of PPPs. Zhang [2005] identified five CSFs, with sets of sub success factors, for infrastructure development PPPs; and those CSFs were (1) favorable investment environment, (2) economic viability (3) reliable concessionaire with strong technical strength (4) sound financial package and (5) appropriate risk allocation via reliable contractual arrangements. Li et al [2005] identified CSFs for PFI projects in United Kingdom. Besides the CSFs approach, massive research had been conducted on other issues associated with PPPs. Such issues included concessionaire selection, stakeholder management, risk allocation and management, concession contract design, conflict resolution etc.

Despite the exploration of vast variety of success factors for implementing PPPs, past experiences with transportation PPPs have shown numerous problems and failures that caused losses to both public and private partners. Even developed economies like USA, UK and Canada have bitter history of transportation PPP failures. The World Bank's PPI database reflects worth US$93,740 million of failure transportation PPP projects since 1990; and this figure does not contains failure projects in developed nations and the projects which were completed but did not yield any VFM to the public. Existence of such massive failures motivated authors to investigate failure scenarios in transportation PPPs and to explore the hidden relationships among different PPP project partners causing partnership failures and loosing VFM. Following the investigation of failure projects, this paper discusses success links between Public and Private Sector Partners in Transportation, i.e. the two main ingredients of a PPP model of project delivery.

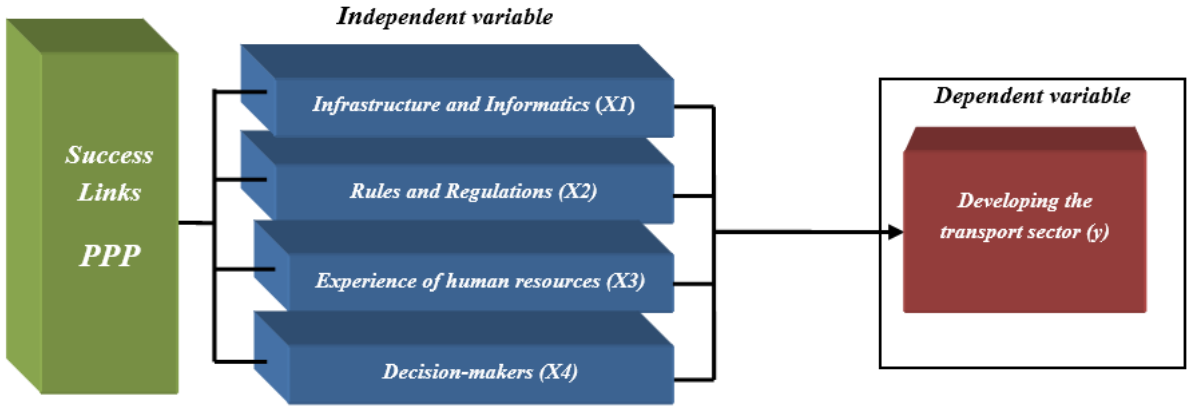

Figure 3. Conceptual Framework

The development of hypotheses is based on the discussion of theories, thus the hypotheses are:

Hypothesis 1: *There is a significant relationship between the Partnership Infrastructure and Informatics and developing the transport sector.*

Hypothesis 2: *There is a significant relationship between the Partnership Rules and Regulations and developing*

the transport sector.

Hypothesis 3: *There is a significant relationship between the Partnership Experiences of human resources and developing the transport sector.*

Hypothesis4: *There is a significant relationship between the Partnership Decision-makers and developing the transport sector.*

3. Research Methodology

3.1 Sampling Design and Data Collection

The present study used a quantitative research design, specifically the descriptive survey design. This is because such design accurately and objectively describes the characteristics of a situation or phenomenon being investigated in a given study. It provides a description of the variables in a particular situation and, sometimes, the relationship among these variables rather than focusing on the cause-and-effect relationships [Johnson & Christensen, 2012:366]. Thus, this study used a questionnaire which was developed from previous research in order to measure the relationships among the investigated variables. As an approach to the easy collection of data, the survey used in this study encompasses five main Variables: Infrastructure and Informatics Rules and Regulations, Experience of human resources, Decision-makers**,** and developing the transport sector. These Variables were adopted from the literature review of previous related research from these studies (Steve Howard, Public-Private Partnership 2007. Sadieg 2014. Department of finance, Dubai, 2010. United States General Accounting office, 1999)

Thus, the entire survey used in this study comprises 36 items which had to be responded to by the respondents using a five- point's Likert scale: 1= strongly disagree to 5 = strongly agree. Before distributing the survey to the participants, it was translated into Arabic because the participants cannot read in English. The questionnaire was distributed to Employees in the transport sector of Libya. Total of (450) questionnaires were distributed. (390) questionnaires were returned, of which (360) were valid, which represents 80.4% response rate. The data was collected over a period from 4 September2016 to 2 March 2017.

4. Validity and Reliability Test

The validity test is determined through an accurate measurement process, while, the reliability test is referred as a tool used to measure the items in a questionnaire which act as the indicators of the variables or constructs. Nunually (1978) has suggested that the Cronbach alpha coefficient of a scale should be above 0.7. Based on the data collected from 15 respondents (PhD, student in Malaysia Universities), all the independent variables with a total of twenty six questions contained under four variables, namely; Infrastructure and Informatics Rules and Regulations, Experience of human resources and Decision-makers as indicated in the Corrected Item-Total Correlation (r) column, are all larger than the r table, thus are declared as valid questions.

On the other hand, the dependent variables of Y with ten questions indicated in the Corrected Item-Total Correlation (r) column are all larger than the r table, where r table is 0.4044, thus those questions are similarly declared as valid questions. For the result of the reliability test, it is found that the variable of Y against the ten questions, a Cronbach's Alpha of 0.946 is obtained, thus all questions related to Y are reliable. For the variable X1, the Cronbach's Alpha obtained is 0.923, thus all the six questions are reliable. Next, the result for X2 has found a Cronbach's Alpha of 0.887, thus the seven questions are reliable. For the variable of X3, the test has come to a Cronbach's Alpha of 0.912, thus the seven questions are reliable, and the fourth variable X4 the test has come to a Cronbach's Alpha of 0.912 thus the six questions are reliable.

5. Findings and Discussion.

5.1. Multiple Regression Analysis

As depicted in Table 1, based on the multiple regression tests, the expected model is

$$\boldsymbol{Y} = f(\beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4)$$

$$\textbf{\textit{Developing the transport sector}} = [0.167] + [0.289X1] + [0.080X2] + [0.312X3] + [0.232X4] + \boldsymbol{\varepsilon}$$

This test highlights that the value of determinant coefficient which is 60.6% employees' performance at the transport sector in Libya can be explained by the variables of Infrastructure and Informatics**,** Rules and Regulations, Experience of human resources and Decision-makers, while the remaining of 39.4% are describable by other factors. The T-test has shown that Rules and Regulations (X2) variable simultaneously influence Developing the transport sector.

Table 1: Coefficient Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.781[a]	0.610	0.606	0.71610

***a. Predictors**: (**Constant**), Infrastructure and Informatics Rules and Regulations, Experience of human resources and Decision-makers, b. **Dependent Variable**: Developing the transport sector*

As the T test shows (Table 2) that Rules and Regulations (X2) variable has no partial effect on the Developing the transport sector, Infrastructure and Informatics(X1), Experience of human resources(X3), and Decision-makers(X4) have partial effect on Developing the transport sector. From these equations, it can be concluded that if the Rules and Regulations (X2) variable is ignored, then the Developing the transport sector has a T-test value of 1.592. If there is an additional Sig -test value was (0.112) and above (0.05), that's means no significant relationship between the Partnership Rules and Regulations and developing the transport sector, then it is followed with the improvement in Developing with a value of 0.833 *(β1X1 [0.289] + β3X3 [0.312] + β4X4 [0 .232])*.

Table 2: Multiple Regressions

Model		Unstandardized Coefficients		Standardized Coefficients	T-test value	Sig - test value	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.167	.139	-	1.203	.230	-	-
	Infrastructure and Informatics	.289	.051	.289	5.689	.000	.425	2.351
	Rules and Regulations	.080	.050	.077	1.592	.112	.472	2.120
	Experience of human resources	.312	.048	.322	6.530	.000	.452	2.211
	Decision-makers	.232	.043	.231	5.408	.000	.604	1.656

a. Dependent Variable: *Developing the transport sector*

5.2. The Significance of the Model

Normality Test. Ghozali [2006] states that the normality can be seen on the data distribution when the curve does not pass through either the left or the right. As depicted in Figure (4), it shows that the data output is normally distributed.

Dependent Variable: Developing the transport sector

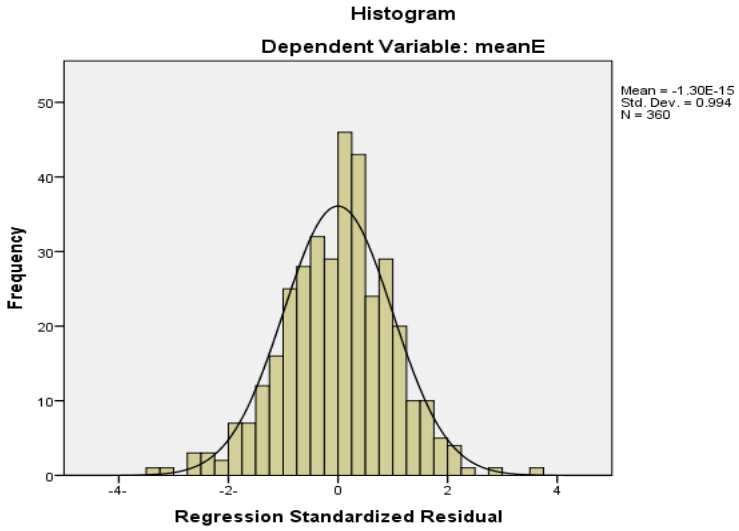

Figure 4: Histogram

5.3. Heteroskedastisity Test.

This test can be done by looking at the scatter plot graphs presented in Figure (5), below. It shows that the dots spread

randomly do not form any specific pattern which is clearly well dispersed above and below zero on the Y axis, and this means that the heteroscedasticity in the regression models is not incurred.

Dependent Variable*: *Developing the transport sector

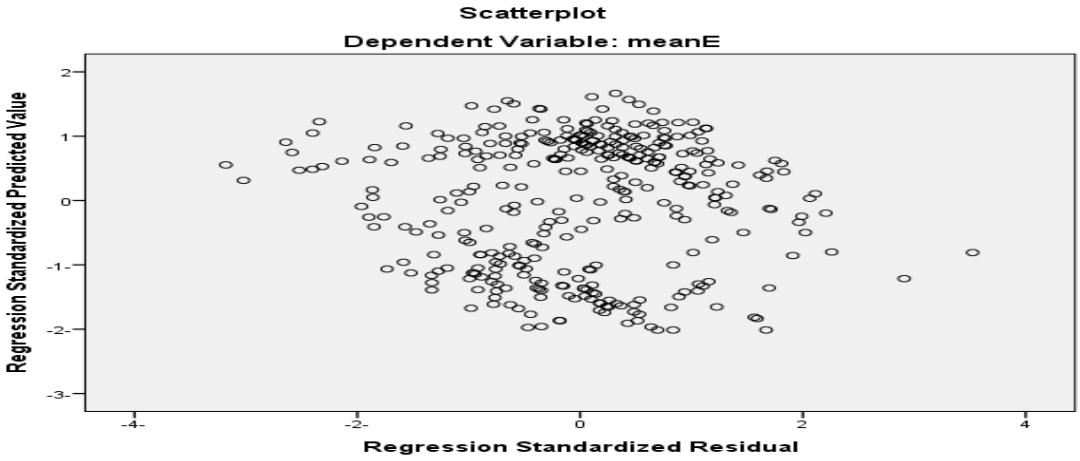

Figure 5: Scatter plot

6. Discussion and Conclusion

This study concludes that the variables of Infrastructure and Informatics, Experience of human resources and Decision-makers do simultaneously affect the Developing the transport sector, It also states that the partial test shows that Rules and Regulations respectively do not partially affect the Developing the transport sector, while the Infrastructure and Informatics, Experience of human resources and Decision-makers variables has partial effect on Developing the transport sector. Although these findings may not be generalized to other places or institutions, the respondents in this study may have similar perceptions with the employees who work at other generalized institutions particularly in Libya. Thus, it does offer some recommendations to stakeholders and policy makers; (i) the transport sector would see other factors that may influence it's developing that can potentially occur ; (ii) both generalized and others need to enhance the Infrastructure and Informatics, Experience of human resources and Decision-makers ability that has a significant impact to the developing ; lastly (iii) the government of Libya suggests creating policies to monitor and assess the performance of institutions and help supporting programmers to encourage and boost Developing the transport sector.

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