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E-government implementation's impact on Saudi vision 2030 to become an international logistic center

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ABSTRACT

This study examined the influence of electronic government (e-government) implementation for the Ministry of Transport on fulfilling Saudi vision 2030 by transforming the Kingdom of Saudi Arabia (KSA) into a logistics center linking three continents. Saudi vision 2030 aims to cut transportation costs by improving infrastructure, shorten importing and exporting times by streamlining and automating operations, and increase supply chain transparency through sector reform. Implementing e-government would improve government services and engagement through information and communication technology (ICT). This article focuses on four primary areas: i) making KSA a logistics center; ii) increasing the chance of living throughout the Kingdom; and iii) promoting long-term financial sustainability. The study is founded on the idea that logistics is a crucial component for competitive advantage and transportation (by land, sea, or air) is a logistical sub-process for Saudi enterprises that benefit from transport networks similar to the best in the world. The Kingdom's strategic location at the junction of three continents gives its transport sector a geographical competitive advantage that provides access to important emerging markets and critical sea lanes. Despite the optimistic future of the transport and logistics industries in KSA, some important hurdles must be overcome.

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1. INTRODUCTION

The Kingdom of Saudi Arabia (KSA) is strategically located between east and west and along a significant trade route of the Red Sea. The KSA is also well-located to serve the Middle East, North Africa, and West Africa regions, making it close enough and ready to serve these markets in light of the infrastructure that has been developed under the supervision and direction of the Kingdom's wise leadership, which is always looking forward. Furthermore, Saudi Arabia has the largest market in the Middle East and North Africa (MENA) area and is ranked 19th among the world's top economies. Saudi Arabia is the world's largest exporter of petroleum products and a G20 member [1]. The Kingdom contributes over half of the gulf cooperation council (GCC) states' economy (which amounts to $1.6 trillion) [2] and is gifted with high objectives and unique development possibilities.

However, the benefits and potential of KSA have yet to be completely realized. In terms of meeting the needs of the logistics sector, the Kingdom lags behind global leaders and regional countries. KSA rated

52nd on the logistics performance index (LPI) in 2016, indicating that there is still much space for growth in this sector. KSA's ambitious aims and activities aim to make a significant difference in the near future [3]. Saudi vision 2030 advocated for immediate action based on the Kingdom's potential. As a result, the relevant agencies were charged with achieving the ambitious goal of transforming the Kingdom into a globally competitive logistics center that would justify local and regional market needs, as well as positioning KSA as the preferred destination for logistics companies looking to invest in the region.

In this paper, the problem statement is that a roadmap needs to be clarified in order to be followed by all responsible authorities in the Ministry of Transport and other relevant agencies. Thus, stages have been provided to do so. The first stage was to assess the many facets of the Saudi logistics sector to determine the current state. In order to identify the difficulties, data were gathered from relevant past research as well as conversations with private sector stakeholders. Furthermore, top foreign practices in the transportation sector were researched in order to identify appropriate projects for realizing the objective. The following sections discuss the main features of these projects, with particular attention to six components. These are: the need for electronic government (e-government) in the transport sector; the elements needed to transform KSA into a logistics center; the Kingdom's aspirations for the logistics services sector by 2030; current efforts with the purpose of achieving Saudi vision 2030; logistics and transport strategy objectives; and finally, the challenges in the logistics field.

2. E-GOVERNMENT

2.1. The concept of e-government

Since the evolution and dissemination of information systems, many countries have been looking for better ways to operate and improve their citizens' services. One of the breakthroughs that were achieved due to these efforts was the e-government that emerged during the last two decades, specifically since 1997, and appeared in a constant state of development [4], [5]. The concept of e-government refers to a means aimed at enhancing the overall quality of public services introduced by the government and encouraging greater engagement through the use of innovative information and communications technologies (ICTs) [6], [7]. Implementing e-government intends to facilitate and enhance service delivery, ongoing participation, and governance by using new forms of information technology (IT) [8]. Due to the absence of consensus on an acceptable definition of e-government covering various areas of government services and agencies, this concept is based on a technological perspective [9]. Consequently, the parties benefitting from e-government may be individuals or organizations, internal or external to the government. Some authors believe that e-government is an inevitable result of the information revolution and its effects on modern society and economics. This is because e-government represents in its core a government's effort to provide citizens with needed information and services through taking advantage of the unprecedented facilitations introduced by IT [8]. This scope encompasses four main domains of e-government [10], these are: government to government (G2G), government to employees, government to business, and government to citizens. The government of KSA has taken many steps to disseminate the concept of e-government in various government agencies in order to realize their vision [11] (see Figure 1).

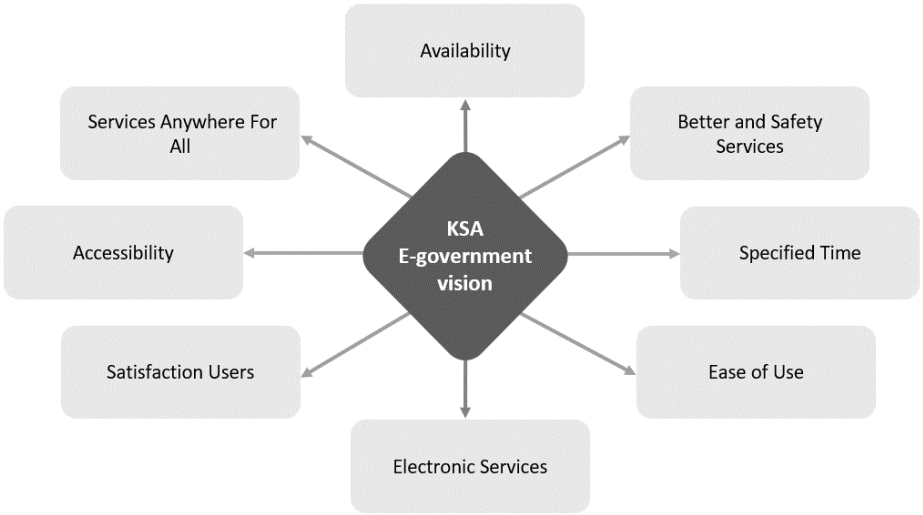

Figure 1. Saudi Arabia's e-government vision [12]

2.2. The need for e-government in the transport sector

Transport is a sector that is of paramount importance for the economy and social development in any given country. In light of the new stressing requirements on the burden of governments and public services for increasing transportation capability, green travel, transportation safety, emergency security, and convenient public travel service, this called for searching new alternative that would meet these novel requirements. In this respect, e-government, which is essentially based on the information and communication revolution, emerged as a promising solution to many of the problems and challenges faced by this significant sector [13].

Driven by reform endeavors in public service, the transformation into e-government is considered an essential challenge facing IT sectors for any country [14]. Therefore, a report issued by the World Bank in 2006 indicated that e-strategy should concentrate on the priorities a government places for IT development in accordance with this country's development needs and implementation capacities [15]. Implementation of e-government may bring out many advantages for the countries adopting it in their service sectors; these include making the government closer to citizens through allowing them access information and receive documents and services they need without having to go through the complications of the traditional governmental work [16]. This, in turn, can be reflected in modernizing public services, promoting the effectiveness and adequacy of public services introduced, and alleviating corruption, and facilitating mechanisms of accountability and transparency in the public sector [14].

In light of this, scholars have devoted a substantial amount of attention to the study of e-government at its potential in public service delivery enhancement and optimization. For instance, some researchers examined the key factors that would contribute to the success of e-transport applications in Turkey. They found that significant factors were: the need to enhance logistics and transportation activities, developing a national-based strategy aimed at the adoption and expansion of e-government applications relevant to transport, the adoption of European Union standards associated with ICTs of transport, and raising awareness of implementing e-government in the transport industry [14], [17]. Similarly, other researchers identified four main components for success in developing and expanding e-government for transport purposes: availability, accessibility, awareness, standardization, and interoperability [16], [18]. Moreover, employed an index system of the quantitative analysis method to investigate the challenges facing e-government implementation in transport and traffic in China [19]. Among the main challenges concluded by the authors are: insufficient attention, lack of support, and low technology skills in the overall construction.

Recently, as a result of their investigation of the challenges of e-government implementation in Arab countries, other researchers identified political barriers, organizational barriers, cost barriers, legislative barriers, cultural barriers, awareness, and bureaucracy as major obstacles [4]. Finally, investigated the challenges facing e-government, specifically these facing the G2G type. This case study was applied to the KwaZulu-Natal Department of Transport in South Africa. Data collection was carried out by means of semi-structured interviews with the fifteen participants and document analysis. The results revealed various levels of challenges: an outer layer (including usability, complexity, HR skills, resistance, management support, and data quality) and a middle layer of challenges (e.g., meeting user requirements, user involvement, and implementing change management and organizational culture) [20].

3. METHOD

This paper aims to determine the impact of e-government implementation on achieving Saudi vision 2030 in the Ministry of Transport and explore the main challenges in facing the implementation of e-government in this sector. To achieve these aims, an analytical descriptive research method based on analyzing the secondary data that is available in the literature was used. Based on this method, we focus on the following topics: i) elements needed to transform KSA into a logistics center; ii) KSA aspirations for the logistics services sector by 2030; iii) current efforts with the purpose of achieving Saudi vision 2030; and iv) main challenges.

4. RESULTS AND ANALYSIS

4.1. Elements needed to transform KSA into a logistics center

4.1.1. Transport sector

By taking advantage of state-of-the-art land, sea, and air traffic provided by KSA, as well as its unique location at the convergence of three different continents, Saudi companies will benefit from traveling through the Kingdom, which enjoys a transport network that competes with the best networks in the world. This is due to the fact that the KSA transport sector wants a geographical competitive advantage in light of accessibility to major emerging markets and critical sea lanes. Moreover, the transport sector will witness

unprecedented advances in the pursuit of upgrading and enhancing transport services in the near future. It is worth noting that shipping and freight movements in KSA already surpass the neighboring GCC countries both in terms of capacity and usage and are expected to make giant strides thanks to the expansion of seaport and technological advances (see Table 1).

Table 1. Transport sector

	Transport sector		
		The available infrastructure	Government endeavors to develop the transport sector
1.	Air transport	KSA has an efficient aviation infrastructure, including six international airports, nine regional airports, and twelve local airports. Of these, there are three airports that are considered the busiest in the GCC states, transporting about 80 million passengers annually. In recent years, Saudi airports have witnessed significant growth; with the numbers of passengers increased to 85 million, the number of flights up to 710,000 trips, in addition to increased transported goods by 7% in 2016 [21].	The aviation sector in KSA is witnessing unprecedented improvements that can provide multiple opportunities for investors to achieve financial growth and sustainability [22]. The following are some examples of these improvements: - Action is made to expand King Abdulaziz international airport in Jeddah to host 43 million passengers by 2025 and 80 million passengers by 2035. - There is an ongoing process in support of King Khaled international airport in Riyadh to accommodate 25 million passengers per year. - Five new airports in Taif, Jizan, Qunfudah, Farsan, and Najran are currently being constructed. - Work on adding terminals to the existing airports in Jeddah, Abha, Arar, Hail, Al Ahsa, Yanbu, Qassim, Wadi Al Dawasir, Al Qurayyat, Rafha, Al Jawf, Turaid, Al Qaisuma, Sharurah, Al Wajh, and Al Baha is taking place.
2.	Road transport	KSA has one of the largest road networks in the world covering more than 200,000 km of roads, including 66,000 km of roadways connecting major cities and providing access to railways, ports, and airports. This vast and growing ground network benefits from 5,000 km of highways and 6,000 km of bridges, providing extensive means to transport passengers and goods in and around the Kingdom [23].	Work is in progress in the current development plan. Accordingly, KSA has allocated substantial funds for the following aims: - Creation and renovation of the Saudi roadways, particularly these heavily used inner-city roads, intersections, and bridges. - Plans are scheduled to build over 3,500 km of new roads, including 284 highways set to link the country's main urban centers. - Several ambitious projects are starting to take shape, such as the design and construction of Obhur Creek bridge, located 20 km from Jeddah. - Plans for construction include eight lanes of road traffic, footpaths, and two lanes of rail transit. - Work is in progress in the construction of a 72 km Mecca-Jeddah highway. The expansion of these roads will provide multiple opportunities to access new regions and connect businesses previously considered impossible to reach.
3.	Sea transport	KSA has many of the rapidly growing ports. For instance, King Abdullah Port at King Abdullah Economic City handles 4 million twenty foot equivalents (TEU) annual capacity. Moreover, Saudi ports capture a larger share of regional transit market through handling more than 90% of Red Sea trade transits and 30% of the East African trade transits.	KSA is heavily investing in its seaports to modernize its infrastructure and increase its capacity. The following are some examples of these: - Several projects worth Saudi Railways company (SAR) 6 billion (USD $1.6 billion) are already underway and are designed to boost the sea transport sector by transforming it into one of the most technologically advanced and functional systems of the world. - SAR 30 billion (USD $8 billion) has been set aside by the Saudi Ports authority as a strategic investment for the equipping and modernization of all of the ports [22].

4.1.2. Logistics sector

Logistic services are the electronic delivery of government services to citizens through websites and electronic systems [24]. Logistics is critical factor for achieving competitive advantage for any sector. Transport, which is a sub-process of logistics, has a significant role in this process [25]. In terms of logistics and international trade, it is observed that KSA enjoys an exceptional geographical location, which makes the Kingdom a freight-forwarding leader that holds the largest logistics market in the GCC states. KSA can be viewed as a market that has consistently grown and that maintains a bullish outlook. KSA logistics infrastructure is also well-established in a fashion making the Kingdom the largest maritime network in the Middle East, one of the largest road networks in the world. KSA is also about completing work on a large industrial city center (see Table 2).

Table 2. Logistics sector

	Logistics Sector	
1.	Favourable and strategic geographical location	- The strategic location provides KSA with a unique advantage, which empowers it to become a leading regional logistics center [22]. - KSA is well-located for the distribution of goods within the Arabian Peninsula, the Levant, and East Africa. - KSA resides directly on the Asia-to-Europe trade route, through which 12% of global container trade moves annually.
2.	Large regional market with excellent prospects for growth	- Saudi logistics market is the largest of its kind among the GCC states. It accounts for 55% of the total GCC logistics market and is ranked 3rd most attractive within emerging markets. - Saudi logistics market is also one of the fastest-growing logistics sectors all over the world.
3.	Government efforts to grow the sector	Saudi government devotes significant efforts for the growth of this sector through regulatory reform and massive investments in logistics infrastructure. This is evident in the following examples: - Upgrading facilities which will empower the Saudi ports to compete on global levels. - Developing Saudi first private port entitled 'King Abdullah port'. - Developing vast road and railway infrastructure. - Improving transportation and curtailing waiting times. - Developing 6 economic and industrial cities designated to move cargo freely among them.

4.2. Kingdom of Saudi Arabia aspirations for the logistics services sector by 2030

KSA aspires to achieve the goals set in the Saudi vision 2030 in terms of making the Kingdom a global logistics center through: providing competitive logistics transport services; developing high standards and criteria for freight and storage; simplifying booking and tracking procedures; facilitating customs procedures; achieving integration between national and international transport companies; and integrating and capturing maximum benefit from existing and new infrastructures. In order for these goals to achieve, a set of components are necessary to be provided for the sector. These include the following:

- Export platform: the purpose behind this is to position KSA as an efficient export platform capable of developing adequate estimations and providing capacity and capabilities needed to avoid wastage as well as to contribute to achieving the national industrial diversification strategy.
- Regional platform (for re-exportation): focusing on the regional level, the aim is to transform KSA into a regional distribution center in the GCC states and East Africa by means of offering lower prices and higher speed than competitors, in other words, by introducing competitive logistics transport services. Thus, in order to become a pioneering regional logistics center, KSA needs to outperform its counterpart in terms of freight speed and cost and provide equal tracking and tracing services.
- Local and internal connectivity: the third level of this ambitious plan, which is as important as the other two levels, is concerned with the local market. In this respect, KSA aims at using a highly branched distribution system, which allows distributing goods and inputs at optimal cost across current and target population centers with development plans.

4.3. Current efforts with the purpose of achieving Saudi vision 2030

KSA has been making significant investments in the transport and logistics sector (more than 400 billion Saudi riyals for the last ten years). These investments were basically targeting infrastructural projects to develop roads, seaports, railways, and airports [26]. Consequently, the result has been a robust network with adequate coverage and capacity. The sector has also made significant contributions to enhancing operations, decongesting cities, streamlining import/export processes, and liberalizing air cargo capacity. The strategies developed for the sector are in accordance with the national industrial development and logistics program. Furthermore, steps have been taken to increase private sector participation through the build operate transfer (BOT) model in Jeddah Islamic Port (JIP) and King Abdullah seaport and at the Madinah airport. Significant improvements in governance have occurred with the consolidation of general authority for civil aviation (GACA) and SAR under the Ministry of Transport umbrella.

4.3.1. Logistics and transport strategy objectives

The logistics and transport national strategy aims at achieving Saudi vision 2030 objectives by transforming KSA into a logistics center connecting three continents. So far, KSA has achieved several innovative achievements. It is worth mentioning that digital transformation in the Kingdom is driven by strategy thinking, not mere technology dependence [27]. The following table presents the objectives of the strategy (see Table 3).

Table 3. Logistics and transport strategy objectives

Focus point	Objective	Action
Cost	Reduce the cost of shipping	By enhancing the infrastructure
Time	Reduce time to import/export	By streamlining and automating the processes
Supply chain	Increase supply chain transparency	By reforming the sector

4.4. Main challenges

Despite the promising prospects of the transport and logistics sectors in KSA, there are some key challenges that need to be addressed, including the following:

- International shipments: the key challenge facing introducing logistics services through land ports and airports is the length of time taken to process flow and importation of goods.
- Border crossings and customs: the long duration of customs clearance process and physical inspection; and high percentages of freight undergoing physical inspection due to strict security policies.
- Quality and efficiency: the main challenges in this respect are lack of qualified logistics providers; prolonged and inconsistent licensing process; lack of regulations related to warehousing standards; and complex processes requiring cumbersome red tape for goods transportation.
- Timelines: the strict government security policies negatively affect operational efficiency; in addition to the inconsistent customs clearance standards across different border points.
- Infrastructure: there is a need to focus on building a multi business ecosystem to manage transport flow and logistics supply within the process of planning infrastructure at the national level. Because of this, infrastructure is a critical component of e-government adoption and deployment [22]. Another problem is the significant backlog across the road network, which results in inadequate transport infrastructure.
- Tracking and tracing: there is a pressing need for an integrated and multifaceted system for tracking and tracing. Duplication of data and efforts is another problem that results in longer exportation process with export congestion; and increased container shipping requires more communication between relevant entities.

5. CONCLUSION

One of the primary objectives of Saudi vision 2030 is to transform Saudi Arabia into a global logistics powerhouse. Creating an export platform, developing a regional distribution platform, and establishing an effective internal distribution network in order to empower industrial and service supply chains are the three primary components that need to be stressed in order to accomplish this objective. As a result of achieving these components, the KSA will be transformed into an international logistics center that is able to take advantage of its geographical location. This will be accomplished by enhancing and promoting the infrastructure, transport networks, and logistics standards necessary to develop freight and passenger services. Therefore, the KSA is working to improve the quality of services by reforming the transport and logistics sector based on a real growth strategy that makes use of its competitive advantages. These advantages include increasing the participation of the private sector and pointing out clear socio-economic benefits.

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