NAFITH INTERNATIONAL: PORT PROJECTS

Introduction

Nafith International designs, deploys, and operates intelligent transportation systems that improve the operating efficiency, productivity, and security of land-transport freight operations in the Middle East. Nafith was founded by NTELX, a U.S.-based technology company with expertise in freight transportation and data analytics, and the company's Jordanian partners, Sameer Mubarak and Nourah Mehyar. Nafith currently operates in Jordan and Iraq, and its operating headquarters is in Amman.

Nafith's flagship project is a Truck Control System (TCS) that organizes truck entry into Aqaba, Jordan's sole seaport. In Iraq, Nafith designed, built, and now operates a TCS that organizes truck entry into Umm Qasr, Iraq's principal seaport.

To support its expansion in Iraq, Nafith received equity investments from The International Finance Corporation (IFC), the private-sector investment arm of the World Bank, and the Foursan Group, a private equity fund in Amman, Jordan, which receives support from the IFC and OPIC (a U.S. government investment agency).

Since inception, Nafith has focused on adding additional services and capabilities. Nafith believes that its offerings are unmatched in terms of technical sophistication, quality, and value.

History

Nafith received support in 2005 from the U.S. Trade and Development Agency (USTDA) to demonstrate via pilot projects that NTELX technology could be deployed in Jordan to i) enhance efficiency, automate trade practices, and improve the security of Jordan's freight transport system; ii) position Jordan as a regional transport IT gateway; and iii) serve as a springboard for expansion to other MENA nations.

The initial pilot supported by the USTDA study was the design and deployment of the TCS for the Aqaba Special Economic Zone Authority (ASEZA) to facilitate the movement of trucks through Aqaba, Jordan's sole seaport. Operational early in 2006, the Aqaba TCS had an immediate and dramatic impact. Chaos, congestion, and confusion fifty years in the making were tamed, and the system became indispensable for Jordan's trade and transport communities.

In March 2008, ASEZA outsourced the entire TCS operation to Nafith under the terms of a public-private-partnership (PPP) agreement. The founders established Nafith both to execute the PPP agreement with ASEZA, and to realize the initial vision of deploying advanced, data-driven trade and transport facilitation services in Jordan and across the wider world.

The Aqaba Truck Control System

Nafith's foundation is a breakthrough system for managing truck movements to and from Jordan's historic port of Aqaba. This system collects, validates, and shares information from multiple private sector and government databases, controlling trucks within an area of 375 sq. km., with five entry points, four marshalling yards, and 39 destinations. Capacity at the terminals and on the roads is closely monitored, and trucks are shunted to and from waiting areas as needed. Truck volumes run approximately 3,500 per day and the system has handled over seven million truck moves since its launch.

Unique permits serve as the control object for the Aqaba TCS. Trucks are allowed into the controlled areas only after they receive a permit based on validated information about the driver, vehicle, authorized operation and other pertinent information. Entry to the controlled areas, access to the port terminals and other destinations, and departure are all adjusted as needed based on capacity utilization on the roads and in the controlled locations.

Following implementation of the Aqaba TCS, inland transportation costs in Jordan dropped by an estimated 20 percent, attributable to a reduction in truck turn times and port productivity gains. Efficiency and security climbed across Jordan's trade and transport systems, the capacity of existing infrastructure expanded, and congestion, pollution, and accidents decreased. In congressional testimony, the U.S. State Department reported that Nafith's improvements in Aqaba "cut inefficiency and corruption and saved the Jordanian economy about $100 million a year," a 20:1 return to Jordan's GDP for every dollar received by Nafith.

Widely recognized as an innovative solution to a chronic problem, the Aqaba TCS has been showcased at conferences sponsored by the World Bank and the U.N. It also won the 2009 award from the Intelligent Transportation Society of America for the most innovative use of information technology in solving a surface transportation problem anywhere in the world.

Iraq Project Overview

In October 2009, senior Iraqi officials visited Aqaba to assess its use as an entry or egress port for western Iraq. As part of their inspection, these officials saw the Aqaba TCS. They were favorably impressed, and approached Nafith about the possibility of operating a similar system in Iraq.

In July 2011, Iraq's Ministry of Transport and the General Company for the Ports of Iraq[1] (GCPI) issued a tender to build and operate a TCS IT platform and the associated physical infrastructure (largely a secure truck marshalling yard and control points throughout the port) for Umm Qasr

[1] A parastatal 100 percent owned by the Ministry of Transport and the owner of Iraq's seaports.

and the smaller Iraqi seaports.[2] Nafith won the tender and executed the concession agreement with GCPI in 2013. The company invested approximately US$10 million in the project.

Of the total investment, US$4 million came from Nafith. The additional US$6 million was secured from the IFC and the Foursan Group in June 2014. These equity investments were announced the same day that Mosul fell to ISIS. After a brief pause, our team visited Umm Qasr and concluded that the security situation was acceptable. We also concluded that the need for better port performance was acute, as many roads to neighboring countries crossed ISIS-controlled territory, cutting land transportation routes. On this basis, the Nafith board decided to proceed with the project. The IFC-Foursan equity investment of US$6 million closed in early 2015.

Funding Structure and Concession Agreement

The Umm Qasr project follows the build-operate-transfer (BOT) concession agreement model. The US$10 million investment supported construction of a truck marshalling yard, deployment of an integrated information technology platform, and creation of RFID[3] and communications networks.

As in the successful Aqaba implementation, a unique permit for all trucks operating in the port area is a linchpin for the operation. This requirement was built into the concession agreement, and GCPI issued regulations requiring every truck entering the port to pick up or drop off cargo to obtain a permit issued by Nafith. For each permit issued, Nafith collects a mandatory, pre-paid fee through an electronic payment system. The permit fee is fixed for the term of the agreement at US$10.30 per truck. At the end of the term, the project will be transferred to the Iraqi government, unless extended.

Iraq System and Project Design

The system designed and built for use in Iraq is more technically advanced than the Aqaba TCS. It combines process redesign with an integrated software platform for the port operators and truck dispatchers, a state-of-the-art truck marshalling yard, terminal capacity controls, automated and staffed checkpoints, data validation, and routing algorithms.

The system includes three primary elements:

1. **Physical Infrastructure.** A truck marshalling yard, staffed and automated gates and checkpoints at critical locations, an RFID system, and a communications network to monitor and control the movement of permitted trucks.

[2] Khor al Zubair, Abu Floos, and Maqal

[3] Radio frequency identification (RFID) systems identify an object using radio waves. An RFID system consists of three basic components: i) a tag containing unique information encoded on an integrated circuit, ii) a stationary antenna that emits radio signals to activate the tag and read and write data to it, and iii) a reader that decodes the data read from the tag. This data is then passed to the operating system for use.

2. **Technology Platform.** An information technology application that allows authorized users to apply for permits, and then organizes and controls the movements of all trucks controlled by the system. The system is fully integrated with the port's operations.
3. **Operations.** A series of re-engineered processes, capacity control measures, and checkpoints (both staffed and automated) at key locations (the marshalling yards, port, and terminals) where permits are issued and validated and truck movements are monitored and controlled.

The TCS organizes and automates the activities of multiple independent stakeholders—the port and terminals; GCPI operations and management; the dispatchers, truckers, and trucking companies; government entities; ISPS;[4] Traffic Police; Security agencies; etc.—via an integrated system that follows known rules, treats all participants fairly and transparently, and is designed to promote efficiency, productivity, and effectiveness.

Iraq Project Impact

The Umm Qasr project was completed in two years, under extremely challenging circumstances. Commercial operations began on June 15, 2016, and—just as it was in Jordan—the impact of the TCS was immediate and dramatic. Umm Qasr is more productive and secure, minimizing the time needed for trucks to load and unload cargo. The chronic truck backups that bedeviled the port have been reduced. The system provides end-to-end traceability from the time each truck enters until it exits the port (a foundation for improving security and reducing corruption), and government revenue collection has increased. We are handling close to 50,000 trucks each month.

The project has far exceeded expectations, and demonstrated that technically sophisticated systems can be successfully deployed in Iraq. In June 2017, the *Financial Times* (London) awarded our project in Iraq a special commendation for innovative infrastructure impacting the developing world. During 2016, our CEO received the first annual Gender CEO Award from MIGA, the political insurance arm of the World Bank Group, for her commitment to gender equality in a challenging environment.

Perhaps the best summary of the project's impact was written by the IFC:

[4] International Ship and Port Facility Security (ISPS) is security protocol that demonstrates that a port meets these widely recognized international standards.

AUTOMATED PORTS DRIVE IRAQ'S ECONOMY FORWARD, *IFC IMPACT* August 2017

Just over two years into our investment, Nafith's custom-designed systems and processes for Iraqi ports have already saved time and reduced costs in freight handling. Its new construction facilities for Iraq's inbound cargo are boosting international trade in this fragile economy. And its thorough on-the-job training, complementing the new technology, has diminished the entrenched system of informal payments that has stifled Iraq's economy.

Some of the most significant results of Nafith's successful automation of ports in Iraq include reduced turnaround time for trucks, restoring truck productivity hours while increasing ports' operational hours, and decreased pollution….

… From the start, its goal in Iraq was ambitious: to transform the country's ports' operations from manual to electronic, connect all the hinterland stakeholders, introduce an electronic gate system, streamline logistics land-side, integrate stakeholders, introduce capacity management, and enhance safety and security.

In this case, change management accompanied the automation. For example, a continuous training effort that shifted drivers and port employees away from a pervasive system of informal payments was critical to port-wide transformation. Automation of operations is directly linked with reducing corruption because users see for themselves that there is no need to provide informal payments….

Despite the obstacles that presented themselves in a nation engaged in ongoing conflict and reconstruction, Nafith successfully implemented a Port Operating System that automated paperwork and manual processes across Iraq's ports. Nafith's electronic gates system (eGates) included tagging every truck with a Radio Frequency Identification (RFID) sticker and an RFID driver card for identification. The RFID technology allows for automated identification, verification, and tracking of the trucks at the gates and inside the port, while streamlining operations.

Concurrently, a massive on-the-job training plan was provided to port employees, explaining Nafith's operations, anticorruption strategies, and corporate services to help citizens retain control of their finances. For example, when Nafith began working with truck dispatchers in Iraq, most were unbanked or underbanked--and accustomed to cash transactions that made them vulnerable to informal payments. Company training helped familiarize these dispatchers with Nafith's ePayment system, which allowed them to get instant verification of their service fees. None of these ideas had existed before in Iraq's port sector.

WIDESPREAD RESULTS AND RECOGNITION

Nafith's successes in changing the systems, services, and culture of Iraq's ports have positively impacted about 19,250 people in Iraq, including truckers, trucking dispatchers, port staff, direct and indirect employees, and clearing agents.[5]

Conclusion

Even in challenging conditions, these Nafith systems deliver outsized benefits. By synchronizing and streamlining truck movements, our systems boost port performance, reduce truck waiting time, and magnify visibility to promote efficiency, productivity, transparency, and fairness. We look forward to building more systems in the coming years.

[5] http://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/impact-stories/iraq-automated-ports-nafith