ENDLINE EVALUATION OF TRADEMARK EAST AFRICA'S CARGO TRACKING FOR RAIL PROJECT

FINAL EVALUATION REPORT

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2. Acronyms and Abbreviations

CBA -Cost Benefit Analysis
EAC - East Africa Community
EACFFPC - East Africa Customs Freight Forwarding Practicing Certificate Course
ICDN - Nairobi Inland Container Depot
ICT4T - Information and Communication Technology for Development
iCMS - Integrated Customs Management System
IRR - Internal Rate of Return
JMC - Joint Command Monitoring Center
KAM - Kenya Association of Manufacturers
KEBS - Kenya Bureau of Standards
KIFWA - Kenya International Freight and Warehousing Association
KPA - Kenya Ports Authority
KPC – Kenya Pipeline Company
KRA - Kenya Revenue Authority
KRC - Kenya Railways Corporation
KTA - Kenya Transporters Association
KTLN - Kenya Transport and Logistics network
KWATOS - Kilindini Waterfront System
MMS - Multimedia Messaging Service
NPV - Net Present Value
OECD-DAC – Organisation for Economic Co-operation and Development's Development Assistance Committee
RECTS - Regional Electronic Cargo Tracking System
RFID - Radio Frequency Identification
RFLS - Rail Freight Logistics Solution
RFSS - Rail Freight Services Solution
ROI - Return on Investment
SCEA - Shippers Council of Eastern Africa
SGR - Standard Gauge Railway
TEU - Twenty-foot Equivalent Unit
TMEA - Trademark East Africa
USAID - United States of Agency for International Development
USD - United States Dollar
VfM - Value for Money
WTO- TFA - World Trade Organisation- Trade Facilitation Agreement

3. Executive Summary

Trademark East Africa (TMEA) commissioned three consultants to conduct a summative evaluation of the Cargo Tracking for Rail Project. Funded by United States of Agency for International Development (USAID), the 5 million USD project's main aim was to address many of the challenges experienced in the process of transporting containers from Mombasa Port to Nairobi Inland Container Depot. The introduction of cargo via the Standard Gauge Railway in 2018 was marred by many bottlenecks from inefficiencies in cargo handling, movement, and clearance to lack of coordination by the three main government actors of Kenya Ports Authority, Kenya Revenue Authority, and Kenya Railways. The Cargo Tracking Project had two main outcomes 1) Improving effectiveness and efficiency of handling, clearance, and movement of goods along the Mombasa- Nairobi Rail Freight Logistics Corridor and 2) Ensuring that trade actors improve the governance of handling, clearance, and movement of goods along the same corridor.

The purpose of the summative evaluation as stipulated in the terms of references was to assess the extent to which the project achieved its intended outcomes and outputs and on a higher level, the extent to which it contributed to reducing trade barriers. The evaluation's purpose was twofold; accountability to TMEA's development partners and other and lesson learning. The findings, recommendations, and conclusions will be used to inform similar or future project designs. The evaluation was guided by OECD-DAC evaluation principles and criteria of effectiveness, impact, relevance, sustainability, and efficiency.

The three consultants that carried out the summative evaluation are 1) Elizabeth Mwangi- the team leader. Her main roles were to provide overall leadership and ensure coordination amongst the three team to ensure timely execution of and completion of deliverables. She was also in charge of evaluation quality assurance and was the main liaison between the evaluation team and TMEA. 2) Frinton Fenny Ltd and 3) Mohamed Gharib- both consultants oversaw the coordination and supervision of primary data collection and stakeholder engagement in Nairobi and Mombasa, respectively.

This evaluation report summarises the approach and methodology that the team used, the findings, challenges, lessons learned and recommendations as well as the way forward. The findings are organised into the 5 OECD criteria of Impact, Effectiveness, Relevance, Efficiency and Sustainability. The evaluation team used purposeful sampling of respondents who were surveyed using a mixed-method approach for data collection and analysis. Out of 150 end users, 94 filled the online questionnaire and 13 key informants were interviewed. An assessment rubric has been used to assess the overall performance of outcomes and outputs using a scale of 1- 5 where 1 is (poor), 2 (fair), 3 (good), 4 (very good) and 5 (excellent). Confidence levels of low, medium, or high have been included to indicate the available level of evidence to support the evaluation team's assessment. Th table below summarises key findings.

Table 1: Overall Assessment against the Evaluation Criteria

EVALUATION CATEGORY:	**CATEGORY SCORE (1 = POOR 5 = EXCELLENT)**	**CONFIDENCE LEVEL (LOW, MEDIUM, OR HIGH)**
Relevance	**5**	**High**
Strategic clarity and logic	The project's intervention and results chain are well aligned with TMEA's theory of change and overall results framework, by implementing effective trade systems and procedures, barriers to trade are reduced and enabling the private sector to operate under an enhanced business environment.	
Alignment with TMEA, partner, beneficiary, the Kenyan Government, and EAC interests and priorities- how responsive was the	The intervention is well aligned with the strategic priorities of the three lead agencies 1. KRA- enhancing mobilisation of government revenue and facilitating growth in economic activities and trade by ensuring compliance with tax and customs laws. 2. KRC- Developing an integrated rail network and providing efficient and safe rail services 3. KPA- Facilitating and promoting global maritime trade through provision of competitive port services.	

EVALUATION CATEGORY:	CATEGORY SCORE (1 = POOR 5 = EXCELLENT)	CONFIDENCE LEVEL (LOW, MEDIUM, OR HIGH)
project to the problems then	The intervention is well aligned with the Government of Kenya as well as EAC priorities of stimulating economic growth through enhancing trade facilitation across borders, regional economic integration.	
Impact	**4**	**High**
Achievement of impact level results	The intervention is mapped to TMEA's high impact result of reduced barriers to trade which is measured by reduced cost and time to trade indicators. Evidence shows that the project has contributed to reduction in clearance time at the ICDN for tagged containers from 12 days in 2018 to 4 days in 2021. This has led to a reduction in the cost cargo owners pay for extra days that cargo is at the ICDN from USD 52M in 2018 to an average of USD 3M in 2021 which is equal to a 94% reduction in costs cargo owners used to incur. Based on the contribution and attribution analysis conducted (section 5.3) the evaluation findings indicate that the following high to medium results were as a result of the project's direct influence. 1. Reduction in cargo dwell time from 12 days to 4 days at the ICDN for tagged containers is wholly attributable to the project 2. Reducing the cargo dwell time led to a reduction by 94% of the charges that cargo owners paid for extra dwell time beyond the free days. The charges reduced from a high of 52M USD in 2018 when the dwell time was 12 days to USD 3M in 2021 when the dwell time averaged 4.4 days. 3. Reduction in truck turnaround time at the ICDN by 1 hour from 5.5 to 4.5 hours 4. Enhanced yard capacity utilisation at the ICDN 5. Increase in the number of tagged containers from 6% in 2018 to 22% in 2021 enhancing traceability of containers. The evaluation team could not establish if the cost savings gained above were passed on to the consumers of the goods and recommend a deeper analysis at a higher level (programme/intermediate outcome level) to establish this.	
Positive or Negative impact generated by the project	One of the positive effects of the project was reduction in personal interaction at the ICDN, which reduced incidences of clearing cargo based on "who is who." According to the end users interviewed, due to reduced human contact, incidences of bribery to track or clear goods were reduced. While this may not be directly attributable to the project, the end users acknowledged the added level of security and transparency that rail transport provided compared to the road. Traffic at the Mariakani Weigh bridge reduced by 28% from an average of 4973 in 2018 to 3544 in 2020 (Source KeNHA data- Northern Corridor reports). Another positive effect was strengthening of the coordination and collaboration between the three agencies and the private sector. The KPIs of the SGR Cargo were included in The Mombasa Port Charter and performance discussed in weekly Port Charter meetings. TMEA strengthened the bond with Kenya Railways Corporation which was a new implementing partner of TMEA	
Effectiveness	**4**	**High**
Achievement of outcome targets	**Outcome 1**- Improved effectiveness and efficiency of handling, clearance, and movement of goods along the Mombasa-Nairobi Rail Logistics Corridor. The project has managed to reduce Port-SGR- ICD Cargo Dwell time by 80% against a target of 45% (21 days baseline); Cargo throughput (although not directly attributable to this project) has increased by 53 %	

EVALUATION CATEGORY:	CATEGORY SCORE (1 = POOR 5 = EXCELLENT)	CONFIDENCE LEVEL (LOW, MEDIUM, OR HIGH)
	for export TEUs and 42.2% for import TEUs, bringing the average total increase to 43% against a target of 40% increase by end of 2021. **Outcome 2**- Improved governance in rail freight services between Mombasa port and ICDN- one of the indicators' measuring success of this outcome is the satisfaction level of the end users. Out of 94 end users of the services who were interviewed 81% (75 respondents) indicated they were satisfied and very satisfied with the services sighting efficient cargo tracking, improved customer services and reduction in time taken to clear cargo. The second target under this outcome was 75% reduction in the number of reported cases of inability to trace cargo. 72% of respondents stated that their ability to trace containers had improved. Out of the 50 of 94 respondents who indicated they had lost a container and reported the matter, 88% (43 of them) reported that their issues were resolved and adequately by the authorities. **Outcome 3**- Kenyan trade actors enhance compliance and enforcement of trade regulations along with the Mombasa-Nairobi Rail Freight Corridor Logistics. This indicator of success is measured by the ratio of stakeholders complying with KPIs to non-compliant stakeholders - The evaluation established that a set of 16 KPIs measuring process-oriented performance for the 3 agencies, shipping and clearing agents were developed and discussed. However, the evaluation team was not able to establish the extent of achievement of this (See Annex 6). **Outcome 4-** Kenyan trade actors enhance coordination and cooperation along the Mombasa-Nairobi Rail Freight Logistics Corridor. Indicator- Number of interconnected logistics processes and services between government agencies along the corridor. To support cargo tracking form port to ICD, last mile cargo delivery, truck booking and resource planning and KPIs, the evaluation team established that the cargo tracking system was successfully integrated with the 1) KRA iCMS and MMS, 2) KPA- KWATOS /CYROS, 3) KRC-CIYOS. The planned integration with KEBS system did not take place, it is planned for the next phase of the project.	
Efficiency	**4**	**Medium**
Value for Money	The findings from the computations of the cost and benefits indicated that the Cargo Tracking Rail Project had net benefits that were economically feasible as evidenced by the High Net Present Value (NPV), good net Return on Investment (ROI) and Internal Rate of Return (IRR) NPV for the Cargo Tracking Rail Project is about US$132 million (after deducting costs), an IRR of 1177% and net return on investment (net return per US$ invested) of US$21.1; the payback period was within 2 years (2019) and the break-even point was in the year 2019 (within 2 years). This indicates that the project was economically viable and profitable.	
Sustainability	**4**	**High**
Sustainability addressed and likely to be achieved	The positive effects and impact of the Cargo Tracking for Rail are sustainable and long lasting. Reduction in time to clear is appreciated by the end users and stakeholders. The project has been handed over to KPA who are managing the recurring costs of data bundles (which amounts to USD 150,000 annually), paying the system consultants for maintenance and support (USD 80,000 annually). The three agents have seconded staff to the Joint Monitoring Centre at the Port of Mombasa and also at ICDN. KRA has also purchased an additional 12,000 tracking devices to the 5,000 devices purchased by TMEA. The project implementation will continue under the Kenya Transport and Logistics network (KTLN) a parastatal that merges KPA, KPC and KRC to ensure efficiency in trade logistics.	

The following table outlines the priority recommendations for the cargo tracking by rail project. A complete set is included below in the full report.

Table 2: Priority Recommendations for Improving Cargo Tracking by Rail Project

Recommendations on Improving Implementation and Management	**Responsible**
Improving cargo tracking system: A thorough review of the feedback from end users on issues they are experiencing using the system, at the port and ICDN should be done with an aim of enhancing further the system and procedures. **Clarifying project ownership**: TMEA needs to consider discussing with KPA, especially to clarify project ownership as they reported not to fully own the project. Consider developing an exit plan with clear details on which components and costs have/will been transferred, and by when. **Resolve capacity gaps in installing tracking devices in containers:** TMEA should consider leading the other 3 agencies in resolving issues of staff capacity experienced by KPA and BSmart as it leads to fewer containers getting tags since staff are overwhelmed. More optimal tagging of containers will extend the benefits of cargo tracking to more end users.	TMEA
Recommendations on Improving Monitoring	**Responsible**
Promoting adaptative and flexible project management: In the event that the project extends beyond its current scope, TMEA should ensure periodic review of the project's theory of change, results chain, and monitoring tools to incorporate emerging realities, lessons learned and mitigation actions against emerging risks is important. This will enhance project monitoring and reporting and ensure that results are recorded regularly. Review of project results framework periodically to align with the budget realities. For example, tagging of 100% of containers was not possible with the limited budget. The project team ought to have reviewed the results framework to adjust to new realities. Baseline data collection is crucial in determining the extent of achievement of results especially at the outcome level. The finding was that crucial baseline data especially at the outcome level was not collected. The project team needs to ensure that baseline data collection is budgeted for, and baseline survey collected at least 6 months after project commencement. It is recommended that TMEA supports the three agencies in filling crucial data gaps, harmonisation and standardization of data collected by key agencies. For example, an analysis of the data collected by the evaluation identified differences between the number of containers (TEUs) reported by KPA and KRC was different by 6,000 TEUs.	TMEA
Recommendations on improving future design	**Responsible**
Address Sustainability: TMEA and the 3 agencies need to consider ways in which they can make any future projects more sustainable to reduce the operating costs of internet, system maintenance. Various business models had been proposed in the project PAR[1] and should have been considered soon after project implementation. If these alternative business models were	TMEA

[1] The PAR mentions four categories of business models a) a subscription-based model where participants will pay an annual fee that will go into upgrading, maintaining and supporting the platforms; b) a cost sharing-based model, where participants will contribute in annual maintenance and support costs as per agreed percentages; c) a Development-Corporate Social Responsibility-based model, where large corporations and multinational that will be benefiting more from the initiatives will cater for the maintenance and support costs; and d) a SPV like TMEA take over management and custody of the platform and charges a fee for services rendered.

Recommendations on Improving Implementation and Management	Responsible
considered or attempted, this was not recorded, and ought to have. The cost of tracking in future may have to be borne by the private sector as opposed to KPA. **Expansion/scaling up of the cargo tracking;** Reduction in costs due to time savings is one of the key success factors of the project. TMEA and stakeholders should consider expanding the project and funding the remaining components for end users to benefit further from the efficiencies. Increasing the tracking devices and staff tagging containers can further improve project's performance. The next phase of the project under KTLN ought to incorporate revisions to the project's results framework. **Explore alternative solutions to tracking devices:** As recommended by one of the stakeholders, for future projects, consider cost effective latest container tracking solutions for example those used by the logistics companies that provide additional information on what stage of clearance the cargo is in and the ability to locate tracked containers on demand. -	

4. Background

Globalization has led to growth in international trade which in turn requires complex supply chains that need to be effective and efficient. One of the challenges in the supply chains is logistical coordination which involves information sharing among the parties involved to facilitate faster clearing processes and transportation.

In Logistics, tracking is the process of gathering and presenting information on the location of delivery items in a distribution network or supply chain (Deschner et al., 2008). Tracking and tracing are considered independent terms, with tracking defined as following up of the location of an entity in transit (storing information), while tracing is defined as locating the entity when needed (retrieving the stored information) (Bingham and Pezzini, 1990). The two complement each other and many systems ensure both processes are integrated into system development.

The electronic cargo tracking system was initially used in World War II. Radio Frequency Identification (RFID) was used to differentiate between the enemies and friends' aircrafts. The RFID has been used in marine time monitoring, logistics management, and electronic cargo monitoring (Nyongesa, 2015). Kenya also implemented the electronic tracking system which improved cargo transportation in terms of cost, dwells time, and cargo throughput.

According to a study done by Nyongesa 2015, the introduction of the regional tracking system has improved the management of transit goods, reduced dwell time, improved coordination, communication, and accountability of goods on transit. The system also improved reliability and service quality and improved shipment and container integrity, built around a core of security issues (Dennis & Shepherd, 2011). On the public sector side, cargo tracking enhances the efficiency and effectiveness of operational performance. It is expected that tracking cargo reduces illicit trade caused by diversion leading to increased collection of revenue from imports.

Road transport is affected by several factors including traffic jams, accidents, high theft cases longer transport time, and limited axle load (56 tons in the EAC Partner States). These challenges increased the cost of transporting cargo. In April 2018, cargo transport via Standard Gauge Railway (SGR) was introduced to address these challenges. However, its commencement was marred by many challenges including delays in loading containers, lack of coordination among the key government agencies of Kenya Revenue Authority (KRA), Kenya Ports Authority (KPA), and Kenya Railways Corporation (KRC), congestion, and disorganized system of stacking containers at the Nairobi Inland Container Depot (ICD), lack of information for tracking the whereabouts of containers and lack of communication between the different parties involved. Cargo transportation by rail also experienced several legal challenges with the court ruling against the directive to transport all containers by rail in November 2020. These challenges led to increased cargo dwell time, increased costs of transporting cargo, demurrage, and fines due to delayed clearance compared to other means of transport. The private sector was

frustrated as cargo took an average of 11 days to clear from the Nairobi ICD in December 2018[2]. In addition, there was poor customer service and an inability to meet performance targets (Trademark, 2018).

Against this backdrop, Trademark East Africa's (TMEA) intervention, Cargo Tracking for Rail with funding from USAID was designed to address the bottlenecks and other challenges affecting the operations of cargo handling, movement, and clearance of rail cargo at the port and Inland Container Depot (ICD). This intervention aimed at establishing a single, seamless, integrated, and digital end-to-end cargo process flow from the Port-to-SGR-to-ICD and vice versa. To accomplish this objective, a suite of six solutions[3] were to be implemented in collaboration with Kenya Revenue Authority (KRA), Kenya Ports Authority (KPA), and Kenya Railways Corporation (KRC) (Trademark, 2021).

4.1. Purpose of the evaluation

The primary purpose of this evaluation was to draw lessons and best practices from the implementation of the Cargo Tracking for Rail Project to be used in the design and management of similar projects. Secondly, the findings from the evaluation will also be of importance to TMEA's investors and EACFFPC stakeholders.

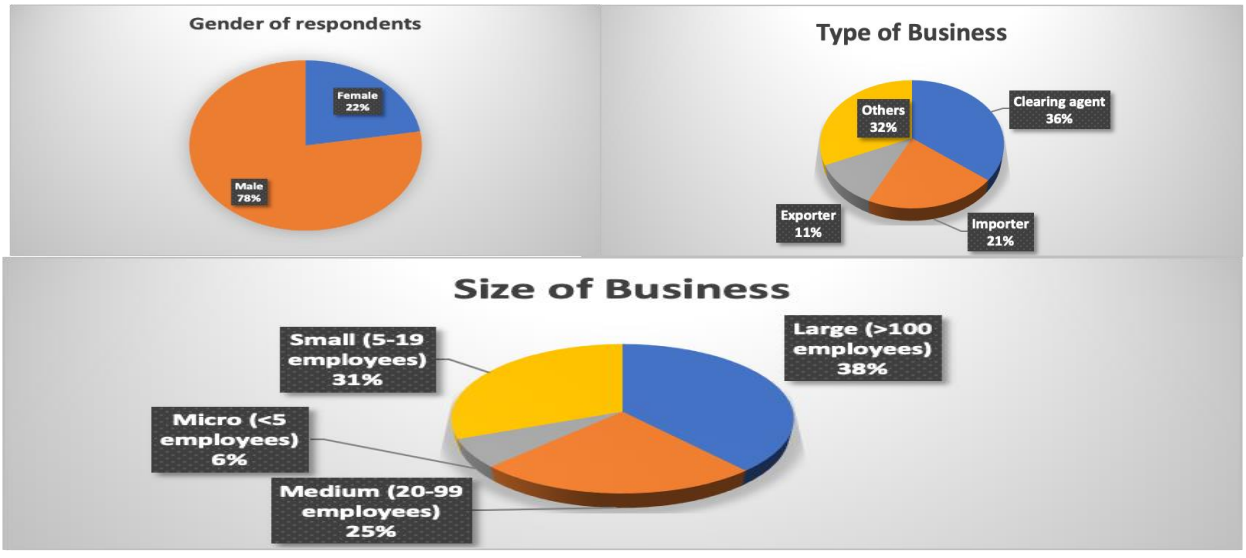
The goal of the summative evaluation was to assess the extent to which the Cargo Tracking for Rail project has achieved or is on track to achieving its intended results. The lessons, findings, conclusions, and recommendations from the evaluation will provide credible evidence on TMEA's contribution towards Trade Actors in Kenya efficiently and effectively moving goods along the Mombasa Port-SGR-ICD-Nairobi Corridor.

4.2. Evaluation Approach and Methodology

The evaluation took place from January 2022 to April 2022. The approach was guided by three principles; the use of a range of mixed qualitative and quantitative methods to ensure high levels of validity and depth of understanding; ensuring that it is framed around OECD- DAC evaluation criteria and within TMEA's Monitoring, Evaluation and Learning (MEL) Strategy/Approach; making certain that the evaluation is practical and useful for TMEA and its partners/ relevant stakeholders.

The evaluation was carried out using a variety of quantitative and participatory qualitative data collection techniques. Both primary and secondary data was collected with a total of 94 end users filling in an online questionnaire, and 13 key informants. Out of the 94 survey respondents 21 were females and 73 males, 38% were from large businesses with over 100 employees and 25% from medium companies, 31% from small and 6% from micro companies.

Graph 1, 2, 3: Respondents Characteristics



[2] The East African, "As Kenya SGR Cargo Volumes Increase Trucker Jobs Reduce", January 2020

[3] Joint cargo tracking and training solutions (purposes of locating cargo), Joint command monitoring centres, customer notification solution (provide information to cargo owners on the status of their cargo) , Joint resource planning and execution solution (resource allocation and planning for cargo handling, moving and clearing), Central information sharing (exchange of information between all port actors), Traffic queue management (to facilitate coordinated movement of trucks to and from the port and ICD facilities), Last Mile Delivery Solutions (service for cargo pick-up and delivery)

Subsequent triangulation was done using multiple data sources. Quality assurance of the whole process and data was conducted throughout the evaluation. Data validation to check on the accuracy and reasonableness of the interpretations was overseen by the two consultants, Mohamed Gharib and Frinton Fenny who oversaw data collection in Mombasa for all stakeholders and project beneficiaries in Mombasa and Nairobi, respectively.

Some of the methods used included cost-benefit analysis, contribution, and attribution analysis. This entailed reviewing the project and TMEA's Theory of Change to determine causality or the extent to which the results were due to TMEA's intervention. The team used the TOC to determine the project's demonstrable and attributable results and analyse the underlying assumptions. They critically examined the strength of evidence for the outcome and impact-level results to assess causality and attribution pathways. In addition, the team conducted value for money analysis, end-users and key informant interviews with TMEA/partner staff and other relevant stakeholders, desktop research, and satisfaction surveys and established the most significant change stories.

As per the TORS, the evaluation was guided by OECD-DAC standard evaluation criteria of relevance, effectiveness, efficiency, impact, and sustainability to assess the project progress. The evaluation report is organised using the criteria. An assessment rubric that summarises overall high-level findings with a sliding scale of 1 (poor), 2 (fair), 3 (good), 4 (very good), and 5 (excellent). Additionally, a matrix of confidence levels of low, medium, or high outlining the available level of evidence to support the evaluation team's assessment was applied.

Purposive sampling- The evaluation used purposive sampling to select interviewees for online questionnaires and key informant interviews (KIIs) to target the direct and indirect beneficiaries, stakeholders, and end-users who may have experienced any negative impacts of the project. This methodology ensured high response rates, representative samples, practicability, and the collection of useful information for the evaluation. This sampling methodology helped to achieve high response rates, representativeness, practicability, and collection of only relevant information useful for the evaluation. End users were picked through support from their umbrella bodies including KIFWA, KAM, KEPSA, SCEA amongst others.

4.3. Evaluation limitations and challenges

The evaluation team received a high level of support, full cooperation, and openness from TMEA teams in ICT for trade, Kenya Country Programme, Results and Procurement staff. The methodology used proved appropriate for the purpose of the summative evaluation and no significant limitations undermining the reliability, validity or utility of findings was identified.

The consultants' main challenge during the evaluation was gaining access to the data from the systems of the three lead agencies KRA, KPA and KRC. It took more than a month to get crucial data on 2018 and 2021 dwell time, import and export TEUs and projected growth. In addition, some of the data received from the agency for the same indicator was different (an example is TEUs data from KPA and KRC that differs). The team spent a considerable amount of time analysing and quality assuring the data.

Gaining access to both end users and stakeholder respondents was challenging. Most of the apex bodies did not provide their members' contacts sighting breach in confidentiality. To solve this problem, some apex bodies volunteered to forward the questionnaire link to the members on behalf of the consultants, however, follow up by the apex bodies to ensure the respondents filled the online tool was irregular. Key respondents from the 3 agencies were quite busy and several interviews had to be rescheduled leading to more delays. To overcome this, some interviews were conducted virtually.

5. Evaluation Findings

5.1 Relevance

The project has scored a 5 in this category with the confidence level being high.

Relevance is the extent to which a development intervention conforms to the needs and priorities of the target groups, the policies of the recipient countries and donors and TMEA's strategy. The evaluation sought to answer the questions below-

- Are the interventions consistent with TMEA's Theory of Change?
- How important is the TMEA supported intervention regarding the facilitation of the efficient movement of goods within Kenya, across borders in the region, and beyond to establish a single, seamless, integrated, and digital end-to-end cargo process flow from the Port-to-SGR-to-ICD and vice versa?
- How is the TMEA supported intervention aligned with the priorities of the EAC and the Kenya government's national policies and strategies and the needs of key stakeholders (Including the Partner States, the Private Sector, TMEA, and its donors)?
- How was the TMEA supported intervention responsiveness to the challenges then, how relevant is the intervention today (including in the context of Covid-19)

5.1.1. Project clarity and logic

The key underlying hypotheses for the Cargo Tracking by Rail Project were that:

i) Improving the effectiveness and efficiency of handling, clearance, and movement of goods along the Mombasa - Nairobi rail freight logistics corridor; and

ii) Improve the governance of handling, clearance, and movement of goods along the Mombasa - Nairobi rail freight logistics corridor, would reduce the time taken to clear cargo at the ICDN ultimately reducing the cost the end users/customers incurred through prolonged delays in trying to track their cargo and evacuate it from ICDN.

5.1.2. Conformance to country priorities and policies

Primary and secondary data collected during the evaluation indicate that the project's objectives, outputs, and activities were relevant to Government of Kenya's policies and priorities. For example, the Project aided the implementation of the Presidential Decree give in 2018 that all cargo should be transported through the rail. The execution of the decree faced various challenges, such as uncoordinated efforts by the three key agencies, namely the Kenya Revenue Authority, Kenya Ports Authority and Kenya Railways Corporation. There were also capacity limitations at the Inland Container Depot in Nairobi (ICDN) and the inability of end-users to track and trace their cargo once it arrived in Nairobi.

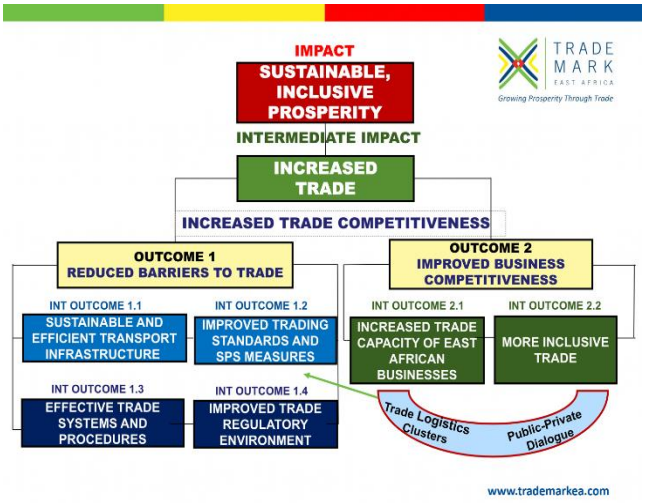
The project complements other government systems like KRA-iCMS, Regional Electronic Cargo Tracking, KWATOS, and Single Window Systems. In addition, the Cargo Tracking for Rail project supports government efforts in implementing the World Trade Organisation Trade Facilitation Agreement (WTO-TFA). Specifically, the project also facilitates the government to:

- Meet its trade facilitation commitments to enhance transparency, simplification, harmonisation and standardisation of trade processes and procedures,
- Implement the Big 4 Agenda, which includes the creation of a free market and improving the ease of doing business
- Vision 2030 aims to create a globally competitive and prosperous country with a high quality of life by 2030.

5.1.3. Conformance to donors, stakeholders and TMEA strategies

The project fully aligns with TMEA's Theory of Change (TOC). The TOC has two high-level outcomes: reduced trade barriers and improved business competitiveness, which together are expected to lead to increased trade. Under the reduced barriers to trade outcome area, there are four intermediate outcomes(IO) under which this project maps, specifically IO 1.3 or effective trade systems and procedures.

Figure 1: TMEA'S Theory of Change



Through its ICT4T programming, TMEA works to simplify, harmonise, increase transparency and, overall, improve efficiency of trade systems and procedures in Eastern Africa. TMEA does this through automating previously manual processes and/or enhancing existing processes and procedures.[4]

The project supports USAID's mission of promoting two-way trade between the US and Kenya and the rest of EAC. Its programmes are geared towards enhancing and building a private sector trade enabling environment. At the East Africa level, USAID aims at promoting East African leadership for regional resilience, prosperity, and stability. According to the lead agencies and stakeholders interviewed, the project came at time when it was difficult to locate containers and ICDN staff were not prepared for the large throughput (KIFWA). SCEA appreciated the project as its members were able to trace the containers in real time reducing the human cost of searching manually and the costs incurred with extra fines charged past four days.

5.1.4 Consistency with the EAC treaty and development strategy

The project's objectives of enhancing efficiency in cargo tracking by rail are consistent with the Treaty for the Establishment of the EAC, which recognises establishing a common market and customs union (Articles 75 and 76). The customs union and common market aim to eliminate tariff and non-tariff barriers to trade in the region. This project also supports the 6th EAC Development Strategy of 2021- 2026, which seeks to facilitate regional and overall socio-economic development in the Partner States to transform EAC into a stable, competitive, and sustainable lower-middle-income region by 2030.

5.1.5 Complementarity and consistency with TMEA programmes

The project's main target of reducing inefficiencies related to cargo evacuation from the Port of Mombasa to the ICDN via rail complement many other TMEA projects including-

1. Customs Management Systems Upgrade- TMEA upgraded customs systems in Kenya, Uganda, Rwanda, and Burundi. The project relies on crucial data from the customs systems as they are interlinked.
2. Mombasa Port Improvement Programme- The project compliments efforts by KPA and lead agencies at the port to enhance efficiency at the Port of Mombasa in order to reduce cargo dwell time and ship turnaround time. The planned Truck Marshalling Yard Improvements by KPA to increase the capacity of the yard to hold 300 trucks at the ICDN will support the reduction in truck congestion and dwell time.
3. Implementation of WTO trade facilitation agreement (WTO TFA) by the ministries of trade and MEACs in Kenya and the region. The project supports achievement of trade facilitation commitments of reducing barriers to trade and enhancing movement of cargo across the country and the region.
4. Automation of trade systems through TMEA projects, Single Window Information for Trade (SWIFTS) such as Kentrade.
5. The regional electronic cargo tracking project that aims to enhance end to end transparency, security, and traceability of transit cargo across the region, the system has also fast-tracked transporting cargo by road.
6. Integrated Border Management
7. The project supports Strategic Objective 2 aimed at improving business competitiveness of the private sector organisations by reducing the costs of trade to private sector organisations. The end users of the tracking system and services realised cost savings associated with cargo dwell time reduction from 12 days to the current 4 days.

[4] TMEA Theory of change docs

5.2 Impact

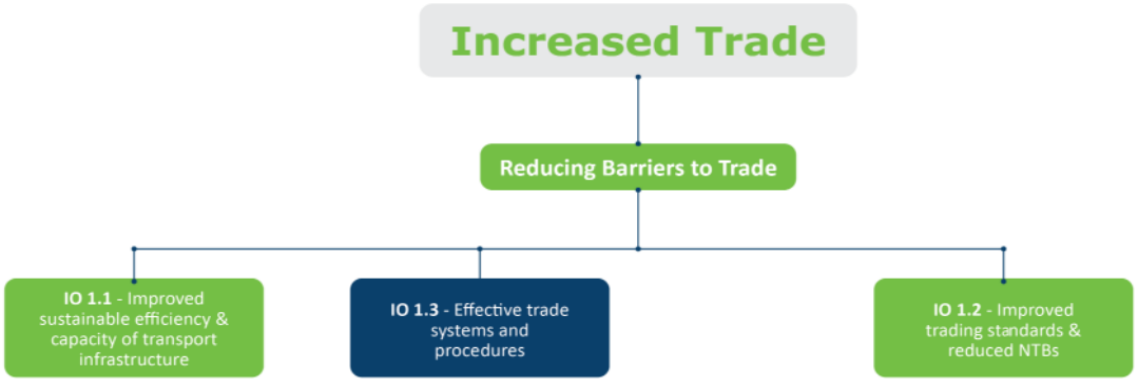
The impacts are the tangible long-term outcomes to which the project contributed, positive and negative, intended and unintended.

1. How did or how will the Cargo Tracking for Rail project contribute to reaching higher level TMEA objectives related to the improvement of systems and procedures for trade?
2. What are the key project elements that can be considered successful, new, and innovative?
3. To what extent has the project generated unintended positive or negative impacts?

5.2.1 Projects contribution to the higher-level goals of TMEA

According to TMEA's Theory of Change, the Cargo Tracking by Rail Project directly contributes to results under Outcome 1 (Reduced barriers to trade). These public sector barriers to trade include poor trade regulations, unharmonized and obstructive standards and SPS measures, poor systems and procedures, inefficient transport infrastructure to support trade. These barriers to trade affect trade costs for firms, making goods and services uncompetitive, leading to reduced exports and lower economic development.

Figure 2: TMEA TOC- Outcome 1



The project's interventions directly contribute to results under **effective trade systems and procedures**. This outcome underpins the assumption that the more trade processes, procedures and systems are automated, the more harmonisation, simplification, efficiency and transparency of services occur leading to increased predictability of time, costs and administration associated with trade processes and procedures which in turn reduce the costs to trade for the private sector. The evaluation team established that the project's intervention contributed to the achievement of the following results.

5.2.2 Cost savings as a result of time reduction

Evidence shows that the project directly influenced the reduction of clearance time at the ICDN for tagged containers from 12 days in 2018 to 4 days in 2021. This efficiency gain has led to a reduction in the cost cargo owners pay for extra days that cargo is at the ICDN from USD 52M in 2018 to an average of USD 3M in 2021 which is equal to a 94% reduction in costs cargo owners used to incur (see table 1). The project facilitated effective interagency collaboration among Kenya Railways, Kenya Revenue Authority and Kenya Ports Authority staff at Mombasa Port and ICDN. In addition, and as A set of 16 KPIs were set and monitored by KPA, KRC, KRA, Shipping lines and agents to further enhance efficiency from one process to another from manifest submission to cargo release at the ICDN. The KPIs (see annex 6) were aimed at ensuring efficiency/time savings in each agencies internal processes. 88% were achieved with 25% (4) exceeding targets. Only 2 KPIs belonging to KPA & KRA did not meet the set targets 1) verification and release is 48 hours against a target of 32 hours 2) Loading train is 4.5 hours against a target of 4 hours. Private sector engagement and advocacy, focusing on efficient cargo clearance, also reduced the time taken to clear cargo. The Shippers Council of East Africa (SCEA) and the Kenya Private Sector

Alliance (KEPSA) were among the lead apex institutions leading in these advocacy efforts through the Mombasa Port Community Charter, niche analysis on the cost of inefficiencies at ICDN and Mombasa Ports.[5]

As the table below indicates, cargo owners are charged USD 30 for clearing goods beyond the stipulated free days. Reducing the number of days then has a direct effect on the costs of clearing goods.

Table 1: Cost Savings calculations as a result of reduced dwell time

Year	Dwell Time at ICDN	Dwell Time not charged at ICDN (days)	Extra days	Rate per day (USD)	Charges for extra days (USD)	Actual Import TEUs MBSA-ICDN (as per KKRC data)	Total charges (In USD) for Extra days for all TEUs
2018	12	2	10	30	300	175,866	52,759,800
2019	7.3	2	5.3	30	159	256,918	40,743,983
2020	5.8	4	2	30	55	246,405	13,552,275
2021	4.42	4	0.42	30	12.5	250,169	3,127,113
Total							**110,183,171**

The evaluation team could not establish if the cost savings gained above were passed on to the consumers of the goods and recommend **a deeper analysis** at a higher level (programme/intermediate outcome level) to establish this. Similarly, TMEA should consider conducting an analysis of the project's contribution to overall time reduction along the corridor. Through a contribution and attribution analysis (refer to section 5.3), the evaluation team established that completion of planned and budgeted project outputs directly influenced the expected results of the reduction in dwell time.

Clearing agent/logistics companies also reported a reduction in demurrage costs after the expiry of the 14 free days (source Maersk). Before efficiency improvements at the ICDN, some containers would be lost for days. Cargo owners and clearing agents reported that they were sometimes forced to hire additional human resources to track the containers while others reported incurring the costs of buying gadgets to track their perishable containers.

Table 2: Demurrage Charges by Maersk

The applicable tariffs upon expiry of the 14 free days shall be as following; the charges are applicable per container per calendar day.

Days upon expiry of free time	20DRY	40DRY/40HDRY
1-7 days	USD 13	USD 25
8-14 days	USD 25	USD 50
above 14 days	USD 38	USD 75

Truck turnaround at the ICDN has reduced from 5.5 to 4.5 hours in 2021, and a further reduction is likely when both the full roll-out of the truck booking system and the construction of a marshalling yard are complete. It is important to note that the evaluation team could not establish the extent to which time savings translated to cost savings and for whom. With the full roll-out of the truck booking system, trucking companies will have better fleet management and decision-making due to the real-time management of containers and accurate data on container movements. The evaluation team established that the project did not reduce direct costs, that is, the costs emanating from transporting cargo and tariffs. The costs remained the same.

[5] Stakeholders' memorandum on the socio-economic impact of the government directive on the transportation of cargo on SGR on ICDN
SGR freight services report 2018-2021 by SCEA
Letter to the Cabinet Secretary, Ministry of Transport Infrastructure, Housing and Urban Development from KAM, KTA, KNCCI, SCEA et.al

The evaluation team established that the project did not lead to reduction in the direct costs (transporting cargo and tariffs costs). The costs remained the same. The costs of transporting cargo by road from Mombasa to Nairobi remained relatively the same from 2018 (USD 856) to 2021 (USD 821).

Table 3: Cargo Transport by Rail Costs and Charges

Mixed (Mombasa-Nairobi ICD by SGR then road to Nakuru) Return			
	20ft	40ft Up to 20.9T	40ft Above 21T
Mombasa-Nairobi ICD	500	700	750
Shore handling and Wharfage-KPA	150	225	225
Last Mile to Nakuru	500	500	500
Empty Return Nairobi-Mombasa-SGR	120	120	120
Empty container handling charge-KPA	30	45	45
Empty collection from port-Truck	30	60	60
Total Rail - Road via Nairobi ICD	1330	1650	1700

Table 4: Cargo Transport -Mombasa-Nairobi Road Rates in USD

	2016	2018	2019	2020
MSA-NRB Rates	856.18$	779.22$	798.46$	851.37$

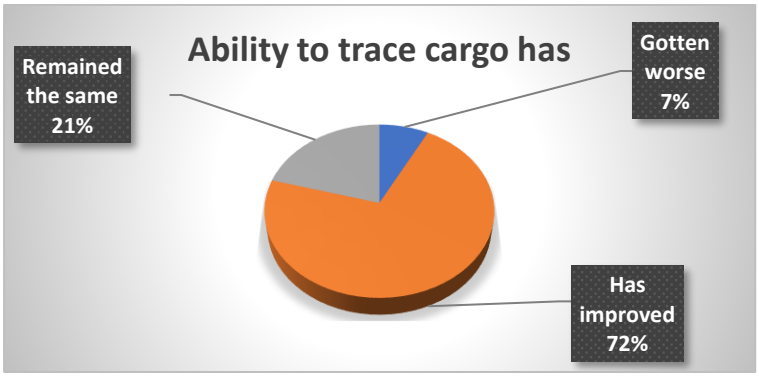
Source – KTA – Northern Corridor reports

5.2.3 Enhanced predictability and transparency

The project aimed to improve transparency and predictability by facilitating access to reliable data and information to cargo owners. This cargo visibility gave shippers, terminal operators, and transport owners the business predictability needed to make business decisions. Out of the 81% of respondents satisfied with the services at ICDN, including tracking, about 25% mentioned that tracking on rail helped them make informed arrangements for cargo pick-up and delivery at the ICDN. In addition, respondents cited the tracking information as enabling them to know when to contact customers and truck drivers, with some stating that rail tracking was better than on the road.

One key informant who transports tea via rail to Mombasa (see annexed case study) reported that the predictability enabled the company, which transports 5.5 million tonnes of tea, to coordinate better with the Mombasa tea warehouses and shipping companies on tea arrival times for each consignment. Tagged containers were instantly located at the ICDN compared to untagged containers that would take about 4-7 hours to trace. As a result, cases of lost or untraceable containers have also reduced compared to before the project. This led to better organisation of intermodal connections.

Graph 4: Respondents experience with the ability to trace cargo in ICDN



5.2.4 Improved Governance in rail freight services

One of the indicators measuring success is the end user's satisfaction level. Out of 94 end users interviewed, 81% (75 respondents) indicated that they were satisfied or very satisfied with the services citing efficient cargo tracking, improved customer service and reduction in time taken to clear cargo. The second target under this outcome was a 75% reduction in reported cases of inability to trace cargo. 72% of respondents stated that their ability to trace containers had improved. 50 out of the 94 respondents who indicated they had lost a container and reported the matter, 88% (43 of them) said that the relevant authorities adequately resolved their issues.

5.2.5 Positive and negative unintended impact

The evaluation team did not establish any negative unintended impact of the intervention. The Presidential Decree of ordering all containers to be transported by rail met a lot of resistance in 2018. With clearing agents, logistics and trucking companies especially based those in Mombasa protesting and filing court injunctions sighting massive loss of business and jobs since clearing would now shift to Mombasa and transport of cargo from road to rail. The project however has no connection with this decision and was a crucial value addition to the rail cargo services.

One of the positive effects of the project was reduction in personal interaction at the ICDN, which reduced incidences of clearing cargo based on "who is who." According to the end users interviewed, due to reduced human contact, incidences of bribery to track or clear goods were reduced and is now on “first come-first served” bases.

While this may not be directly attributable to the project, the end users acknowledged the added level of security that rail transport provided compared to the road. As opposed to the rail, sometimes goods are stolen, or the truck involved in accidents that might lead to theft of cargo contents. More cargo is now being transported via rail growing from 6.3% in 2018 to 22% in 2021. Traffic at the Mariakani Weigh bridge reduced by 28% from an average of 4973 in 2018 to 3544 in 2020 (Source KeNHA data- Northern Corridor reports). The reduction in truck transport can also be attributable to other factors including Covid-19 pandemic that disrupted trade in 2020/2021.

Another positive effect was strengthening of the coordination and collaboration between the three agencies and the private sector. The KPIs of the SGR Cargo were included in The Mombasa Port Charter and performance discussed in weekly Port Charter meetings. TMEA strengthened the bond with Kenya Railways Corporation which was a new implementing partner of TMEA

5.3 Effectiveness

Effectiveness is the extent to which the development intervention has achieved its objectives taking their relative importance into account.

1. What results (outputs and outcomes) against the planned results have been realized by the Cargo Tracking for Rail project? vs actual reported vs data collected in the field.
2. Which results are attributable to TMEA, and the stakeholders involved in this project?
3. What factors were critical for the achievements or failure of the project results?
4. What went well? What didn't go as planned?
5. What are the significant achievements with regards to TMEA cross-cutting aspects such as gender, climate change, and poverty that were realized by the project?

The project has scored 4 and a confidence level of high in this category.

5.3.1. Extent of achievement of targeted project results vs actuals at the outcome levels

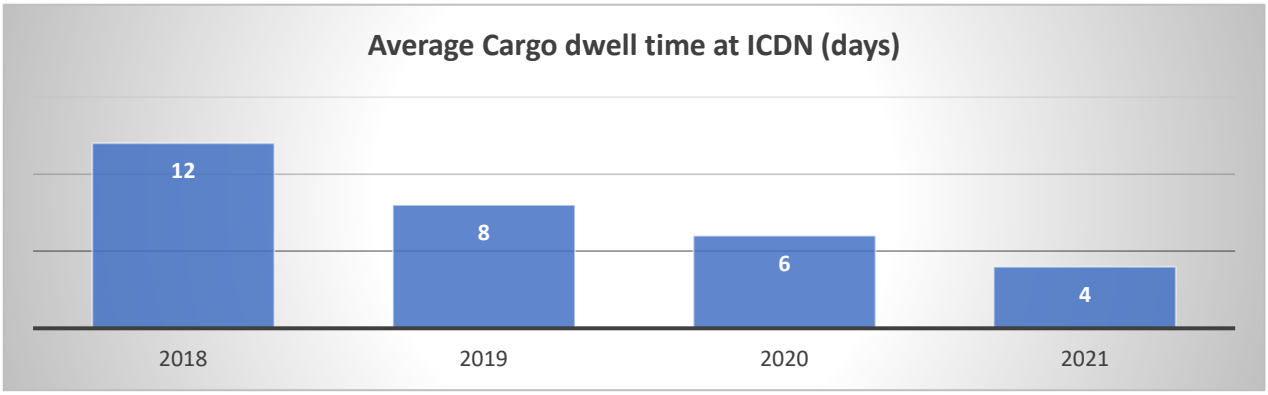
The table and graphs below summarise the extent to which Outcomes and Outputs were Achieved in comparison to what was planned. For each outcome has been scored and confidence levels provided based on evidence available.

Table 5: Planned vs achieved outcomes

Intermediate Outcome 1	**Kenyan trade actors improve the effectiveness and efficiency of handling, clearance and movement of goods along the Mombasa-Nairobi Rail Freight Logistics Corridor**		
Overall Score	Score: **5** Confidence Level: **High**		
Indicator 1	**Baseline & Target**	**Actual**	**Comments**
Corridor cargo dwell time	Baseline: 21 days (2018); ICD Dwell time - 12 days Target: 11 days by 2019 9 days by 2020 7 days by 2022	ICDN Dwell time- 8 days 2020- 6 days 2021- 4 days	The Evaluation team focused on getting evidence on ICD dwell time, in which the project had most influence. As opposed to the corridor cargo dwell time (offloaded from ship to ICD has the project had little influence until cargo was loaded into the train wagons)
Indicator 2	**Baseline & Target**	**Actual**	
Cost related to handling, clearance, and movement of Goods along the Rail Corridor border formalities	Baseline:2018 dwell time was 12 days with KPA charging cargo owners from the 3rd day, USD 30 per container (total of 300 USD) 2018 charges for all containers past Day 2 (See table 1)= 110.2M Target: 7.5% reduction by 2019 10.5% by 2020 13.5% by 2021 15% by 2022	Extra charges paid for delayed clearance reduced from 52M in 2018 to 3M in 2021 translating to a 94.1% reduction 2019 reduction -costs paid by cargo owners for extra dwell times reduced by 23% of the baseline 2020- the costs reduced by 74% of the baseline figure 2021- the costs reduced by 94% of the baseline figure (see table 1)	The project was not directly contributing to the reduction of costs associated with cargo movement but by working on the inefficiencies of tracking and tracing cargo, it managed to reduce the dwell time at the ICDN from 12 days to 4 days. If cargo is not cleared by the 4th day (2nd day in 2018/2019), cargo owners pay a charge of USD 30 for each day.

Indicator 3	Baseline & Target	Actual	
Average Cargo Through-Put in the Mombasa-Nairobi Rail Freight Logistics Corrido	Baseline - 256, 550 (import, export & empty TEUs) Target: 20% increase--2019 30% increase-- 2020 40% increase --2021	Volume of cargo increased by 60% (from 257, 972 TEUs in 2018 to 412, 516 TEUs in 2019; a 62% increase from the baseline in 2020 and a 73% increase in 2021 (442, 732) bringing the total number of containers to 1, 527, 234 (Source KPA data)	The project did not influence growth in cargo throughput. Data collected from KPA and KRC differed sometimes by up to 5,000 TEUs

Graph 5: Cargo dwell time trends (Source: KPA)



According to stakeholders interviewed and data obtained from project documents, there was a big difference in dwell time for containers tagged compared to untagged containers. The average cargo dwell time for the tagged containers was an average of 3 days for imports and 2 days for exports, compared to an average of 14 days for imports and 4.5 days for exports of untagged containers in 2019[6]. Overall, the dwell time reduced by 25% in 2019 and by 75% in 2021 (KPA data).

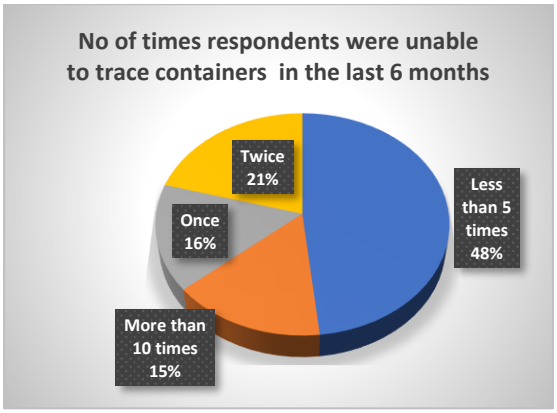
Table 6: Planned vs Achieved Outcomes - Continued

Intermediate outcome 2	**Kenyan trade actors improve the governance of handling, clearance, and movement of goods along the Mombasa -Nairobi rail freight logistics corridor**		
Overall Score	Category Score: **4** Confidence Level: **High**		
Indicator 1	**Baseline & Target**	**Actual**	**Comments**
Average Improvement in the Satisfaction Levels of Mombasa-Nairobi Rail Freight services Users with Government Service Delivery.	Baseline: No baseline was set in 2018 Target 80% satisfaction levels	Satisfaction levels increased to 81% (75% satisfied and 6% very satisfied (Source Survey data)	Out of 93 end users of the services were interviewed 81% (75 respondents) indicated they were satisfied and/or very satisfied with the services sighting efficient cargo tracing, improved services and reduction in time taken to clear cargo. End users were dissatisfied with tracking system down time, intermittent updates on cargo arrival at ICDN, poor communication when cargo is delayed; inability to track cargo before loading into the SGR

[6] FY 2018-2019 - Project Report for 3539 TLIP – Rail Freight Logistics Solution (MIS)

Indicator 2	Baseline & Target	Actual	
The Number of Incidences of Challenges to Trace Cargo along the Mombasa-Nairobi Rail Freight Logistics Corridor	Baseline: does not exist Target: 75% reduction in number of incidences.	72% of respondents stated that their ability to trace containers had improved. Of the 50 out of 93 respondents who indicated they could not trace at least one container in the past and had reported the matter, 88% (43 of them) indicated that their issues were resolved and handled well by the authorities.	

Graph 6: Container tracing



Graph 7: Cargo tracking

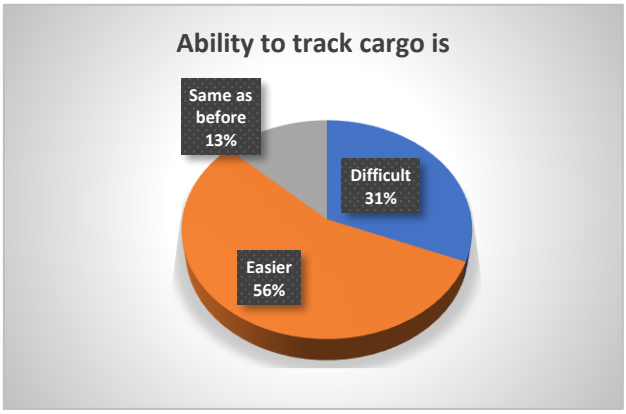


Table 7 Planned vs Achieved Outcomes - Continued

Short term outcome 1	**Kenyan Trade Actors improve joint visibility of cargo and vessel handled, cleared, and moved along the Mombasa - Nairobi Rail Freight Logistics Corridor**		
Overall Score	Category Score: **2** Confidence Level: **High**		
Indicator 1	**Baseline & Target**	**Actual**	**Comments**
Number of containers being tagged and tracked disaggregated by customs regime (imports, **exports & empties) along the Mombasa - Nairobi Rail Freight Corridor**	Baseline: 0 Target 100% of import and export containers	on average 24% of both import and export containers were tagged from 2018 to 2021 against a total of 974, 182 containers that were handled during the period, this excludes about 470,000 empty containers). In 2018, only 6.3% of the containers were tagged, this rose to 28% in 2019, and decreased to 22% in 2020 and 2021. This drop was caused by the global Covid-19 pandemic that disrupted trade and restricted movement in the country and counties. .	The project operated on half the budgeted amount having received a total of USD 5.5M. This led to purchase of much less tracking devices than anticipated. Limited number of staff at BSmart and KPA sometimes led to some containers not being tagged especially when multiple ships were discharging at the same time. The evaluation team established that the average train has 108 containers. Some trains are tagged 100%, others 50%, while some trains arrive at the ICDN with no tagged container. Due to factors of costs and resources, tagging that is above 70% (from current 30%) is the optimum to ensure all trains carry tagged containers.

			This would mean almost doubling the current devices (5,000 purchased by TMEA and 12,000 by KRA) to 34, 000. One device is approximately USD 400 with additional annual costs of USD 120 for internet and USD 10 for maintenance. KPA JMC staff also reported that some tags were lost, some not functioning, while some would be loaded together with empty containers in departing ships. The longer the dwell time at ICDN, the more the tags delay. Therefore, further reduction of the dwell time will ensure more tags are available to tag the next cargo.

Graph 4: Cargo tracking (Source: KPA & BSmart)

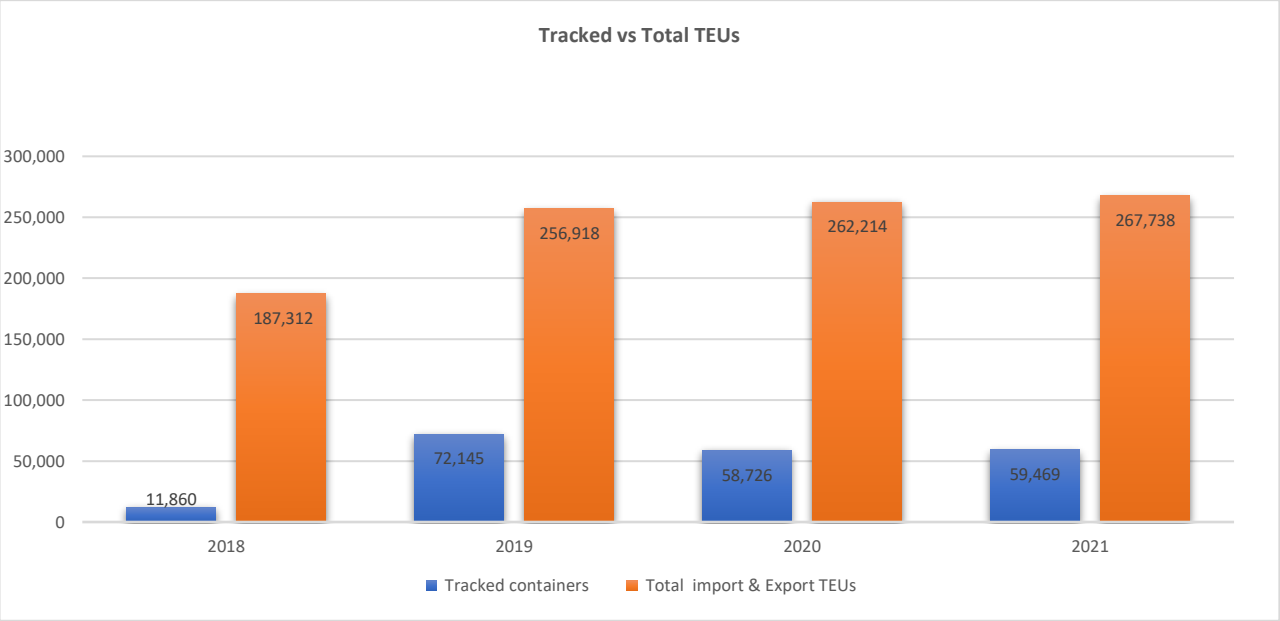


Table 8: Planned vs Achieved Outcomes - Continued

Short-term Outcome 2	**Kenyan trade actors efficiently plan, control, and manage the logistics processes & services along the Mombasa - Nairobi Rail Freight Logistics Corridor (Truck management system, Resource planning system and Last mile system)**		
Overall Score	Category Score: **3** Confidence Level: **Medium**		
Indicator 1	**Baseline & Target**	**Actual**	**Comments**
Number of Key Performance Indicators at the 75th Percentile of Set Targets	Baseline: 0 Target: 75% achievement of joint targets	A set of 16 KPIs was developed to measure the key performance areas of each of the 3 lead agencies, shipping lines and agents. Indicators and targets were aimed at reducing the time it took from one process to another from manifest submission to	The set of 16 joint KPIs further reduced the time taken from manifest submission to clearing of goods at the ICDN.

		train marshalling, gate in and gate out processes (See Annex 6 for a list of the KPIs and targets). 88% of the KPIs were achieved (14 out of 16) with 4 of the KPIs (25%) exceeding the targets. The two that didn't achieve were 1) verification and release by KRA that had a target of 32 hours, but achieved 48 hours 2) Loading train (KPA) had a target of 4 hours but achieved 4.5 hours	
Indicator 2	**Baseline & Target**	**Actual**	**Comments**
Number of Interconnected Logistics Processes and Services between Government Agencies Along the Corridor	Baseline: 0 Target: Not set	To support cargo tracking form port to ICD, last mile cargo delivery, truck booking and resource planning and KPIs, the evaluation team established that the cargo tracking system was successfully integrated with the 1) KRA iCMS and MMS, 2) KPA- KWATOS /CYROS, 3) KRC- CIYOS. The planned integration with KEBS system did not take place, it is planned for the next phase of the project. Some of the processes included: Cargo Acceptance Sheet; Discharge Tally; SGR loading Tally; Train Manifest; Train arrival notification; Container Inventory list; Cargo Pick up instruction list; Cargo loading notification; Gate out Confirmation; Export Process; Pre-Advice; Traffic and Queue Schedule.	
Indicator 2	**Baseline & Target**	**Actual**	**Comments**
Levels of cargo and truck congestion at Mombasa port and ICD-Nairobi. **(Truck turnaround time - ICDN)**	Baseline: 6.7 hours in 2018 Target: Not set Baseline: 61% - 2018	5.5 hours in 2020 4.5 hours in 2021 (KPA Actuals 2019: 48% 2020: 33%	The indicators of truck turnaround and yard capacity utilisation have been included here as measures of levels of cargo and truck congestion at the ICDN. The two were excluded from the project monitoring plan. Reduction in turnaround time can be attributed to installation and utilisation of the truck booking system which enhanced truck booking. It has integrated into the terminal operating system (TOS) Yard capacity utilisation depends on fast, continuous, effectively controlled, and

Average yard capacity utilisation at the ICDN)	Target: Not set	2021: 30% (Source KPA)	efficiently managed flow of cargo without any bottlenecks or barriers
Short-term Outcome 3	Kenyan Trade Actors Improve their competencies in the Use of Logistics Processes & Services Along the Mombasa-Nairobi Rail Freight Logistics Corridor		
Overall Score	Category Score: **3** Confidence Level: **Medium**		
Indicator 1	**Baseline & Target**	**Actual**	**Comments**
Number of trained stakeholders able to use the Logistics Processes & Services	Baseline: 0 Target: no target was set	30 staff from KRC, KPA, KRA were sensitised and trained on the cargo system[7] 60 representatives of cargo transport companies were trained on the traffic management system	With no targets set, it was not easy for the evaluation team to determine the extent of achievement of this indicator.
Indicator 2	**Baseline & Target**	**Actual**	**Comments**
Number of Issues reported to the freight logistics corridor help desk for assistance	Baseline: 0 Target: Not set	TMEA and the evaluation team was not able to get data from the help desk. Data from the respondents indicate that the number of issues reported has significantly reduced. Of the 50 out of 93 respondents who indicated they could not trace at least one container in the past year and had reported the matter, 88% (43 of them) indicated that their issues were resolved in good time and handled well by the authorities.	Feedback from the agencies at ICDN was that cases of untraced containers have reduced to insignificant levels. Missing containers cases were recorded with other cases and incidences and did not have separate registry.
Short-term Outcome 4	Kenyan Trade Actors enhance coordination and cooperation along the Mombasa - Nairobi rail freight logistics corridor		
Overall Score	Category Score: **3** Confidence Level: **Medium**		
Indicator 1	**Baseline & Target**	**Actual**	**Comments**
Number of Interconnected Logistics processes and services between Government	Baseline: 0 Target: was not set Target: no target was set	6 logistics processes were interconnected. To support cargo tracking from port to ICD, last mile cargo delivery, truck booking and resource planning and KPIs, the cargo tracking by rail was	

[7] About 30 staff trained staff are supporting core operations at any given time. They are rotated as part of their HR policy and therefore their replacements have to be trained. The project also has about 80 trained contracted staff offering managed services such as tagging and untagging containers, seals maintenance etc

Agencies Along the Corridor		successfully integrated with the 1) KRA iCMS and MMS, 2) KPA- KWATOS /CYROS, 3) KRC- CIYOS. The planned integration with KEBS system did not take place, it is planned for the next phase of the project. The three agencies carry out the following logistics processes jointly: 1. Cargo Manifesting – Sea Manifest information automatically shared between all the agencies on approval 2. Train manifest management and information sharing 3. Cargo Tracking 4. Information sharing to external stakeholders – e.g., in the rare cases of missing containers or disputes on when cargo was transported from Port to ICD 5. Information reconciliation 6. Cargo Release Process	
Indicator 2	**Baseline & Target**	**Actual**	**Comments**
Number of Joint-Agency Activities Along the Corridor	Baseline: 0 Target: not set	The three agencies carry out 5 processes jointly. The following agency activities are carried out jointly. 1. Cargo verification 2. Train loading 3. Train offloading 4. Cargo removal from port/ICD 5. Cargo movement to peripheral facilities	Joint activities reduce the time it takes from one process to another, it eliminates duplication and enables resolving of any emerging issues jointly.

Short-term Outcome 5	Kenyan trade actors enhance compliance & enforcement of trade regulations along the Mombasa- Nairobi rail freight corridor logistics.		
Overall Score	Category Score: **3** Confidence Level: **Medium**		
Indicator 1	**Baseline & Target**	**Actual**	**Comments**
Ratio of Stakeholders compliant to KPIs to uncompliant stakeholders	Baseline: 0 Target: no target was set	Actual- 100% of the stakeholders were compliant with the set KPIs. A set of 16 KPIs were set each agency had its own KPIs as follows. KPA- 7 KPIs	

		KRC- 4 KPIs KRA- 4 KPIs Shipping lines-2 KPIs Agents- 2 KPIs The KPIs (see annex 6) were meant to ensure efficiency/time savings in each agencies internal processes. 88% were achieved with 25% (4) exceeding targets. Only 2 KPIs belonging to KPA & KRA did not meet the set targets 1) verification and release is 48 hours against a target of 32 hours 2) Loading train is 4.5 hours against a target of 4 hours.	

5.3.2 Extent of Achievement of Targeted Outputs & Activities

The evaluation established that 100% of the outputs and activities that were budgeted for were completed However, since the project received only half of the planned funds (USD 5.5.M) some outputs and activities were not completed as described in the original project proposal, results chain, and monitoring plan.

Table 9: Planned vs Achieved Outputs and Activities (Source: TMEA Project work plans, result chains and monitoring plans)

#	Output description	% Realised	Comments	Assessment (1-Poor and 5-Excellent)	Confidence level
1.	Change Management Plan Implemented	100	This included the creation of an inter-agency team to oversee implementation of project outputs and activities. The interagency team from KPA, KRA, KRC received several trainings on the new system and procedures. External users including staff from transport companies were trained, pre and post automation awareness creation activities were successfully completed. New Supporting Policy Frameworks -MOU, Standard Operating Procedures (SOPs), Rail Freight Corridor Logistics charter	4 (Very Good)	High
2.	Monitoring and Evaluation Plan Implemented	100%	The project results framework documents were completed and used for reporting during the entire project lifespan. However, the results chain and monitoring plans were not reviewed to reflect the new budget realities as some of the outputs were not funded. Additionally, baseline data for some short come and intermediate outcome indicators were not collected.	3	Medium

3.	System Developed and Deployed 1: **Cargo Tracking System**	100%	All the activities under this output were completed- Inception and Functional Analysis exercises; Supply and installation of ICT Infrastructure; System development and delivery of prototype; User Acceptance Tests; System go-live	5	High
4.	System Developed and Deployed 2: **Customer Notification**	30%	The original plan was to have an SMS based notification solution that sends alerts, notifications to cargo owners and others on the status and position of the cargo from arrival, onto wagon, departure, and arrival of cargo. However, KRC did not take up the SMS costs as planned. They also did not get the required number of importers to subscribe to the services. The second option was to pick the contacts from the custom declaration forms, however, clearing agents indicated their contacts instead. An email solution was adopted. which picks addresses of the importers from the domestic taxes system and sends ALL importers notifications at key stages in the clearance process. According to the 94 respondents interviewed, only 26% (25 of them stated that they received any form of notifications about the status of their cargo, with 63% indicating they have never received any notifications and 11% stating that sometimes they do, sometimes they don't. This means that the notification has not been as effective as planned. of those interviewed, 33% indicated that the notifications had improved, 50% of the respondents indicated that they did not notice any changes on the notifications with 13% stating that the notifications had gotten worse. As recommended, there is a need for further sensitisation on communication/notification.	2	Medium
5.	System Support Services Plan Implemented	100%	The following was achieved 1. System hosting service provided 2. Data bundles for tracking devices provided 3. Managed services for tagging and untagging containers 4. Tracking devices maintenance services	5	High
6.	System integration(s) developed and deployed 1: **KPA (KWATOS)**	100%	The cargo tracking system (CTS) was integrated with KPA KWATOS with information exchange between the two systems running successfully. A validation and training workshop for the teams and system developers was held.	5	5

7.	System integration(s) developed and deployed 2**: KRA (ICMS)**	100%	The system was integrated with the iCMS system with functional analysis for migrating the integration from the legacy KRA customs application (MMS) to ICMS completed.	5	5
8.	System integration(s) developed and deployed 3: **Kenya Railway Cooperation platform**	100%	Integration between the cargo system and KRC's Ciyos system was completed successfully, tested and now in use.	5	5
9.	System Developed and Deployed 3: T**raffic Management System**	80%	Activities under this output included setting up of traffic-flow and queue management solutions to control and facilitate trucks access to the port and ICD facilities. Functionalities included gate management processes, online truck appointment and scheduling system for the last mile service providers. The full roll out of the truck booking system will be completed after the marshalling yard with a capacity of 300 trucks per day is completed. The booking system was tested and piloted with select stakeholders and is ready for full roll out which will reduce the congestion and truck turnaround time.	5	5
10.	System Developed and Deployed **4: Resource Planning System**	0%	This output was not started. The joint resource planning system was not developed as planned due to funds unavailability. The project will be implemented under a new project that will be implemented by Kenya Transport and Logistics Network (KTLN) project.	1	5
11.	System Developed and Deployed 5**: Last Mile Delivery System**	0%	The Last Mile System was not developed due to limited of funds. The 5 activities under this output were therefore not implemented and the output not completed. This output will be part of those that will be completed in a related project under KTLN.	1	5
12.	System integration(s) developed and deployed **4: Kenya Bureau of Standards**	0	Due to funding gaps, integration with KEBS system was put on hold. It will be developed in the next phase of the project.	1	5

For the outputs and activities not funded, the project team should have considered reviewing the results framework (results chain and monitoring plan) to ensure that they were adjust to the new funding realities.

5.3.3 Contribution & Attribution Analysis

The contribution and attribution approach adapted for the Cargo tracking by Rail Evaluation is as recommended by John Mayne (2008)[8] that is used to assess the cause and effect and answer the question "to what extent are the observed changes (whether positive or negative) are as a consequence of the project's interventions? This approach is often used when it is impractical to design counterfactual or quasi

[8]Mayne, J. 2008. Contribution Analysis: An Approach to Exploring Cause and Effect, ILAC Brief 16, May 2008

experimental and experimental approaches to assess the project's contribution/attribution. With the approach, causality is usually inferred if the following evidence is strong:

1. The project is based on a logical theory of change where the assumptions are sound and plausible
2. The theory of change is verified by evidence to show that the chain of expected results occurred.
3. The activities of the project were implemented as planned
4. Other factors influencing the project were assessed and were either shown not to have made a significant contribution or, if they did, their relative contribution was recognised.[9]

The evaluation team used both minimalist contribution analysis (confirming that the expected and funded outputs were delivered) and the higher level c**ontribution analysis of direct influence –** the team gathered and build evidence that confirmed that the expected results in the areas of direct influence of the theory of change were observed and the project was influential in bringing about the results, there was strong evidence that supports the fact that the project had a direct influence in bringing about the observed changes.
The evaluation team followed the six steps recommended in the contribution analysis as shown below.

Step 1: Setting out the attribution problem to be addressed:
The core evaluation questions in the terms of reference set out the specific questions to be addressed which were reviewed by the evaluation team to determine the specific cause-effect questions to be addressed and other key influencing factors. Specifically, questions under effectiveness were aimed at determining if the project's intervention led to the planned changes at the outcome and impact level.

1. What results (outputs and outcomes) against the planned results have been realized by the Cargo Tracking for Rail project? vs actual reported vs data collected in the field.
2. To what extent can the results be attributable to TMEA intervention? What was the contribution of the other stakeholders/ongoing interventions?
3. What factors were critical for the achievements or failure of the project results?
4. What are the significant achievements with regards to TMEA cross-cutting aspects such as Gender, Climate Change, and Poverty that were realized by the project?
5. What are the significant achievements with regards TMEA crosscutting aspects such as Gender, Climate Change, and Poverty that were realised by the project?

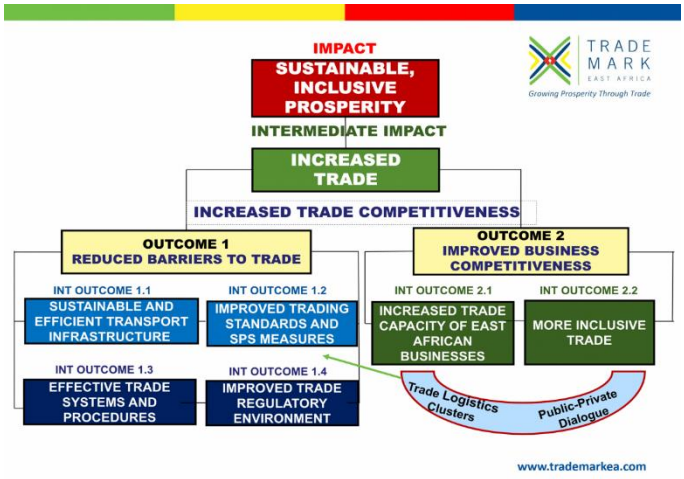
The evaluation team determined that the level of proof/evidence to support the causal linkages had to be high. The evaluation team analysed the project's theory of change, monitoring plan, results chain, key assumptions made, primary/secondary data and other influencing factors in order to establish if the observed changes are attributable/were caused by the project's interventions.

Step 2: Reviewing the theory of change and results chain- Consistency of evidence with causal relationship
Through its ICT4T programming, TMEA works to simplify, harmonise, increase transparency and, overall, improve efficiency of trade systems and procedures in Eastern Africa. TMEA does this through automating previously manual processes and/or enhancing existing processes and procedures.[10]
The project is directly aligned to TMEA's revised Theory of Change (see image below). The Cargo Tracking by Rail Project results were expected to lead to More Effective Trade Systems and Procedures (0utcome 1.3). Indicators that measure the results under Outcome 1.3 include reduction in the cost and time to clear/transport goods. The evaluation team established that the project directly led to a reduction in cargo dwell time and the costs that traders pay due to delayed cargo clearance. At a higher level, effective trade systems and procedures contributed to reduction in the barriers to trade (Outcome 1) and would also improve the competitiveness (Outcome 2) of businesses through reduction in trade costs. At the highest level of the ToC, achievement of these two outcomes was expected to lead to increased trade (Intermediate Impact).

[9] Kotvojs (2006)

[10] TMEA Theory of change docs

Figure 3: TMEA'S Theory of Change

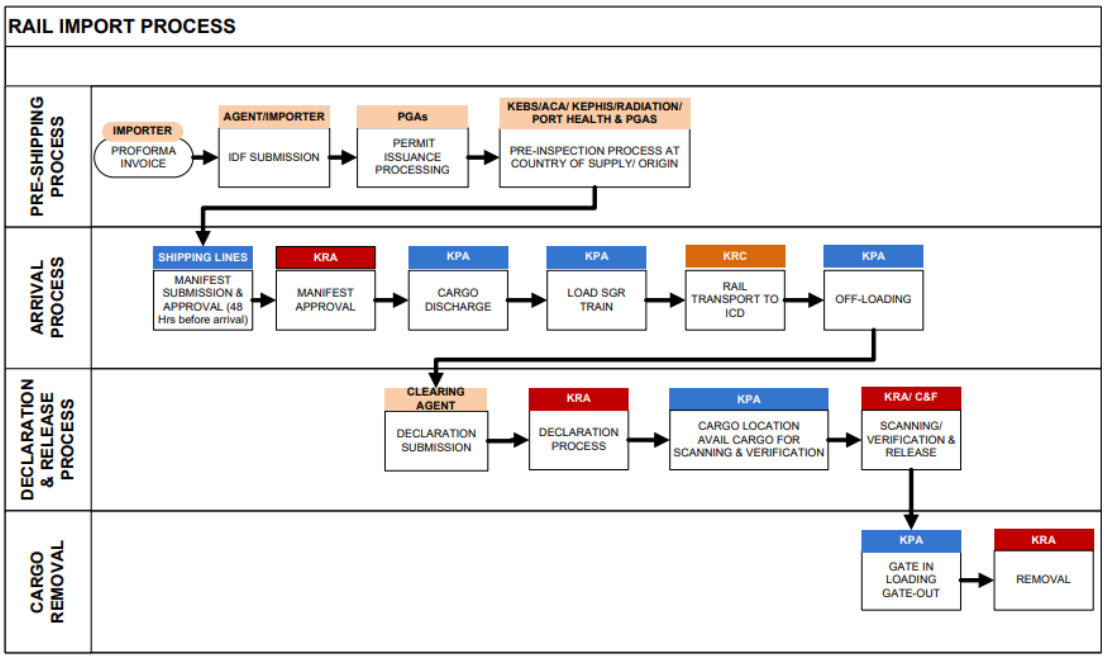


To explore the cause effect linkages as stipulated during project planning and inception, the evaluation team reviewed the project's results chain (as detailed in section 5.3.1) and found out that:

1. The completion of the outputs- change management plan implemented, M & E plan implemented, cargo tracking system developed and deployed directly led to improved competencies in the use of logistics process and services along the Mombasa- Nairobi Rail Freight Logistics Corridor. At least 30 staff from the three agencies were trained on the new processes, systems and procedures. In addition, end users were sensitised on the new processes while 60 representatives of cargo transport companies were also trained on the traffic management system . D This included the creation of an inter-agency team to oversee implementation of project outputs and activities. The interagency team from KPA, KRA, KRC received several trainings on the new system and procedures. External users including staff from transport companies were trained, pre and post automation awareness creation activities were successfully completed. int Monitoring Centre . The confidence level based on the evidence that showed strong causal linkages between the completion of the outputs and change at the outcome level was high.

2. Integration of the Cargo Tracking System with KRA (iCMS), KPA (KWATOS), KEBS system and KRC (Ciyos) platform was expected to improve joint visibility of cargo and vessel handled, cleared and moved along the Mombasa- Nairobi Rail Freight Logistics Corridor. Evidence reviewed by the team indicate that unlike before when the key agencies used to operate separate processes in each organisation's individual system, integration enhanced coordination and collaboration between the agencies. Integration with the KEBS system was not initiated as planned. The chart below shows enhanced workflow processes for the 3 agencies from pre-shipment processes to cargo removal at ICDN.

Figure 4: WORKFLOW OF RAIL IMPORT PROCESSES SHOWING TASKS OF THE 3 AGENCIES



3. The other outputs that were to be completed included development and deployment of the traffic management system, resource planning system and the last mile system. Only the traffic management system output was completed. Some of the activities included setting up of traffic-flow and queue management solutions to control and facilitate trucks access to the port and ICD facilities. Functionalities included gate management processes, online truck appointment and scheduling system for the last mile service providers. This directly reduced the truck turnaround time from 5.5 hours to 4.5 hours. The full roll out of the truck booking system will be completed after the marshalling yard with a capacity of 300 trucks per day is completed. The booking system was tested and piloted with select stakeholders and is ready for full roll out which will reduce the congestion and truck turnaround time.

The evaluation team established that the completed outputs resulted in changes and achievements of the outcomes and the intermediate outcomes levels. From the evidence gathered, timing of the outcome results (reduction in time and costs) occurred soon after the cargo tracking system went live further cementing the cause-and-effect evidence.

5.3.4. Key Assumptions Underlying the Project Results Chain

During the analysis of the evidence, the evaluation team established that the following assumptions were made by the project team during project planning, inception and implementation.

1. The system is fully rolled out as per the design and would cover 100% of cargo moving via SGR
2. Better management would result in more effective, efficient systems and procedures.
3. That there would be sufficient staff capacity to tag all eligible containers
4. Trained staff would be available throughout the lifespan of the project, with no or minimum staff transfers. However, this was not the case with rotational transfers of KRA staff especially. Capacity building and induction of new staff was conducted periodically during project implementation
5. The project begun with half of the funds (5.5M USD); the assumption was that the rest of the funds would be available soon after project commencement. This would have ensured that some of the outputs without budgets like the Joint Resource Planning System, Last Mile System, Integration with KEBS, would be implemented fully, these would have boosted further the success of the project.
6. It was assumed that the systems the Cargo Tracking by Rail was integrating with were upgraded and running as they should and that the systems would not experience down time. The cargo tracking system was to be integrated into KRA, KRC, KPA and KEBS systems with the assumption that the systems were running optimally and would be available, as downtime would also affect cargo tracking and would lead to increased dwell time.
7. The project's success and sustainability was also dependent on availability of technical staff in the 3 agencies to manage the project after training and handover.
8. It was expected that once notified, cargo owners/agents would clear the containers within the stipulated timelines. It was assumed that no unforeseen circumstances would make the cargo owners/agents delay clearing containers once they arrived at the ICDN in order to reduce congestion and inefficiencies.
9. The project also assumed that there would be no delays in transporting the unused tags from ICDN back to the port and that there would be minimal loss/misplacement of tags.
10. The project assumed that the SGR cargo train would operate as scheduled without unforeseen delays in uploading, transporting and offloading cargo at the ICDN.
11. Trained cargo owners/ clearing agents would use the system as designed.
12. The traffic management system results would further be enhanced and complemented by the construction of the planned KPA's marshalling yard which had a capacity of 300 trucks at the ICDN. This would further reduce truck congestion/truck turnaround time at ICDN.

5.3.5. Analysis of Key Project Risks

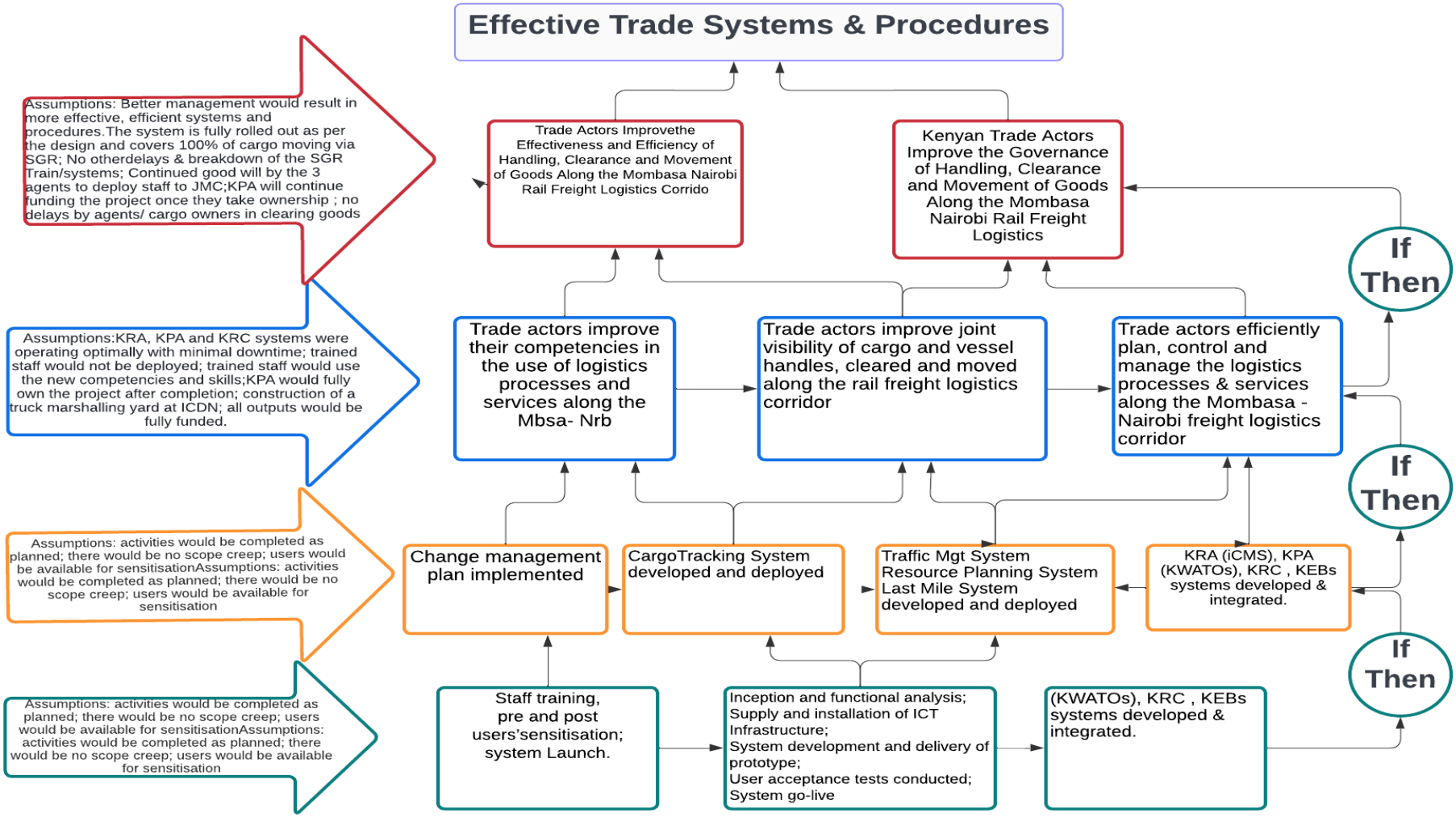
The evaluation team reviewed the project risk as part of the contribution and attribution analysis. The project teams in TMEA, KRA and KPC managed the risks.

Risk	Description	Mitigation	Level	Updates by Evaluation Team

Risk	Description	Mitigation	Level	Updates by Evaluation Team
Project Ownership - Lack of adequate ownership by some participating agencies	Due to multiple participating agencies with different though related mandates, there is a risk that some components of the project outputs and responsibilities may lack the required level of ownership.	Stakeholder involvement in the conception and implementation of each component	Medium	This assumption was plausible. Knowledge transfer/ownership of the project was part of the change management processes. The project was transferred from TMEA and under the ownership of KPA and is managed by them. BSmart is still providing backstopping support to KPA/KRC/KRA project teams managing the system. During the KII interviews, some of the KPA stakeholders interviewed were of the view that KPA did not have full ownership of the project. The evaluation team has recommended that TMEA gets clarity on the this and embarks to ensure that KPA team feel they are in charge of the entire project.
Scope creep - affecting delivery timelines and cost	Due to the complex and changing nature of operations of the participating agencies, there is a risk of continuous expansion of the scope of work to be implemented therefore affecting the delivery timelines. Due to the high cost of hardware components and software development, the allocated budget may also be overrun.	1.Clear scope definition 2.Continuous monitoring of scope and budget utilization 3.Clear change management process to evaluate the need and implication of proposed changes	Medium	There was minimal scope creep as the outputs and activities that were planned and funded initially are the activities and outputs delivered. However, the cost for installation of the cargo tracking system was originally budgeted for 1.25M and shot up to 4.85M which was 288% above budget.
Sustainability - Hardware maintenance, Recurrent costs, Human resourcing	Long term sustainability of: 1. Hardware maintenance and replacement 2. Recurrent costs settlement 3.Human resourcing for the operational areas	1.Sustainability plan enshrined in the supporting policy framework covering hardware maintenance and replacement, recurrent costs, human resourcing 2. Maintenance center for the tracking seals run by the implementing partners	Medium	The project has been handed over to KPA who are managing the recurring costs of data bundles (which amounts to USD 150,000 annually), paying the system consultants for maintenance and support (USD 80,000 annually). The three agents have seconded staff to the Joint Monitoring Centre at the Port of Mombasa and also at ICDN. KRA has also purchased an additional 12,000 tracking devices to the 5,000 devices purchased by TMEA. The project should however consider co-sharing the costs with the traders in the short-term future, then transferring the entire costs to traders
Project delays resulting from the effects of the COVID-19 Pandemic	With travel restrictions and ban on gatherings instituted by the governments in response to the COVID-19 pandemic, activities requiring physical engagements and their dependent activities will stall while those that can be carried out virtually may take longer to complete.	1. Virtual engagements where possible 2. Move forward activities that can be carried out virtually to up the time freed up by stalled activities 3. Plan remedial measures and budgets to reduce impact	High	Covid-19 had no adverse effect on the project deliverables/outputs/ However it affected the realisation of some outcome targets. The number of TEUs , containers tagged reduced marginally due to decline in global trade as a result of the shutdown during the pandemic. The project was able to continue with its activities with slight delays in delivering budgeted outputs
Financial Risk	The available funds are inadequate to implement the project	Phased implementation	High	This risk became a reality. About 12M was needed to deliver all the project outputs. However only 5.5M was availed. Some

Risk	Description	Mitigation	Level	Updates by Evaluation Team
	as originally designed. Recurrent costs have also eaten into available funds making the Gap wider.	and funds become available		outputs did not have budgets like 1) Integration with KEBS 2) The Last Mile System and 3) The Joint Resource Management System. The project adapted a phased implementation of the project to mitigate this. The remaining outputs will be funded in the next phase of the project.
Project Results - Traffic Management	While the traffic management system will be completed and operationalized, the full results will only be experienced once a truck marshalling yard is availed	Escalation to stakeholders' top management in the CEOs forum	High	The marshalling yard with a capacity to hold 300 trucks per day was not completed by the time of the evaluation. KPA had prepared terms of bid documents for construction of the marshalling yard. Truck turnaround time reduced from 5.5 hours to 4.5 hours and is expected to reduce further once the marshalling yard is complete.

Figure 5: Project Results Chain



5.3.6. Other external factors that may have contributed to the observed results

The evaluation team explored other alternative explanations and other factors that may have contributed to the success, so as to rule out the possibility that observed results as due other factors. This was done through

1. **Key informant interviews** – The team asked informants/technical experts to identify other possible explanations that may have led to the observed results.
2. **Process tracing** – The team gathered primary and secondary evidence so as rule out alternative explanatory variables at each step of the theory of change.

The cargo tracking project was mentioned as having a direct influence on the efficiencies observed at the ICDN by the 13 key informants and majority of the respondents. Other factors mentioned included government's good will, efforts and commitments to ensure that transporting cargo by SGR was successful following the Presidential Decree (shown mostly be staff deployment to the JMC and relevant stakeholders working together to reduce the inefficiencies). The government however did not co-fund the outputs of this project. Complimentary advocacy efforts made by the private sector to reduce the clearing time and associated charges for delayed cargos also enhanced the results. Covid-19 pandemic in 2020 and 2021 reduced trade globally, this would have resulted in fewer containers and reduced congestion at the ICDN leading to reduced costs and time to clear goods. However, the number of TEUs at ICDN increased each year from 13, 977 in 2019 to 17, 569 in 2021. The number of tagged containers also remained at 30% of total TEUs. This eliminates reduced trade/cargo as a cause of observed changes. The project was therefore found to have directly contributed to observed changes at the outcome level.

Step 3: Gathering the existing evidence on the results chain:

As detailed above, a step-by-step approach was used to determine how the interventions led to the planned/expected results. Primary and secondary data was collected as evidence to support achievement of the results at the outcome and intermediate outcome level. The evaluation team triangulated data collected from 13 key informant interviews, 94 respondents who filled the online questionnaire, literature review of various documents including external documents as well as discussions with the TMEA/project staff. Evidence to validate the project results chain was collected on the results, assumptions and other influencing factors. List of persons contacted, and documents reviewed are in annexes 4, 5 and 7. Key informants interviewed were able to attribute the changes observed to the project's causal processes and were able to articulate before (2018) and after project completion.

Step 4: Assembling and assessing the contribution story:

The contribution story was assembled and assessed critically to identify strong and weak links in the results chain and the credibility of the contribution story. The pattern of results and links validates the results chain. Some planned outputs like the joint resource planning and last mile systems were not implemented. However, even without the joint resource planning, the agents had a list of 16 KPIs that were aimed at reducing further the time taken to evacuate cargo, tag, transport and clear cargo from the port to ICDN (annex 6). Approximately with 88% of the KPIs achieving their targets (25% were overachieved). The analysis of the project activities and outputs as well as results revealed that the project achieved its short term and long-term outcomes. All stakeholders agreed that the project largely contributed to the efficiencies at ICDN and reduced the time taken to clear cargo. The evaluation team validated the key assumptions and risks. One of the major assumptions was that funds would be available to complete all the outputs planned. Evidence was weak to fully evaluate two indicators 1) levels of transparency in the handling, clearance and movement of cargo and 2) levels of accountability in the handling, clearance and movement of cargo. No baselines and targets were set.

Step 5: Seeking out additional evidence:

From the contribution story additional evidence was gathered by the evaluation team to augment the evidence in terms of the results which occurred, the key assumptions and the role of external influences and other contributing factors were assessed. The 13 key informants and 94 respondents who answered the online tool, interviews with TMEA staff and secondary review of the situation and data before and after project was completed

by the evaluation team. Case studies and informant interviews have all validated the evidence showing that improved efficiency at ICDN is attributable to the project.

Step 6: Revising and strengthening the contribution story:

The additional evidence gathered was used to strengthen cause-effect linkages and credibility of contribution/attribution. This, therefore, provided an argument with evidence from which the evaluation team reasonably concluded with confidence that the TMEA-supported Cargo Tracking for Rail Project was a key factor and was directly responsible for the major efficiency changes at the ICDN as described below.

5.3.7. Summary of Results Attributable to TMEA Supported Intervention

Based on the contribution and attribution analysis above, the evaluation findings indicate that the following high to medium results were as a result of the project's direct influence.

6. Reduction in cargo dwell time from 12 days to 4 days at the ICDN for tagged containers is wholly attributable to the project
7. Reducing the cargo dwell time led to a reduction by 94% of the charges that cargo owners paid for extra dwell time beyond the free days. The charges reduced from a high of 52M USD in 2018 when the dwell time was 12 days to USD 3M in 2021 when the dwell time averaged 4.4 days.
8. Reduction in truck turnaround time at the ICDN by 1 hour from 5.5 to 4.5 hours
9. Enhanced yard capacity utilisation at the ICDN
10. Increase in the number of tagged containers from 6% in 2018 to 22% in 2021 enhancing traceability of containers.
11. Leveraging of funds and resources by KPA, KRC, KRA - The agencies contributed human resources and funds to support the project. KPA has since taken over maintenance costs of the projects that average USD 80,000 and additional USD 150 ,000 for data bundles of the 5,000 tracking devices.
12. Enhanced cargo visibility and traceability along the Mombasa- Nairobi Rail Corridor.

5.4 Efficiency

Efficiency is the extent to which the project achieved maximum output from a given level of resources used to carry out an activity

1. How has the Cargo Tracking for Rail project results been achieved?
2. Were the results achieved with good Value for Money. Value for money is measured in terms of costs and benefits)? Economy, Efficiency, Effectiveness and Equity?
3. Did the project achieve planned outcomes within the budgeted resources?
4. How does the Cargo Tracking for Rail project complement other TMEA and other donor initiatives along the Northern and Central Corridors?
5. How well did the project achieve the following-?
   - I. Adaptive management: - how well did the project apply and improve its decision-making and practices based on lessons learned?
   - II. Relationship management: - How well did the project manage its, partners, donors, and other stakeholders?
   - III. TMEA's project management processes – how well did they enhance or impend project planning and implementation?
   - IV. Delivery model: - Determining if another implementation methodology would have been more cost-effective
   - V. Determining if the selected implementation partners implemented the project adequately and, if not, how were gaps handled?

The project has scored a 4 in this category and a confidence level of 5.

Efficiency			
Overall Score	**Score:** 3.6 **Confidence Level: High**		
Question		Score	Confidence level
How has the Cargo Tracking for Rail project results been achieved?	The project completed all the budgeted outputs and activities which led to positive results at the outcome level as described in section 5.3.	3.5	5
Were the results achieved with good Value for Money (VfM in terms of costs and benefits)? Economy: Efficiency: Effectiveness: Equity	This is described below. The project achieved good VfM was considered viable and feasible.	4	5
Did the project achieve planned outcomes within the budgeted resources?	The project achieved its planned outcomes. The original budget for the project was USD 1.25M which increased to 4.85M	4	5
How does the Cargo Tracking for Rail project complement other TMEA and other donor initiatives along the Northern and Central Corridors?	The project's main target of reducing inefficiencies related to cargo evacuation from the Port of Mombasa to the ICDN via rail complements many other TMEA projects (customs, policy, ICT4T, port and border post improvement projects) as detailed in section 5.1.5.	5	5

Efficiency			
Overall Score	**Score:** 3.6 **Confidence Level: High**		
Question		Score	Confidence level
How well did the project achieve the following : adaptive programming; relationship management; PCM/ M &E	The project scores average on this. Having received half the funding, the project team should have considered revising the results frameworks; baseline data for key indicators was not collected; periodic updates of the monitoring plan did not take place. The project scores highly on stakeholder management- this is evidenced from key informant interviews. See below for further details.	3	5

According to the project PAR, the high value for money provisions were to be integrated into project implementation. The proposal detailed how the four components of value for money (Economy, Efficiency, Equity, Effectiveness) would be implemented. For **Economy,** several measures such as ensuring 60% of the project procurement of output components was competitive, use of open-source technology, holding workshops and sensitisation activities in implementing partners facilities to reduce cost. For effectiveness, the project's aim of cutting down costs associated with inefficiencies during evacuating, transporting, and clearing of cargo, was achieved. The projected payback period was planned to be 1 year and return on investment was expected to be at least 55% for Internal Rate of Return within 2 years of operationalization.

The initial project budget was 12M USD, however due to funding gaps, the project was implemented with USD 5.5M as indicated below. The Last Mile Delivery and the Joint Resource Planning Systems were not budgeted for, the project team should have considered reviewing the results chain, work plan and monitoring plan to match the milestones and the funding realities. Although the project conception was an emergency due to the situation at the ICDN soon after the Presidential Decree was announced, the consultant in charge of developing and deploying the cargo tracking system was the same one who had successfully and competitively bid for the development and deployment of the Regional Electronic Cargo Tracking System. To save time on procurement processes, the same vendor was used to develop the cargo tracking system. The costs for installation of the cargo tracking system were originally budgeted for 1.25M however the cost shot up to 4.85M which was 288% above budget. The three agencies deployed staff to support project implementation, they also provided space for some outputs to be achieved like the Joint Monitoring Centre, training venues and meeting rooms. KPA has since absorbed some of the systems maintenance and support costs.

Table 8: Project Budget and Expenditures

Output/Activities	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22
Output 1: System Developed and Deployed				
Supply and installation of ICT Infrastructure at KPA			98,062	392,246
(a) System Developed and Deployed : Cargo Tracking System				
ECTS Installation and maintenance	440,661	4,439,125		
(b)System Developed and Deployed : Customer Notification System				
Shortcode services		5,295		
(c)System Developed and Deployed : Traffic Management System				
KPA Terminal Operations System Intergration		25,000		
Output 3: Change Management Plan Implemented				
Meetings/Workshops	9,752	14,557		
Advertising expenses			2,923	
Endline Evaluation				80,000
TOTAL	**450,413**	**4,483,978**	**100,985**	**472,246**
Total Project Budget	**5,519,000**			
Total Project Expenditure	**5,507,622**			
Balance	**11,378**			

Source: TMEA project documents

Cost Benefit Analysis and Value for Money

To determine whether the Cargo Tracking for Rail Project results been achieved with good Value for Money (VfM, the evaluation team conducted a Cost Benefit Analysis (CBA). The CBA results were based on benefits in form of reduced dwell time because of cargo tracking rail project intervention that was supported by TMEA that resulted into cost reductions. The cost reductions culminated into savings/benefits by the importers and exporters and the related trade agencies. The key assumptions used to derive the CBA were:

i) The baseline average dwell time at ICDN was 12 days.
ii) The dwell time for the projected period (2022 to 2027) was the average of the actual dwell time for 2019 to 2021.
iii) The free days for the projected period for cargo will remain at 4 days before extra charges are imposed.
iv) The charges for extra days will be maintained at US$30 for the project period.
v) The projected import TEUs growth is assumed to be 1% (lower than KR projections of 3%) and is based on the actual import TEUs of 2021 (250,169 TEUs).
vi) The benefits attributed to electronic cargo tracking system was assumed be 70% and the rest were due to other improved operational efficiency.
vii) A 10% discount rate was applied to costs and benefits.
viii) A 10-year lifecycle of the ECTS project benefits– that is, the benefits would continue for 10 years of effectiveness from the time the intervention started.
ix) Systems maintenance cost (which include user trainings, systems enhancements, systems support and technology upgrades) during the 10-year period was estimated to increase by 10% annually. The maintenance cost up to 2021 was part of the project costs.

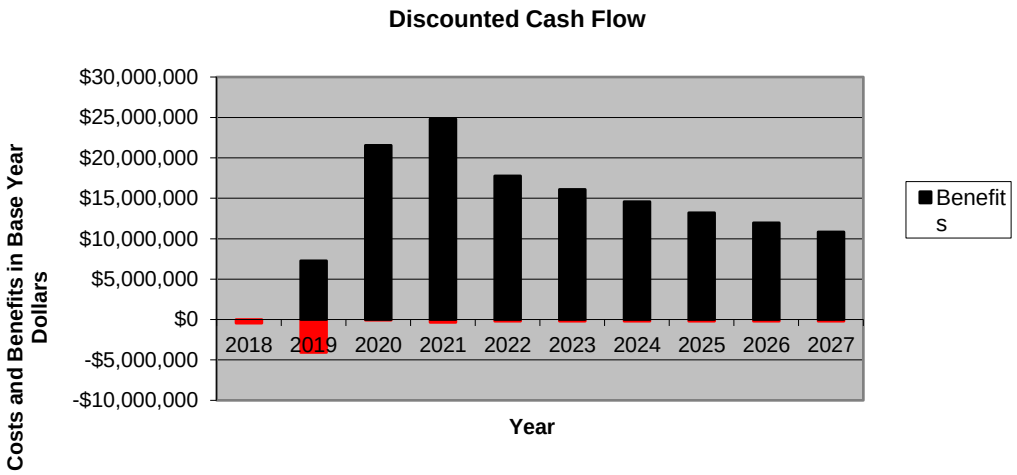
The findings from the computations of the cost and benefits indicated that the Cargo Tracking Rail Project had net benefits and was economically feasible as evidenced by the high Net Present Value (NPV), good net Return on Investment (ROI) and Internal Rate of Return (IRR) as shown in table below.

Table 9: Cost Benefit Summary

Project Start Period	Discounted Cost (US$), A	Discounted Project Induced Benefits (US$), B	Project Net Present Value (US$), (B-A)	Net Benefit to Cost Ratio (Net Return on Investment)	Internal Rate of Return (IRR)	Pay Back Period
2018	6,235,426	138,056,502	131,821,077	21.1	1177%	2 years (2019)

The Net Present Value (NPV) for the Cargo Tracking Rail Project is about US$132 million (after deducting cost), and Internal Rate of Return (IRR) of 1177% and net return on investment (net return per US$ invested) of US$21.1; the payback period was within 2 years (2019) and the break-even point was in the year 2019 (within 2 years). This indicates that the project was economically viable and profitable as shown in the graph below.

Graph: Cost and Benefits of Cargo Tracking Rail Project



The Cost Benefit Analysis indicates that overall, the Cargo Tracking Rail Project achieved good Value for Money (VfM in terms of costs and benefits with a ratio of 21.1 of net benefits per dollar invested.

Equity

The system increased transparency and predictability for all users and stakeholders. By automating the manual processes, eliminating interactions with agency staff, hence reducing the chances for bribery and the culture of " who- knows-who", big companies vs small cargo owners. The evaluation team established that the project did not exacerbate inequities. Reducing the cargo dwell time at the ICDN lead to cost savings that were passed to consumers of the imports. Although the evaluation did not delve into whether the cost savings trickled down to the consumers due to stiff competition amongst traders of imported consumer goods, this was likely to have happened.

TMEA stakeholder management and networking during planning and implementation of the project was strong. The project leveraged on existing relationships with the three key agencies, other crucial government agencies were involved due to the integration of trade related processes in the development of the systems components. This included Kentrade, Kenya Bureau of Statistics, Ministries of Trade, Infrastructure amongst others. The private sector was a crucial stakeholder that was engaged from project inception to delivery and testing. Various meetings were held with apex bodies like SCEA, KAM, KEPSA, shipping agents, clearing, and forwarding agents, cargo transporters as well as trucking companies. The evaluation team reviewed evidence that indicated that TMEA updated USAID every quarter on project progress. A representative from USAID also sits on the TMEA Kenya Programme National Oversight Committee (the highest governance body at the country programme level).

5.5 Sustainability

Sustainability is the continuation or longevity of benefits from the Cargo Tracking by Rail Project after TMEA exit.

1. How sustainable are the positive effects or impact of the Cargo Tracking for Rail project?
2. What key lessons have been learned on what worked well and what needed to be improved?
3. What conditions (including the delivery model) are needed to make this type of project succeed?
4. Under what conditions and in what context is the project replicable or transferable?
5. Is there any evidence that there will be the sustainability of institutional capacity after the end?
6. Has there been sustainable capacity built among the partners who could be built on in the case of a future partnership?
7. Was knowledge transferred (Including best practices) to the Government, key implementing partners, JMC, and other stakeholders to improve the project results and its long-term sustainability

Sustainability			
Overall Score	**Category Score: 4 Confidence Level: High**		
Criteria	**Findings**	**Score**	**Confidence**
How sustainable are the positive effects or impact of the Cargo Tracking for Rail project?	While calculating CBA the evaluation established that the positive effects of the project would last long after TMEA exits as described in the Impact and Efficiency section 5.4. Project ownership has been transferred to KPA. The costs of the project are yet to be passed over to the end users by the three agencies. This is planned for future- the current costs of transporting and clearing goods were deemed to be high by stakeholders and they shelved passing on the costs to the end users.	4	High
Under what conditions and in what context is the project replicable/transferable?	The Cargo tracking by Rail Solution has an immense potential for scaling up and replicating. Potential opportunities for this include 1) **Technical** scalability in the solution-integration with other related and relevant government agencies systems including KEBS; investment in more tags to increase the percentage of tagged containers from 30% to more than 70%; replicating the project in other corridors in Kenya and East Africa (the new Dar SGR, expansion of the Kenyan SGR) 2) **Economically,** the project is viable and feasible as indicated in section 5.4 under cost benefit analysis. The Net Present Value (NPV) for the Cargo Tracking Rail Project is about US$132 million (after deducting cost), and Internal Rate of Return (IRR) of 1177% and net return on investment (net return per US$ invested) of US$21.1; the payback period was within 2 years (2019) and the break-even point was in the year 2019 (within 2 years.). The project was under budgeted having received 5.5M USD out of the expected 12M. It will require more funding to complete the remaining outputs and to scale up. 3) **Regulation**- The current regulations including the Presidential Decree, trade facilitation agreements and trade policies favour the project.	5	High

Sustainability			
Overall Score	**Category Score: 4 Confidence Level: High**		
Criteria	**Findings**	**Score**	**Confidence**
	4) **Stakeholder acceptance** – From the key informant interviews and end users survey, the project has been accepted by stakeholders. This is further evidenced by secondment of staff in the JMC and handing over/transferring of project ownership including associated costs to KPA.		
Was knowledge transferred (Including best practices) to the Government, key implementing partners. **Has there been sustainable capacity built among the partners who could be built on in the case of a future partnership?** **Is there any evidence that there will be the sustainability of institutional capacity after the end?**	Change management was one of the key outputs delivered by the project which included pre and post project sensitisation , staff and users' training . Project implementation was spearheaded by a joint team from KRC, KRA and KPC that formed the Joint Monitoring Centre. Each agency seconded staff to the JMC, up to the time of the evaluation, the staff were still in the JMC. The 3 agencies also have a set of 16 indicators that they monitor to enhance efficiency in cargo evacuation, transportation and clearing. They have 5 activities that they carry out jointly. The planned joint resource planning system will strengthen coordination and joint implementation. Capacity building was affected periodic rotation of staff especially KRA. However, the project adapted by ensuring induction of fresh staff. Integration of the 3 systems in KRA, KRC and KPA further strengthened efficiency in managing and monitoring performance of key processes.	4	High

The project has scored a 4 in this category and a confidence level of high . While calculating CBA, the evaluation established that the positive effects of the project would last long after TMEA exits as described in the Impact and Efficiency sections above. According to the project proposal, a business model focusing on sustainability was to be developed. The project team was to discuss one of the four categories of business models of a) a subscription-based model where participants will pay an annual fee that will go into upgrading, maintaining and supporting the platforms; b) a cost sharing-based model, where participants will contribute in annual maintenance and support costs as per agreed percentages; c) a Development-Corporate Social Responsibility-based model, where large corporations and multinational that will be benefiting more from the initiatives will cater for the maintenance and support costs; and d) a special purpose vehicle like TMEA take over management and custody of the platform and charges a fee for services rendered. This was to be done within the initial two years of implementation.[11]

Project implementation was anchored by a joint team from KRC, KRA and KPC that formed the Joint Monitoring Centre. Each agent seconded staff to the JMC, up to the time of the evaluation, the staff were still in the JMC. The 3 agencies also have a set of indicators that they monitor to enhance efficiency in cargo evacuation, transportation and clearing. The planned joint resource planning system will strengthen coordination and joint implementation.

The project continues to work closely with public national bodies whose mandate is trade facilitation, trade infrastructure development and enhancement of an enabling environment for the private sector. The project works closely with apex bodies like SCEA, KAM, KEPSA, KIFWA, KTA. It also complements regional programmes like

[11] See Annex 11: Timelines & Milestones for the Development of the TLIP Business/Sustainability Model

the Regional Electronic Cargo Tracking System, the Single Customs Territory, Trade facilitation activities implemented by EAC secretariat and will further enhance planned projects to support AfCFTA and KTLN projects.

The evaluation team established several markers of sustainability. On financial sustainability, Kenya Ports Authority has since taken over some of the costs amounting to USD 230,000 for running and maintaining the system and allocates annual budgets to ensure continuity. The system components were integrated and interfaced with existing government systems in efforts to ensure that this intervention was not a standalone. This further enhanced sustainability of the new intervention. The KPA ICT team was involved in enhancing the truck booking system using open-source technologies.

Once TMEA exits, KPA will support, maintain, and improve the truck booking system independently. The evaluation team also established that the system is hosted by KPA, eliminating third-party hosting costs, and is integrated into the KPA storage infrastructure. The system will benefit from infrastructure enhancements that KPA will undertake in the future, after TMEA exits.

The decision not to charge the private sector extra fees for tagging/tracking was arrived at by three agents after it was concluded that cargo owners are currently incurring substantial amounts to transport goods either by rail or road. KRC and KPA indicated that this decision will be discussed in future so that the costs are absorbed by the private sector.

Knowledge transfer to key agencies and users was mainstreamed in the project. An output on change management was successfully delivered with training and sensitisation of key stakeholders and users. However, one of the challenges encountered was the frequent rotation of key agency staff especially KRA, this would mean that knowledge transfer would have to be periodic to cater for new project staff.

The evaluation team also sort to find out if other alternative and efficient solutions existed. According to According to KRC, there are modern solutions to tracking that do not require devices. and instead use barcodes like what DHL uses to track cargo at each stage. (Source KII)

6. Key Challenges During Implementation

The following challenges were gathered from document reviews, key informant interviews and questionnaires from 94 respondents who filled in the online forms.

ICDN /System

1. System downtime/offline/delays- almost a third of the respondents indicated that the system was sometimes off or notified them hours later. They also indicated that they were forced to incur additional charges to track containers manually.
2. Intermittent notifications on the status of the cargo- half of the respondents indicated that they had not received any type of notifications about the cargo status
3. Limited space at the ICDN that sometimes leads to longer clearing time due to congestion
4. The system sometimes does not indicate the time the cargo arrives at the port
5. The system does not correctly indicate the time the cargo arrives at the port, this may cause one to incur charges for extra days. End users indicated that they sometimes got notifications after 4-6 hours after cargo has arrived.
6. The banks at ICDN and KRA staff do not work 24/7 leading to delays in cargo clearance after working hours

Capacity Challenges

1. Limited number of tracking devices vs the total number of TEUs due to inadequate funding. Only 22% of containers are tagged. There is also a shortage of staff to support tagging especially if more than one ship is offloading.
2. Shortage of key agency staff. At the time of the evaluation, KRC had not seconded someone to the JMC in Mombasa
3. Frequent transfer of key staff especially KRA staff, which leaves gaps in project implementation and stakeholder engagement as well as a need for periodic capacity strengthening.

4. KPA JMC reported that tagging devices are sometimes lost or loaded to a departing ship with the empty containers. The team has to wait until the tags are found or returned by the shipping line.
5. Lack of enough wagons leading to delays in discharge & transfer of containers from the vessels to wagons.
6. End users reported that communication from KPA was minimal during delayed cargo evacuation from Mombasa to ICDN or tracing of cargo.
7. Some end users indicated that there were still challenges in transporting export cargo from ICDN to Mombasa
8. According to KRC, some devices remained offline due to insufficient internet coverage along the corridor.
9. Initial challenges of uploading manifests due to resistance from shipping lines.
10. End users reported invisibility of status of cargo between offloading from ship to uploading on the train.

Financial/Costs

1. End users indicated that transporting cargo by rail was more expensive than road due to additional costs for last mile delivery.
2. The project was funded half of what it had planned for, hence some outputs that were crucial in providing an end-to-end solution were not implemented.
3. Customer notification system encountered challenges where the initial plan of having KRC absorb SMS costs did not materialise. An email notification process was implemented instead.

7. Lessons Learned and Recommendations

The evaluation team derived the following lessons learned on what went well, what needed to be improved in future to enhance project planning, implementation, and management.

Key successes / What is working well.

End users reported the following key successes of the cargo tracking system.

1. Improvement in the ability to trace and track containers and predictability
2. Reduced turnaround time at truck congestion at the ICDN
3. Less transit time of cargo from offloading to transportation at ICDN
4. Some end users indicated that transporting cargo by rail was cheaper and more efficient
5. They indicated that cargo security had improved due to the tracking device and ability to trace it
6. Predictability of the arrival times for cargo

Key informant interviews with stakeholders including TMEA highlighted the following successes/what went well

1. There was improved coordination and collaboration between the three agencies in the implementation of the project worked well leading to faster implementation of the project and joint resolving of issues that emerged
2. The private sector stakeholders interviewed indicated that the project was what they had been waiting for after frustrations encountered at the ICDN soon after the presidential decree since they were unable to trace containers and had no information on their whereabouts.
3. Periodic meetings were held between the three agencies, the private sector, and other stakeholders to resolve emerging challenges. .
4. Staff from participating agencies appreciated the project's capacity-building activities and the private sector's involvement. Involving private sector end-users ensured that they knew how to use the system. Knowledge transfer from the system consultants to staff from the three lead agencies was appreciated, as was the interfacing of the cargo tracking system to the existing agency system to reduce duplication.
5. The project was implemented as an emergency solution to decongest ICDN and improve efficiencies, it was successfully executed and is appreciated by key stakeholders and end users
6. In 2020/2021, KRC and KPA TEUs targets were affected by the Covid-19 pandemic impacting projected growth as described in their documents.
7. Some KPA stakeholders that were interviewed felt that KPA did not fully own the project. Yet, TMEA indicated that they had handed over the project to KPA.

7.1 Strategic Lessons Learned

1. Partnering with the key agencies responsible for trade logistics along the rail corridor enhanced project success. These partnerships enhanced the government and private sector goodwill to own and support the project. As a result, working with the relevant agencies mandated to improve efficiency and effectiveness in cargo evacuation, transportation and clearing remain a critical success factor for implementation and sustainability.

2. TMEA's understanding of the Kenyan socio-economy is a strength as TMEA can quickly create linkages and networks that complement projects. In addition, TMEA has significant goodwill from its partners and stakeholders. TMEA should capitalise on this as a comparative advantage.

3. TMEA's response time in designing a solution relevant to challenges experienced as a result of a well-intentioned presidential decree, which resulted in increased congestion at ICDN, should be replicated. The trading environment in Kenya and the rest of the EAC is dynamic and innovative, and responsive solutions are needed to keep trade moving.

7.2 Programmatic lessons learned

1. Building the technical capacities of relevant stakeholders enhanced project sustainability. TMEA strengthening the capacities of relevant stakeholders, including the private sector, contributed to the project's sustainability because the skills and interventions were integrated into the existing private sector and government systems.
2. Periodic review of the results framework for the project, including the causal theory underpinning the project, may have helped to identify and document the necessary project adjustments and adaptations caused by changes in implementation perspectives and the underlying context.
3. Baseline data collection enhances attribution and contribution evidence. Due to the project's emergency configuration and roll-out, baseline data collection at the outcome level was not carried out, and some indicators did not have data. However, since there are opportunities to collect baseline data or use secondary data, even when a project has progressed, this lesson should inform future projects.

7.3 Recommendations to improve current implementation

#	Recommendation	Action point
1.	**Recommendation 1: Clarity on project ownership** TMEA needs to consider discussing with KPA specially to clarify project ownership as they reported not to fully own the project. Consider developing an exit plan with clear details on which components and costs have/will been transferred by when.	TMEA KPA
2.	**Recommendation 2: Improve cargo tracking and related systems and procedures based on feedback from end users** A thorough review of the feedback from end users on issues they are experiencing using the system, at the port and ICDN should be done with an aim of enhancing further the system and procedures. The system needs to be monitored and reviewed continuously for performance to ensure robustness and stability of the system. Some end users recommended notifications by phone /mobile app so that one is able to track the cargo from his phone.	TMEA KPA KRC KRA
3.	**Recommendation 3: Consider promoting more adaptive and flexible project management** Periodic review of the project's theory of change, results chain and monitoring tools is important. If the project will continue under KTLN, consider reviewing the results chain, milestones, and targets. For example, the target of having 100% of containers tagged was unrealistic and should have been revised based on budgets.	TMEA KPA KRC KRA
4.	**Recommendation 4: Periodic creation of awareness to end users and key agency staff** The project team should consider inexpensive ways of raising awareness to the end users of the system as they were unaware that they should receive notifications about cargo status. Key agency staff are also rotated/transferred, there is a need to build the capacity of fresh staff to little disruptions in project implementation.	TMEA KPA KRC KRA
5.	**Recommendation 5: Resolve capacity gaps in installing tracking devices in containers** TMEA should consider leading the ~~other~~ 3 agencies in resolving issues of staff capacity experienced by KPA and BSmart as it leads to less containers getting tags since staff are overwhelmed.	TMEA KPA KRC

#	Recommendation	Action point
	Tracking devices were reported to get lost or loaded with departing ships, consider having a more effective way of collecting them after use.	KRA

7.4 Recommendations to improve future design

#	Recommendation	Action point
1.	**Recommendation 1: Address Sustainability** TMEA and the 3 agencies need to consider ways in which they can make future project more sustainable to reduce the operating costs of internet, system maintenance. Various business models had been proposed in the project PAR, consider developing them soon after project implementation. The cost of tracking in future will have to be borne by the private sector as opposed to KPA.	TMEA KPA
2.	**Recommendation 2: Expansion/scaling up of the cargo tracking** Reduction in costs due to time savings is one of the key success factors of the project. TMEA and stakeholders should consider expanding the project and funding the remaining components for end users to benefit further from the efficiencies. Increasing the tracking devices and staff tagging containers can further improve project's performance. A greater percentage of containers (70%) remain untagged, there is scope to expand. Tagging about 70% of the containers would mean almost doubling the current devices (5,000 purchased by TMEA and 12,000 by KRA) to 34, 000. One device is approximately USD 400 with additional annual costs of USD 120 for internet and USD 10 for maintenance.	TMEA
3.	**Recommendation 3: Explore alternative solutions to tracking devices** As recommended by one of the stakeholders, for future projects, consider for cost effective latest solutions like the bar code system of DHL	TMEA
4.	**Conducting a deeper analysis** at a higher level (programme/intermediate outcome level) to establish the cost savings from the projects have led to reduction of consumer goods. Similarly, TMEA should consider conducting an analysis of the project's contribution to overall time reduction along the corridor.	TMEA

Annexes

Annex 1: Case Studies – user testimonials

'Wycliffe' who has been working with Kenya Railways in Commercial Operations for the last 4 years, was stationed in Nairobi when SGR began its operations. Starting in 2018, the Cargo tracking and tracing solution offered Wycliffe an efficient solution to monitor the export of tea.

Wycliffe explains the situation surrounding cargo tracing at ICD in Nairobi and at the port in Mombasa.

"When containers started being transported via the SGR there was so much confusion, one did not know which container was going to ICD, which container was going to remain in Mombasa, which container had been discharged. You know we were putting stickers on the containers to identify them when they arrived at the ICDN. You are doing it manually, but you are not able to have visibility unless you go to the yard. When the tracking system became operational, we were able to track our cargo live from the office, not only in the KPA yard in Mombasa but even in the train I can say that a container with this series number is actually in the train, and it is in a particular geographical area. I am also aware when it arrives at ICDN"

Tagging containers transporting tea has resulted in an increase in the volume of cargo. The volume of tea cargo has grown from 2.9 million tonnes in 2018 up to 5.5 million tonnes of Tea in 2022. Wycliffe attributes this success to the efficiency of knowing the physical location of the cargo.

"Not only on import containers, but the system has also assisted me in transporting tea to the port of Mombasa. You know the tea has to go from Nairobi to Mombasa or to the warehouse first in Mombasa for grinding and collection and then to the port for transportation. Now, for me to track this cargo, I had to put those gadgets on the Tea exportation so that I am not able to mix cargo going for normal exports with tea exports so that I know how long tea takes from here to Mombasa and which warehouse it has been delivered to and then the gadgets are retrieved back to me. The new system has taken over responsibility from us, which was a tedious process of manually following the cargo."

With the adoption of the cargo tracking solution, challenges in cargo tracing were finally resolved. However, the gadgets were inadequate. "What happened was that we found that even despite having these gadgets, they were not adequate. We had asked KPA to invest in additional gadgets because we found that the numbers we had, were only covering certain volumes and as the volumes grow, we need more." Keen to gain maximum visibility and efficiency from the gadgets, Wycliffe recommends connecting the gadgets to phones as an application such that end-users can trace their cargo in the comfort of their offices and experience transformation of their basic freight forwarding operations.

"I want this solution to connect to phone applications. Can the solution be connected to the phone as an application so that it does not have to be in a fixed area, but I am able to clock into my phone and trace the container? The enhancement of that will actually make sure that the customer can work from his comfortable office and be able to trace his container. He is able to give us the position and is able to query on that. I think this solution needs to be taken further to the person, much further." There is a need for more financial injection so as to raise the number of electronic seals currently under operation. This would ensure more cargo is tracked and no delays due to the lack of enough seals.

Testimonial by: Collins Ouma ;Speedex Logistics Limited

"The ability to accurately locate cargo has been of immense help to us. Personally, I have already had over 35 container related issues resolved using the cargo tracking system. As we speak, I currently have a container **that has been missing since 22nd July 2019** (7 days ago). KPA system shows that it left Mombasa Port but has not been received at Nairobi ICD. If it's found at Mombasa, **I will incur the demurrage costs for the days that it was missing**. **If it was tagged, we would have Identified its location a week ago and cleared the cargo**. Another advantage resulting from tracking is that we are able to evacuate our cargo from ICD very fast. For **untagged containers it takes a minimum of average of 7 hours (minimum of 4 hours) to identify the location** of a container once it's moved from the verification area but for tagged containers they are instantly located and loaded onto the truck. **I request the agencies to scale up the tracking to cover all containers"**

Annex 2: Evaluation Questions

Evaluation questions
Relevance 1. Are the interventions consistent with TMEA's Theory of Change? 2. How important is the TMEA supported intervention regarding the facilitation of the efficient movement of goods within Kenya, across borders in the region, and beyond to establish a single, seamless, integrated, and digital end-to-end cargo process flow from the Port-to-SGR-to-ICD and vice versa? 3. How is the TMEA supported intervention aligned with the priorities of EAC and the Kenya government's national policies and strategies and the needs of key stakeholders (Including the Partner States, the Private Sector, TMEA, and its donors)? 4. How was the TMEA supported intervention responsiveness to the challenges then, how relevant is the intervention today (including in the context of Covid-19)?
Impact 1. How did or how will the Cargo Tracking for Rail project contribute to reaching higher level TMEA objectives related to the Improvement of Systems and Procedures for Trade? 2. What are the key project elements that can be considered successful, new, and innovative? 3. To what extent has the project generated unintended positive and/or negative impacts? 4. Who has benefited most and least amongst the project stakeholders/end users? (Including intended/unintended benefits/losses) 5. What positive and negative external factors have affected the project, in what ways, and why? National/EAC/Regional – e.g., policies and regulations that worked for or against the project? 6. Effect of COVID-19 on the project?
Sustainability 1. How sustainable are the positive effects or impact of the Cargo Tracking for Rail project? 2. What key lessons have been learned? On what worked well and what needed to be improved? 3. What conditions (including the delivery model) are needed to make this type of project succeed? 4. Under what conditions and in what context is the project replicable/transferable? 5. Is there any evidence that there will be the sustainability of institutional capacity after the end? 6. Has there been sustainable capacity built among the partners who could be built on in the case of a future partnership? 7. Was knowledge transferred (Including best practices) to the Government, key implementing partners, JMC, and other stakeholders to improve the project results and its long-term sustainability

Evaluation questions
Effectiveness 1. What results (outputs and outcomes) against the planned results have been realized by the Cargo Tracking for Rail project? vs actual reported vs data collected in the field. 2. Attribution to TMEA?? And other stakeholders? 3. What factors were critical for the achievements or failure of the project results? What went well? Didn't? internal/external factors/intended 4. What are the significant achievements with regards to TMEA cross-cutting aspects such as Gender, Climate Change, and Poverty that were realized by the project? Did the PAR and M & E plan incorporate these – intended/unintended - tools to use to assess this… are there any significant achievements with regards to addressing gender issues?
Efficiency 1. How has the Cargo Tracking for Rail project results been achieved? 2. Were the results achieved with good Value for Money (VfM in terms of costs and benefits)? Economy: Efficiency: Effectiveness: Equity 3. Did the project achieve planned outcomes within the budgeted resources? 4. How does the Cargo Tracking for Rail project complement other TMEA and other donor initiatives along the Northern and Central Corridors? 5. How well did the project achieve the following-? i) Adaptive management: - how well did the project apply and improve its decision-making and practices based on lessons learned? ii) Relationship management: - How well did the project manage its, partners, donors, and other stakeholders? iii) TMEA's project management processes – how well did they enhance or impend project planning and implementation? iv) Staffing: - How adequate and aligned were key staff to efficiently deliver the project? How well were staffing challenges addressed? v) Delivery model: - Determining if another implementation methodology would have been more cost-effective vi) Determining if the selected implementation partners were able to adequately implement the project and if not, how were gaps handled?
Lessons Learnt 1. In what ways has TMEA's process of disbursing and administering funds (e.g., an internal division of resources, management of contractors, relationships with partners) worked well, and where could it be improved? 2. What factors have contributed to the project's most significant successes? What factors have contributed to areas where there have been struggles? 3. Are there areas that TMEA did not invest in that would have improved the impact of its work or that would be important to include in a subsequent phase?

Annex 3: Assessment Criteria

The following scores were used to assess the achievement of projects outputs and outcomes. The tool uses a scale of 1 (poor), 2 (fair), 3 (good), 4 (very good) and 5 (excellent) . It also includes the confidence levels outlining the available level of evidence to support the evaluation team's assessment. The sample rubric is illustrated below

Result Area	Criteria	Relevance	Effectiveness	Efficiency	Impact	Coherence	Sustainability
Outcome	Assessment						
	Confidence level						
Output 1	Assessment						
	Confidence level						

Annex 4: Bibliography

Dennis, Allen and Shepherd, Ben (2011). *Trade Facilitation and Export Diversification*. The World Economy, Vol. 34, No. 1, pp. 101-122

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Nyongesa, E. (2015). *Influence of regional electronic cargo tracking system on management of transit goods in Kenya* (Research Project L50/82911/2015). The University of Nairobi.

Trademark East Africa. (2018). *Improving service delivery for cargo handling movement along the Mombasa-Nairobi SGR freight corridor*.

Trademark East Africa. (2021). *Terms of reference to conduct a rapid end of project evaluation for the cargo tracking for the rail project*.

Annex 5: List of Meetings and Interviews Held

1. Gilbert Langat-Shippers Council East Africa (SCEA)
2. Dennis Matua-Uganda Revenue Authority (URA)
3. Wycliffe Wanda-Kenya International Freight and Warehousing Association (KIFWA)
4. Jackson Wambua-Kenya Association of Manufacturers (KAM))
5. Caroline Mugaru-KRC
6. Anthony Mutai-KPA
7. Beatrice Nyamoita -Director Ministry of Transport
8. William Ruto-KPA
9. James Siele-KRC
10. Mohamed Shahame- KPA
11. Fredrick Musinga-KPA
12. Joel Yego - KPA
13. Gideon Chikamai- NCTTCA

Annex 6: Joint KPIs- KRA, KRC, KPA, Shipping Agents, Clearing Agents

	SHIPPING LINE	AGENT	KRA	KPA	KRC	Achievement to Dec 2021
Manifest Submission	48hrs before arrival		Approve within 1hr upon receipt			Manifest Approved within 30 seconds of submission if compliant Sea Manifests received at least 48 hours before arrival
Baplie Submission	48hrs before arrival					Baplie submitted at least 48 hours before arrival
Submission of Passed Customs Declaration		24hrs before train arrival				At least 24hrs before train arrival – Most clearing agents. Since the manifest will have been lodged at least 48 hours before vessel arrival at the port
Vessel Discharge				48 Hours		36 Hours
Tagging per seal					2 Mins	< 2Mins
Transfer to Port Reitz				24Hrs		Direct Loading TBL- 1 hour
Loading Train				4Hrs		4.5hrs
Train Marshalling					3hrs	1 hr NB: starts after loading of containers onto wagons
Train Manifest				10hrs prior to arrival	Immediate on Departure	10hrs prior to arrival
Train from MSA to ICD				10hrs	12 Hrs	10 hours
Off-loading & Stacking				4Hrs		7hrs 20mins
Pre-Arrival Clearance			6Hrs			6 hours for All Instant for AEO consignments (as soon as they are confirmed as having arrived at ICD)
Verification & Release			32Hrs	8 Hrs placement		KPA – within 5 hours after request KRA – 48 Hours
Processing pick up order		6hrs				15 hours
Gate in to Gate out process:				3Hrs		5.5hrs
Good to be moved to peripheral facility			Un-entered 21 days to Makongeni	Cleared 4 days to Peripheral		KPA Immediate <2days after KRA approval

Annex 7: List of documents reviewed

1. Integration Document for Integration of CTS with KWATOS System
2. Project appraisal report (Development of The East Africa Global Electronic Trade Networks – Trade Logistics Information Pipelines)
3. SGR freight management concept note
4. Container tracking concept (integrated Performance Monitoring Platform (iPMP))
5. TMEA overall Theory of Change
6. Rail Freight Logistics Solution (RFLS) quarterly summary report
7. Rail Freight Services Solution (RFSS) results chain
8. Performance measurement in freight transport
9. Project Budgets
10. Monitoring plan
11. Risk register

Annex 7: Data Collection **Tools**

Tool 1- Questionnaire for users of the SGR cargo services (customers and clearing agents)

#	Question	Responses
1	Survey time and date of interview	
2	Name of the respondent?	
3	Gender of respondent	1. Male 2. Female
4	What is the main type of business/trade you and/or your entity engages in? [Multiple response set]	1. Clearing agent 2.Importer 3. Exporter
5	Name of Organization/Entity/Enterprise	
6	Position held in Organization/Entity/Enterprise	
7	Main location of the entity/enterprise e.g., Head Office	1=Nairobi 2=Mombasa 3=Other specify: ……
8	What is the size of your business/enterprise? (Measured by the number of permanent employees?	1. Micro (<5 employees) 2. Small (5-19 employees) 3. Medium (20-99 employees) 4. Large (>100 employees)
9	What means of transport were you using before the SGR became operational? [can select multiple answers]	1.Trucks 2.The MGR (old railway) 3. Air transport 4.Others, specify
10	Did you use the railway (SGR) to transport goods from the Port of Mombasa-to-SGR-to-the Inland Container Depot (ICD) and vice versa within 2021/2022?	1.Yes 2. No (End survey)

#	Question	Responses
11	If YES in Q10 above, for **How long** have you been using the (SGR) for cargo movement?	#Years: _____ # Months: _____
12	How often do you use the SGR to transport cargo? *(Hint: select the most occurring frequency)*	1.Weekly 2.Monthly 3.Quarterly (Every 3 months) 4. Bi-annually (Twice a year) 5. Annual (Once a year) 6.Others specify _____
	How much volume in TEUs did you transport in the last 12 months using the SGR	Number of containers (20 foot) —---------- Number of containers (40 foot) --------
13	What changes have you noticed in the ***Time taken to move cargo from the port of Mombasa to the ICDN*** in comparison to when the SGR began operations?	1. It took more time to transport cargo from the Port to ICDN 2. Time remained the same 3. 3.It took less time to transport cargo from the port to the ICDN
14	How long (#Days) did it take for you to clear/receive your goods once it has arrived in ICDN (around 2018 before the project started)	#Days: .....
15	How long (#Days) did it take for you to clear/receive your goods once it has arrived in ICDN (Oct- Dec 2021)	#Days: .....
16	What changes have you noticed in the ***Clearance time at the ICDN currently in*** comparison to when the SGR began its operations in 2018?	1. Time to clear containers has increased 2. Time to clear cargo has remained the same 3. Time to clear cargo has reduced
17	Estimate how long (#Days) it used to take initially ***to Clear cargo at the ICDN*** when the SGR began its operations	#Days: .....
18	Estimate How long (#Days) it was taking in the last quarter (Oct-Dec 2021) to ***Clear cargo at the ICDN***?	#Days: .....

#	Question	Responses
19	What is your experience on your ability to track cargo **in transit** to and from the Port to the ICDN in comparison to when the SGR began its operations?	1. It is difficult to track cargo in transit than when the SGR began 2. My experience is the same as before 3. It's now easier to track cargo on transit than when the SGR began
20	Do you/or your customers receive email notifications on the status of your cargo on the SGR?	1.Yes 2. No 3. Sometimes I do, sometimes I don't
21	If selected (1 and 3),Cargo status Email notifications have ……. Compared to when the SGR started its operations	1.Improved 2.Remained the same 3.Got worse
22	Have you had incidents when you could not trace your container at the ICD?	1.Yes 2. No
23	If yes, how many times in the last 6 months were you **unable** to trace your container in 2020/2021?	1. Once 2. Twice 3. Less than 5 times 4. More than 10 times
24	If yes (), did you report to the authorities?	1.Yes 2. No
25	If you reported, has this been resolved	1.Yes 2. No
26	On a scale of 1-4 where 1 represents very dissatisfied and 4 is very satisfied, how satisfied were you with the support given to trace your cargo?	1. Very dissatisfied 2. Dissatisfied 3. Satisfied 4. Very satisfied
27	In your opinion, have you noticed any changes in tracing of cargo now compared to when the SGR began operations?	1.Yes 2. No
28	In your opinion/experience and that of your peers, do you think customers/clearing agents' ability to trace cargo has…… since the SGR started its operations	1.Has improved 2.Remained the same 3.Gotten worse

#	Question	Responses
29	If it has gotten worse, explain	
30	Have you noticed any changes in the costs related to moving cargo using the railway (SGR) compared to using road/trucks?	1.Yes 2. No
31	The costs associated with moving cargo by rail are…….. than moving cargo by road	1.Higher than road/truck transport 2.The same as road/truck 3. Are lower than road/truck transport
32	Have you noticed any change in the time it takes for a truck to collect cargo at the ICDN (Truck Turnaround time) in comparison to when the SGR operations began?	1.Yes 2. No
33	If yes/No, explain	
34	The time it takes for a truck to pick cargo and exit the ICDN? *(Hint: when all systems are working well)*	1. Has increased since the SGR began its operations 2. Has remained the same as when the SGR began its operations 3. Has reduced since the SGR began its operations
35	On a scale of 1-4 where 1 represents very dissatisfied and 4 is very satisfied, how satisfied are you with the services of transporting cargo using the SGR?	1. Very dissatisfied 2. Dissatisfied 3. Satisfied 4. Very satisfied
36	What 2-3 things have worked well for you in your experience tracking your cargo from the time it's loaded to the SGR to the time it lands at the ICDN?	
37	What has not worked well (challenges not mentioned above) when transporting and tracking cargo using the SGR? (Interviewer to insist on challenges related to **tracking cargo** as opposed to the general SGR challenges)	
38	What recommendations would you give to improve cargo tracking and clearance from the time it's loaded to the SGR to its arrival and clearance at the ICDN?	

Tool 2- Questionnaire Key Informant Interviews (KRC, KPA & KRA STAFF)

	Question	Responses
0	Survey time and date	
1	Name of respondent	
2	Gender of respondent	1.Male 2.Female
4	Name of Organization	1.Kenya Railways 2.Kenya Revenue Authority 3.Kenya Ports Authority
5	Location	1.Mombasa 2.ICD- Nairobi
6	Position in Organization	
7	How long have you worked for your current organization?	# Of years
8	How long have you been located at this station?	
9	Where were you stationed when the SGR began its operations?	
10	Are you aware of the Railway Freight logistics solution project/ Cargo Tracking for Rail Project supported by TradeMark East Africa?	1.Yes 2. No (End survey)
11	If yes, which components of the solution are you familiar with? (Multiple select)	1.Joint cargo tracking and tracing solution 2.Joint command monitoring center (JMC) 3.Customer Notification Solution. 4.Joint resource planning and execution solution. 5.6. Traffic Queue management solution

	Question	Responses
12	Which solution do you mainly interact with on a day-to-day basis? (Single select)	1.Joint cargo tracking and tracing solution 2.Joint command monitoring center (JMC) 3.Customer Notification Solution. 4.Joint resource planning and execution solution. 5.Centralised information sharing solution. 6. Traffic Queue management solution and last mile delivery solution. 7. None of the above (Staff works in other sections not directly interacting with the system)
13	Has the TMEA supported freight logistics solution enhanced **tracing of cargo in Mombasa and Nairobi**?	1.Yes 2.No 3. I don't know
14a	If yes, please explain	
14b	If no, please explain	
15	Has the TMEA supported freight logistics solution changed the time taken to clear your cargo from when it's offloaded from the ship until it is cleared for exit at the ICDN?	1. Yes 2. No 3. I don't know
16	Looking back to when the SGR first began its operations (before the cargo tracking solutions project began in 2019) and last quarter of (Oct- Dec 2021), the time taken by clearing agents/customers to trace and clear cargo in the ICDN ……	1. The time taken to trace and clear cargo has increased 2. The time taken to trace and clear cargo has remained the same 3. The time taken to trace and clear cargo has reduced 4. I don't know /not sure
17	In your opinion has the TMEA supported freight logistics solution influenced the **volume of cargo** transported through the SGR from the port of Mombasa to Nairobi ICD?	1. Yes, it has 2. No, it hasn't 3. I don't know
18	If yes, in your opinion the volume of cargo transported through the SGR has…… **(As a result of the project)**	1. Increased because of the project 2. Remained the same 3. Has reduced

	Question	Responses
		4. I don't know /not sure
19	Has the TMEA supported freight logistics solution had an effect on the **cargo dwell time** at the port of Mombasa and the ICDN?	1. Yes 2. No 3. I don't know
20	If yes, - In your experience, cargo dwell time at the ICDN has ….	1. Increased as a result of the cargo tracking for rail project 2. Remained the same 3. Has reduced as a result of the cargo tracking for rail project 4. I don't know /not sure
21	In your experience, if you compare the situation before the TMEA cargo tracking projects started and last quarter of 2021, what effect has the TMEA supported cargo tracking by rail project had on cases of inability to trace **cargo** at the port of Mombasa and the ICDN?	1. Cases of inability of clearing agents and customers to trace cargo have increased 2. Cases have remained the same 3. Cases of inability of clearing agents and customers to trace cargo have reduced 4. I don't know /not sure
22	In your opinion, if you compare the situation before the TMEA cargo tracking project started and last quarter of 2021, how has the TMEA supported freight logistics solution **affected the time it takes for trucks to collect cargo and exit the ICDN (truck turnaround time)**?	1. Truck turnaround time has increased now compared to when the project started. 2. Truck turnaround is the same now (last quarter of 2021) as before the project 3. Truck turnaround has reduced compared to before the project began 4. I don't know /not sure
23	Any other comments on Q22 supporting your answer	
24	In your opinion, if you compare the situation before the TMEA cargo tracking project started and last quarter of 2021, how has the TMEA supported freight logistics solution **had an effect on freight costs?**	1. Implementation of the cargo tracking by rail project increased freight costs 2. Freight costs remained the same before and after the project 3. Freight costs have reduced 4. I don't know /not sure
25	In your opinion, if you compare the situation before the TMEA cargo tracking project started and the last quarter of 2021, would you say that the TMEA supported cargo tracking by rail project has…….	1. Contributed to enhanced coordination of key agencies (Kenya Railways, Kenya Ports Authority, KRA) involved in cargo transportation by rail and clearance at ICDN. 2. Coordination has remained the same as before the project

	Question	Responses
		3. Contributed to a decrease in coordination amongst the key agencies involved in cargo transportation by rail and clearance at ICDN 4. I don't know/not sure
26	(If respondent picked option 3, in the question above)- explain why the project has led to decreased coordination amongst the key agencies	
27	Comparing the situation before the TMEA-supported cargo tracking for rail project started and last quarter of 2021, on a scale of 1-4 what would you say is the current level of customer satisfaction with the cargo tracking solution? (1 being very dissatisfied and 4 being very satisfied)	1. Very dissatisfied 2. Dissatisfied 3. Satisfied 4. Very satisfied
29	If selected option 1 and 2, explain why	
30	In your opinion, what 2 cargo- tracking for rail services are the customers most happy with?	
31	On a scale of 1-4, How would you rate the level of satisfaction with the cargo tracking project amongst the key agencies (Kenya Railways, KRA, KPA) compared to before the project started? (1 being very dissatisfied and 4 being very satisfied)	1. Very dissatisfied 2. Dissatisfied 3. Satisfied 4. Very satisfied
32	In your opinion, what internal factors (internal to the 3 agents/TMEA) have contributed to the success of the project?	
33	In your opinion what 2-3 external factors (govt, private sector, policies, others) contributed to the success of the project?	
34	What has NOT worked well in the TMEA- supported cargo tracking for rail project?	
35	What recommendations would you give to improve services of the cargo tracking for rail/freight logistics solution?	

3. Tool 3- Questionnaire Key Informant Interviews (PROJECT MANAGEMENT STAFF, KRC, KPA & KRA STAFF)

	Question	**Responses**
	Survey time and date	
1	Name of respondent	
2	Gender of respondent	1.Male 2.Female
3	Name of Organization	1.Kenya Railways 2.Kenya Revenue Authority 3.Kenya Ports Authority
4	Location	1.Mombasa 2.ICD- Nairobi
5	Position in Organization	
6	How long have you worked for the organization stated?	# of years
7	How long have you been located at this station?	
8	Are you aware of the TMEA supported Railway Freight logistics solution?	1.Yes 2. No (End survey)
9	Which of the following are you familiar with?	1.Joint cargo tracking and tracing solution 2.Joint command monitoring center (JMC) 3.Customer Notification Solution. 4.Joint resource planning and execution solution. 5.Centralised information sharing solution. 6. Traffic Queue management solution and last mile delivery solution.
10	In your view, was the TMEA supported freight logistics solution implemented **as planned (on time)?**	1.Yes 2.No

	Question	Responses
		3.I don't know
11	Please explain the reason for your answer above	
12	In your opinion, what were 2 to 3 major achievements of the project?	
13	What **challenges were experienced during the implementation of the cargo tracking by rail project?**	
14	Did you participate in the change management training and competencies?	1. Yes 2.No 3. I don't know
15	If yes, in your view, was the **training/ skills transfer to the project management staff completed successfully?**	1. Yes 2.No 3. I don't know
16	If yes in QS 16, On a scale of 1-4, please rate your level of satisfaction with the skills and knowledge you received. (1 being very dissatisfied and 4 being very satisfied)	1. Very dissatisfied 2. Dissatisfied 3. Satisfied 4. Very satisfied
17	If selected 1 or 2 above, explain	
18	How has the TMEA supported freight logistics solution affected the **movement of cargo** at the port of Mombasa and Nairobi ICD?	
19	How has the TMEA supported freight logistics solution affected **revenue collection?**	
20	In your view, how has the TMEA supported cargo tracking project-affected **operations at the port and ICDN**?	

	Question	Responses
21	On a scale of 1- 3, to what extent has the project contributed to greater coordination amongst key agencies of KRA, KPA, KR compared to before the project started? (1 is to a small extent and 3 being to a large extent)	1. To a small extent 2. To a moderate extent 3. To a large extent
22	Explain your answer	
23	In your view, how has the TMEA supported freight logistics solution affected **staffing**?	
24	In your view, what elements of the projects are likely to continue once TMEA funding support ends? (List the major elements)	
25	In your opinion, do the lead agencies have enough capacity (staffing, funds, training) to continue managing the projects?	1. Yes 2. No 3. I don't know
26	If no, explain	
27	What needs to be enhanced/improved/done to ensure the sustainability of the project beyond TMEA support?	
28	Are you aware of any delivery model out there that would have been more effective and efficient than the TMEA cargo tracking project?	1. Yes 2. No
29	If yes, - kindly explain the alternative delivery model.	
30	What best practice can the cargo tracking project borrow from elsewhere/other countries?	
31	Is there a possibility that the effects (positive/negative) of the cargo tracking by rail project experienced today by end-users would not have been achieved?	1. Yes 2. No 3. I don’t know

	Question	Responses
	In your opinion, if the TMEA supported cargo tracking by rail project would not have been implemented, what do you think would be the status of clearing, tracing, or transporting cargo by rail today?	
33	In your opinion, what needs to be improved/done to enhance cargo tracking by rail? (By all stakeholders including end-users)	

Tool 4- Questionnaire Key Informant Interviews (SHIPPERS COUNCIL, FEAFFA, KIFWA, KTA)

	Question	**Responses**
1	Name of respondent	
2	Gender of respondent	1. Male 2. Female
3	Name of Organization	
4	Location	1.Mombasa 2.Nairobi
5	Position in Organization	
6	How long have you worked for the organization stated?	# of Years
7	How long have you been located at this station?	
8	Are you aware of the TMEA supported Railway Freight logistics solution?	1. Yes 2. No (End survey)
9	Which of the following are you familiar with?	1. Joint cargo tracking and tracing solution 2. Joint command monitoring center (JMC) 3. Customer Notification Solution. 4. Centralised information sharing solution. 6. Traffic Queue management solution
10	In your opinion, what are some of the benefits of cargo tracking by the SGR/freight logistic solutions project?	
11	How has the TMEA supported freight logistics solution changed **the time it takes to move cargo** from the port of Mombasa and ICDN?	

	Question	Responses
12	How has the TMEA supported cargo tracking by rail project affected the **cost of moving cargo** from the port of Mombasa to Nairobi ICDN compared to the situation before the project was implemented?	
13	How has the TMEA supported freight logistics solution changed **the ability to clear agents/customers to trace containers at** the port of Mombasa and ICDN?	
14	How has the TMEA supported freight logistics solution changed **cargo dwell time** at the port of Mombasa and ICDN?	1. Increased as a result of the cargo tracking for the rail project 2. Remained the same 3. Has reduced as a result of the cargo tracking for the rail project 4. I don't know /not sure
15	How has the TMEA supported freight logistics solution changed **coordination** amongst the key agencies of Kenya Railways? Kenya Revenue Authority, Kenya Ports Authority, and other agencies at the port of Mombasa and ICDN?	
16	How has the TMEA supported freight logistics solution changed **clearing agents' and customers' (importers/exporters) satisfaction with the level of tracking services offered?**	
17	In your view, how can the TMEA supported cargo tracking by rail project be sustainable?	
18	In your opinion how has the cargo movement by SGR affected (positively or negatively) other alternatives like transporting cargo by road?	
19	In your opinion which stakeholders/people/businesses/ govt agencies/private sectors have been negatively affected by enhancement of cargo movement by SGR and tracking by rail project?	
20	Please explain your answer	
21	What worked well during the implementation of the TMEA supported cargo tracking by rail project?	

	Question	Responses
22	What did not work well/needed to be improved?	
23	As far as **cargo tracking** by rail services are concerned, what best practices are out there (implemented by others/in other countries) would you recommend the project to adapt to increase efficiency and customer satisfaction?	
24	Any other recommendations to enhance cargo tracking?	

Annex 8: Evaluation Terms of References

Terms of Reference for a Team Leader to conduct a rapid end of project evaluation for the Cargo Tracking for Rail Project, Kenya Country Programme.

1. Introduction

TradeMark East Africa (TMEA) is an aid-for-trade organisation that was established with the aim of growing prosperity in East and Southern Africa through increased trade. TMEA, which is funded by a range of development agencies, operates on a not-for-profit basis. TMEA has its headquarters in Nairobi - Kenya with offices and operations in Burundi, The Democratic republic of Congo (DRC), Malawi, Mozambique, Rwanda, South Sudan, Tanzania, Uganda, Zambia and the Horn of Africa (Somaliland, Ethiopia and Djibouti). TMEA's Theory of Change (TOC) is anchored on two strategic outcome areas: (i) Reduced Barriers to Trade; and (ii) Improved Business Competitiveness. As such, TMEA's interventions are anchored on the two broad outcome areas.

2. Background

Moving goods via multimodal logistics networks requires efficient and timely information exchange between all parties to facilitate fast decision making[12]. For goods in transit, inefficient logistics networks move information at a slower pace than goods, thereby creating delays in clearance or further movement of goods upstream or downstream. Many MSMEs in the East African Trade Networks (EATN) can make major gains if investments are put in place to address these barriers. By investing in initiatives that address information-based barriers in global supply chains and logistical networks at country and regional level in East Africa, the envisioned outcome is to improve the efficiency and effectiveness of these networks and make them accessible to MSMEs. These in turn will boost the integrity and reliability of global supply chains and logistics networks and improve the competitiveness of MSMEs and large businesses in the EATN.

The importance of an efficient and transparent supply chain can be demonstrated by the challenges that plagued Standard Gauge Railway Freight Services in Kenya, launched in January 2018. The services run on a multimodal transport network, combining sea, rail, and road modes of transport. In the period March-June 2018, poor coordination, and lack of information exchange mechanisms between government agencies and with private sector stakeholders resulted in major delays in handling, mobility and clearance of cargo leading to massive congestion at Mombasa port and ICD Nairobi. Containers in the ICD could not be properly traced, and cargo owners were charged huge demurrage by shipping lines, eroding improvements that had been previously realized. A diagnosis of the problem revealed that ineffective information sharing arrangements between the stakeholders resulted in poor coordination leading to fragmented and disjointed operations on the SGR Freight Service logistics network.

Without an information sharing mechanism, seamless and integrated cargo handling, mobility and clearance process, and a joint operation network, the government and private sector stakeholders have faced major

[12] Project Appraisal Document

operational challenges. There was no inter-agency coordination, knowledge of the end-to-end process, or access to accurate, real-time, and reliable information to inform major decisions affecting movement of cargo on the corridor. All these resulted in the inability of stakeholders to resolve logistical difficulties or forming effective working relationships that are critical in a logistics network, and ultimately improved service delivery.

The TMEA intervention, Cargo Tracking for Rail with funding from USAID was designed to address the short, medium and long-term bottlenecks and other challenges affecting the operations of cargo handling, movement and clearance of rail cargo at the port and ICD through developing joint and coordinated operations between the principle government agencies, enhancing cooperation between them and with other government agencies, and more importantly their relationship with private sector operator players (shippers, shipping lines and agents, clearing agents, road transporters and other parties of interest). This will be attained by using ICT as an enabler to facilitate better inter-agency coordination, communication between government and private sector, and improved port performance from a process perspective. This intervention aims at establishing a single, seamless, integrated, and digital end-to-end cargo process flow from the Port-to-SGR-to-ICD and vice versa. To accomplish this objective, a suite of six (6) solutions will be implemented in collaboration with Kenya Revenue Authority (KRA) Kenya Ports Authority (KPA) and Kenya Railways Corporation (KRC).

The suite of solutions will include:

Joint Cargo Tracking and Tracing Solution (CTTS) - Port-SGR-ICD bound cargo to be tracked using GPS/GPRS enabled tracking devices (eSEALS) for purposes of locating the position of cargo in real-time. - Port-SGR-ICD bound cargo to be traced using same devices above for purposes of locating the position of containers while in container yards and holding areas. - This will operation for imports, exports and drop off of empty containers;
Joint Command Monitoring Centres (JCMC) - Two facilities equipped with digital screens running the cargo tracking and tracing system that will be operated jointly by KRA, KPA and KRC. There will be two offices – in Mombasa Port and ICD Nairobi. - The JCMC will consist of the authorities' staff in these offices and Rapid Operations Units (ROUs) on locations at the port and ICD.
Customer Notification Solution (CNS) - Multi-platform information dissemination solution to provide information and feedback to cargo owners on the status and position of their consignments in real-time. - It will include an SMS query (USSD) platform; email application, mobile application, and a web application;
Joint Resource Planning and Execution Solution (JRPES) - A joint resource platform to support information sharing to facilitate joint planning and advance resource allocation for handling, moving, and clearing SGR-bound cargo. - Development of unified Standard Operating Procedures (SOPs) for the whole handling-mobility-clearance process cutting across all the major institutions - Each agency will know what is expected in terms of resources based on the cargo demand and load available daily;

Centralised Information Sharing Solution (CISS)

- This will facilitate initially KPA-KRA-KRC to exchange data that is essential for planning resources and handling, moving, and clearing cargo from Mombasa Port and ICD Nairobi in the short term.
- In medium and long-term it will be used to facilitate information exchange between all the port actors or users of the port (including private sector operators);

Traffic-Queue Management & Last Mile Delivery Solutions (TQM & LMDS)

- These solutions will facilitate better management of vessels and trucks accessing the port and ICD facilities to pick up or drop off cargo or empty containers.
- This will involve scheduling pick-ups, deliveries, and drop-offs for trucks to avoid unplanned and uncoordinated movement of trucks to and from the port and ICD facilities.
- KRC will also be offering Last Mile Delivery Services to clients who buy into the service. This service will use an UBER-type of service for cargo pick-up and delivery

The scope of the current intervention that is currently implemented on the Mombasa-Nairobi SGR Corridor will also serve the Nairobi-Kampala Meter Gauge Rail Service for cargo transiting Kenya to Uganda via rail. It was anticipated that with the extension of the SGR line from Nairobi to Kampala and Kigali, the SGR Freight Services Solutions would also be extended along this line to offer similar services for cargo moving via rail from Kenya to Uganda and Rwanda. The extensions would bring on board additional stakeholders such as the Uganda Railway Corporation, Uganda Revenue Authority, Uganda Road Transporters and Rwanda Revenue Authority, among others.

3. Overarching Objective

TMEA intends to conduct a summative evaluation to assess the extent to which the Cargo Tracking for Rail project has achieved or is on track to achieve its intended results. The findings of this evaluation will provide credible evidence on TMEA's contribution towards Trade Actors in Kenya efficiently and effectively moving goods along the Mombasa Port-SGR-ICD-Nairobi Corridor and provide detailed lessons learnt, practical recommendations to inform future programming of TMEA. TMEA is looking for a lead consultant to coordinate and supervise this assignment. This role will be integral in ensuring that tools of data collection are designed and deployed for data collection, data is analysed, and the report is produced. The team leader is expected to supervise, co-ordinate and support two consultants based in Mombasa and Nairobi to ensure the assignment is successful delivered.

4. Scope of Work

Underpinning this overarching objective are a number of specific objectives for this evaluation:

- To independently measure and verify results achieved by the project intervention.
- To capture key lessons around the design, implementation and monitoring of the projects.
- To make recommendations designed to improve future programming of this nature.

The evaluation will be conducted through the lens of the OECD-DAC criteria by assessing its relevance, effectiveness, efficiency, progress towards impact and sustainability of results planned to be attained by the project. The Team Leader as is expected to lead the development of key data collection tools that will generate data to assess the p the five criteria below:

Relevance:

1. How important is the TMEA supported intervention regarding the facilitation of the efficient movement of goods within Kenya, across borders in the region and beyond with the aim of establishing a single, seamless, integrated, and digital end-to-end cargo process flow from the Port-to-SGR-to-ICD and vice versa?
2. How is the TMEA supported intervention aligned with the priorities of EAC and the Kenya government national policies and strategies and the needs of key stakeholders (Including Partner States, Private Sector, TMEA and its donors)?

Effectiveness:

6. What results (outputs and outcomes) against the planned results have been the realised by the Cargo Tracking for Rail project?
7. What factors were critical for the achievements or failure of the project results?
8. What are the significant achievements with regards TMEA crosscutting aspects such as Gender, Climate Change, and Poverty that were realised by the project?

Efficiency:

1. How have the Cargo Tracking for Rail project results been achieved? Have they been achieved with good Value for Money (VfM in terms of costs and benefits)?
2. How does the Cargo Tracking for Rail project complement other TMEA and other donor initiatives along the Northern and Central Corridors?

Sustainability:

1. How sustainable are the positive effects or impact of the Cargo Tracking for Rail project ?
2. What key lessons have been learnt and knowledge transferred to the Government, key implementing partners Secretariat and other stakeholders in order to improve the project results and its long-term sustainability?
3. What conditions (including the delivery model) are needed to make this type of project succeed?

Impact:

1. How does or how will the Cargo Tracking for Rail project contribute to reaching higher level TMEA objectives related to the Improvement of Systems and Procedures for Trade?

5. Methodology

TMEA seeks the most robust evaluation design and methodological approach that is appropriate for the scope of the project, resources, and audience. The Team Leader will be required to justify the evaluation approach that will be applied to support the Evaluation. The Team leader shall provide a description of the proposed approach, a draft questionnaire of key questions in relation to evaluation criteria, methodology and the work plan. The evaluation is expected to adopt a mix of quantitative data collection and qualitative approaches. To assess the overall design and relevance of the Cargo Tracking for Rail project, and the effectiveness, efficiency, sustainability of it, consultations will be required with the relevant stakeholders. This will include representatives from Government departments, the Revenue Authority and business and logistics associations. The team leader is also expected to develop an assessment tool, outlining the evaluation criteria, the assessment score, and the level of confidence (based on the amount of evidence available to support the scoring) and the reasons for the score. The purpose of the assessment tool is to present an overview of the entire evaluation so that stakeholders have a common understanding of the results of the evaluation.

6. Expected deliverables

The Team leader will be responsible for coordinating the work of two other consultants that will support the research processes in Mombasa and Nairobi , including the synthesis of the research reports from the key data points.

The following will be the expected key deliverables to TMEA from the Team Leader:

6.1 A detailed inception report with a work plan and draft data collection tools one week after signing the contract. The detailed inception report should comprehensively demonstrate the technical approach (and data collection tools) that will effectively and efficiently address the evaluation questions within the consultancy timeframe.
6.2 A 1st draft evaluation report presented to TMEA for their review and comments.
6.3 A revised evaluation report that will be presented (MS Word report and Power Point Presentation) to the Kenya Country Programme, Evaluation Committee and TMEA Senior Management and Leadership Teams. for review and input.
6.4 A final evaluation report that will be presented (MS Word report)

6.5 Full set of data collected (both raw and cleaned).

6.6 Field photographs of the project sites and primary beneficiaries (including selected stakeholder meetings) and audio recordings of the interviews will be collected. For these multimedia products, email and phone contacts will be provided.

6.7 The evaluation report shall be written in English, be of no more than 20 pages in length (excluding annexes), the report should consist of a concise executive summary of no more than four pages of the report. The report should use numbered paragraphs and should be structured into 3 sections; the first part will be devoted to the evaluation of the relevance, effectiveness, efficiency, intended impact (short term and long-term impact) and sustainability of the Rail Cargo Tracking for Rail project, the second part will focus on the challenges, lessons learnt and recommendations.

Annexes will provide detailed information collected during field visits (focus discussion reports, summaries of interview sheets, summaries of responses to questionnaires), also list of projects reviewed, Stakeholders interviewed, the evaluation matrix etc.

The primary recipients of the assignment deliverables are the following:

- TradeMark Kenya Country Programme.
- Key Government agencies (KRA, KRC and KPA).
- TMEA's donors and its Board.
- Ultimate beneficiaries of the project support.

7. Commencement date and period of execution

The summative evaluation will be executed within a period of **10 weeks** from signing the contract (approval and validation of the report has been built into the total time). A detailed work plan with clear and measurable deliverables and timelines should be included in the technical proposal for this consultancy and the awarded consultant(s)/firm will develop and finalise the proposed work plan and budget (as part of the inception report) within two weeks of starting the assignment.

Schedule of deliverables

Date	Deliverables
	Contract signed
7 working days after signing the contract	Inception report
15 working days after receipt of TMEA comments on the inception report	First draft project evaluation report
10 working days after receipt of consolidated comments from TMEA and Stakeholders	Revised draft Report
7 working days after receipt of TMEA comments on the draft evaluation report	Final project evaluation report

8. Required competencies

The evaluation provider is expected to demonstrate:

8.1 **An excellent understanding of the evaluation principles and methodologies** (including using OECD DAC Criteria); including capacity in a range of quantitative and qualitative evaluation methods

8.2 **A high quality proposal for this assignment**: including a good understanding of this terms of reference; an evaluation methodology which meets international best practice, and a realistic and adequate work plan to deliver the outputs in line with the agreed costs and time

8.3 **Academic and professional qualifications**

- The Evaluation team leader is expected to be an evaluation professional with substantial successful experience (at least 10 years' experience) leading and managing evaluation assignments, particularly

relating to trade facilitation in developing countries and have in-depth knowledge of the latest evaluation methodologies.

- Education qualification of at least a first degree in Development Studies, Economics, or relevant Social Sciences.
- Demonstrated experience of using evaluations as a tool for lesson-learning both during programme implementation and beyond.
- Strong stakeholders' management skills and ability to work flexibly with donors, partner countries, private sector entities; demonstrated ability to manage and sensitive relationships tactfully and productively.
- Strong communication skills - being strategic as well as able to communicate complex studies and findings in an accessible way for non-technical people
- Strong understanding of the strengths and limitations of different designs and how to interpret and present findings accurately to both researchers and non-researchers.