

Non-Reimbursable Technical Cooperation Document

I. Basic project data

▪ Country/Region:	COSTA RICA
▪ TC Name:	Scaling up the current SINPE-TP into an interoperable payment system for the San José Greater Metropolitan Public Transport
▪ TC Number:	CR-T1255
▪ Team Leader/Members:	Granada Garces, Isabel Cristina (INE/TSP) Team Leader; Bayona Pulido, Mauricio (INE/TSP) Alternate Team Leader; Barragan Crespo, Enrique Ignacio (LEG/SGO); Kim, Daehyun (INE/TSP); Lee, Seonhwa (INE/TSP); Mix Vidal, Richard Alexander (INE/TSP); Ruiz Mora, David Jose (CID/CCR); Saraceno, Pier Paolo (INE/TSP); Seungyeon Kim (INE/TSP)
▪ Taxonomy:	Operational Support
▪ Operation Supported by the TC:	CR-L1139.
▪ Date of TC Abstract authorization:	17 Dec 2021.
▪ Beneficiary:	Government of Costa Rica
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Public Capacity Building Korea Fund for Economic Development(KPC)
▪ IDB Funding Requested:	US\$400,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	36 months
▪ Required start date:	1 May 2022
▪ Types of consultants:	Firms, Individuals
▪ Prepared by Unit:	INE/TSP-Transport
▪ Unit of Disbursement Responsibility:	CID/CCR-Country Office Costa Rica
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	Yes
▪ Alignment to the Update to the Institutional Strategy 2020-2024:	Environmental sustainability; Gender equality; Productivity and innovation; Social inclusion and equality

II. Description of the Associated Loan

- 2.1 This Technical Cooperation (TC) is related to the operation 4864/OC-CR - Road Infrastructure Program and promotion of Public-Private Partnerships (PPP). The objectives of this operation are to contribute to Costa Rica's competitiveness through the environmentally sustainable improvement of the High-capacity Road Network (RVAC) in the Great Metropolitan Area and to support the development of road infrastructure projects through Public-Private Partnerships (PPPs) as an additional mechanism for their financing and management. The specific objectives are to: (i) lower vehicle operating costs for the flow of freight transportation on the RVAC in the GMA; (ii) shorten travel times for vehicles on the RVAC in the GMA; (iii) minimize emissions generated by transportation in the GMA; and (iv) improve the technical and institutional capacity of the Government of Costa Rica to develop road projects via PPP mechanisms.

- 2.2 It is expected that in the second phase of the implementation of this operation will support interventions at an urban scale in the Great Metropolitan Area of San Jose, supporting the improvement of the public transit system. This phase is directly aligned with the scope of this TC.

III. Objectives and justification

- 3.1 **Objective.** This TC aims to support the Ministry of Public Works and Transport (MOPT) in expanding the current Electronic Payment System in its urban train network (SINPE-TP) towards an interoperable system for both trains and buses operating in the Grand Metropolitan Area (GMA) of San Jose. By scaling up the SINPE-TP into an interoperable electric payment system, the TC will contribute directly to the improvement of the efficiency of the Public Transport (PT) in the metropolitan area, enhancing the user experience and fostering its attractiveness for the San Jose citizens, as well as putting a steppingstone for the possible future deployment of an integrated Mobility as a Service (MaaS) transport system, which will position Costa Rica as one of the regional frontrunners in providing an efficient and accessible public transport service.
- 3.2 **Justification.** Currently, the GMA counts with the displacement of nearly 1.5 million people every day, who move from the periphery of the urban area towards the city center of San Jose¹, where most of the employment supply is based. Public Transport (PT) covers only 22% of those trips, while most of the population is still counting on their individual vehicle as the main mean of transportation. This situation contributes to significant and focalized high levels of congestion and pollution.
- 3.3 The current PT system was not originally conceived to allow combination of routes and transport modalities. Each route operates almost independently and there are very few stops shared between different transport modes. Such structure is limiting substantially the user experiences, reducing the potential intermodal options and restricting the capacity of the PT to function as a competitive, and comfortable alternative to private individual transport^{2,3}.
- 3.4 The lack of widespread availability of an electronic payment system is reducing the capacity of transport operators to correctly design and plan an efficient transportation system, resulting in significant costs for the country, also due to the high circulation of coins⁴. This situation also causes a restrictive lack of data, like information on the number of passengers on each route, travel intentions and frequency of use, among other useful resources, that does not allow an effective reorganization of the stops and the trunk routes based on the demand, or an improvement of the service offered.
- 3.5 The COVID-19 pandemic, and its severe hit on the ridership of public transport sector, has certainly highlighted the need for Costa Rica to reinforce its approach around PT.

¹ Costa Rica IDB Country Strategy.

² [Koeppf, J. \(2015\). El Transporte Público en la Gran Área Metropolitana de Costa Rica. Perspectivas, 1, 1-11.](#)

³ Regarding the urban train system and public transport in GAM of San Jose, South Korea made an abundant study through the technical cooperation with the Instituto Costarricense de Ferrocarriles (INCOFER) in 2020. Under the objective of increasing the quantity and quality of the public transportation system, Korea provided technical support in the rapid train system project management for wider passenger railway projects connecting the GAM of San Jose including Cartago, Heredia, and Alajuela.

⁴ See reference 2.

Under a long-term perspective, it should go beyond the typical single-mode transport system offer, in favor of a cross-modal interoperable system based on MaaS⁵.

- 3.6 In September 2021, Costa Rica adopted an Electronic Payment System in its urban train system (SINPE-TP). The new SINPE-TP is structured around a central collection system that receives the information of the payment transactions carried out in the transport services, performs the calculation of rates, processes the payments, and distributes the revenues. The SINPE-TP is based on a solid and innovative partnership between the Central Bank, the Public Services Agency, the Costa Rican Railway Institute (INCOFER), and the MOPT. Thanks to this innovative in-house partnership, the system is characterized by technological sovereignty, meaning that it does not depend on specific external providers for its operations. On the contrary, the public entity involved (i.e., Central Bank) is the main responsible of managing their operation and, when required, implementing new possible functionalities. SINPE-TP is the first electronic payment system in the Region based on two means of payment: (i) those that meet EMV specifications (Europay-Mastercard-Visa) and have proximity payment technology (contactless); and (ii) mobile phones with a QR code app.
- 3.7 Nevertheless, the country's current PT remains still too distant from a digitalized, integrated and interoperable system. The payment system is still primarily based on cash and no ticket is issued for a trip from one point to another of the GAM; instead, users are paying cash on each mean of transport used. Moreover, despite the significant and recent progress undertaken, its development is still in an early stage. The SINPE-TP has indeed been designed as a system to be implemented gradually. At the moment, it has been piloted only in few rail sections (e.g., Alajuela/San Jose)⁶ and it will be soon expanded in other train lines, to cover the GMA of San Jose, with the ambition to extend it to the buses providers operating in the metropolitan area in a short-term horizon, under the prospect of an interoperable payment system. On the 29th of April 2022, a first pilot of the digital payment system has been preliminary tested also on a bus route in San Jose.
- 3.8 The implementation of this interoperable SINPE-TP is expected to provide very accurate database patterns in real time (e.g. number of passengers and exact earnings for the operator, the demand in the different areas and the connection between routes, the frequency of use, etc.) and serve to the reorganization of the public transport system, by allowing an intelligent relocation of stops, the interconnection of bus lines and the urban train network and the issuance of special tickets to encourage the use of public transport. Therefore, guaranteeing the mobility of public transport users with a universal mean of digital payment becomes a relevant objective for the development of a Costa Rican interoperable and efficient public transport⁷. This will require the implementation of an interoperable collection system amongst different modes of transport, what may generate important institutional, commercial, and technological architecture challenges for the transport service providers. Therefore, strong institutional capacity support, and a well communicated

⁵ To explore the MaaS concept, see - amongst others – [OECD \(2021\) the innovative mobility landscape: the case of mobility as a service](#).

⁶ This first pilot has been a success: indeed, in the first three months of implementation, it has been achieved that 25% of train trips have been made with electronic payment

⁷ [Porcel, M. R., et al. \(2018\). Interoperabilidad en los Sistemas de Recaudo para Transporte Público en América Latina y el Caribe.](#)

decision-making process amongst stakeholders involved are key for the success of this transformation.

- 3.9 As a benchmark case, South Korea has already made an excellent expertise in implementing and managing the efficient public transport system and providing the best user experiences in the Metropolitan area of Seoul and other cities through the establishment of the integrated digital public transport payment system. This includes the metro, urban trains, Bus Rapid Transits (BRTs), and urban buses ⁸. The first smartcard ticketing system was introduced in Seoul in 1996 to pay fares electronically and address the problem of delays caused by manual fare payment. In 2004, a new smartcard, named T-money, was introduced as part of public transport reform initiated in Seoul. The Ministry of Knowledge Economy supported the development of Automated Fare Collection (AFC) standard software solution. Over time the transport related functionalities were also integrated into practically all credit cards issued in Korea. By 2009, smartcard usage has reached 96% of the trips in Seoul, while average usage in other cities of about 80%⁹.
- 3.10 Also, the transit data collection and analysis, and the real-time transit monitoring through digitalized transport fare system contributed to designing more sustainable and highly efficient public transport system, planning the adequate policies, and making the progress toward ultimate MaaS in the nation. As a result, public transit is responsible for 65% of the average daily traffic of 32 million trips in the city; 40% corresponds to the metro system and 25% to the bus system¹⁰.
- 3.11 Thanks to this strong track record and a wide experience in designing and developing of smart and interoperable payment system, South Korea has offered support to several countries worldwide for the development of an efficiently interoperable payment system, such as through the carry out of a Feasibility Study of the National Standard-based Interoperable Automatic Fare Collection System in Philippines (2018) and the implementation of an Automated Fare Collection System for Public Transport in Cairo and Alexandria, in the Arab Republic of Egypt (2017)¹¹.
- 3.12 Such a wide experience is therefore expected to provide technical and institutional support for the digital transformation and the interoperable public transport system in the GMA of San Jose, Costa Rica.
- 3.13 **Vision 2025.** The implementation of a new interoperable system is also in line with the main priorities of the [Vision 2025. Reinvest the Americas: A Decade of Opportunity](#), in the opportunities of: (i) digital economy, by fostering the digitalization of the public transport services in San Jose; (ii) climate change action, by contributing to the mitigation of the transport sector's CO₂ emissions; (iii) gender and diversity, by encouraging the mobility of women; and (iv) support for SMEs, by encouraging financial transparency and payments traceability for SMEs.
- 3.14 **Strategic Alignment.** The TC is aligned with the [Update to the Institutional Strategy](#) in the development challenges of: (i) Social Inclusion and Equality, by promoting the improvement of the access, coverage and quality of transport services; and (ii) Productivity and Innovation, by fostering the digitalization of the transport sector in

⁸ [WORLD BANK. Public transport automatic fare collection interoperability assessing options for Poland. 2016.](#)

⁹ Ibid.

¹⁰ <http://news.seoul.go.kr/traffic/archives/289>.

¹¹ [ITS Korea presentation.](#)

the country and promoting their inclusion in the financial system, particularly important for the Small Medium Enterprises (SMEs) growth and its access to external credit. It is also aligned with the cross-cutting issues of : (i) Climate Change (CC) and Environmental Sustainability, by contributing to the mitigation of the transport's CO₂ emissions, thanks to the fostering of public transport usage and thus reducing externalities like congestion; and (ii) Gender Equality and Diversity, as it proposes a more secure environment in the public transit system by eliminating cash payments needs, and in turns, positively impacting the woman's transport choices in favor of public transit usage, as well as ensuring a recollection of the data which will improve the characterization of women needs. The TC is also aligned with the Vision 2025 as mentioned in the previous paragraph (§3.13). Moreover, the TC is in line with the Country Strategy of Costa Rica 2019-2022 (GN-2977), by improving the coverage, quality, and resilience of the transportation services and by promoting practices of sustainable urban mobility, with the aim of promoting activity economy and competitiveness, and the improvement of the quality of life of Costa Ricans. The project is also aligned with the Transportation Sector Framework Document (GN-2740-9), in promoting efficient, inclusive, sustainable and quality mobility for urban and interurban passengers.

IV. Description of activities and components

- 4.1 Through the technical and institutional support of the Public Capacity Building Korea Fund for Economic Development (KPC), this TC will aim to implement the following activities:
- 4.2 **Component I. Feasibility Study on the Bus/Train Interoperable Electronic Payment System (US\$220.000).** This component will be constructed around three activities. The first activity will cover the elaboration of a diagnostic and feasibility study for the deployment of the interoperable electronic payment system for bus and train providers in the GMA of San Jose. The study will identify the institutional challenges and possible operational bottlenecks, the costs, the mapping of stakeholders and the actual workplan for the implementation the system, considering the current status of the already adopted SINPE-TP.
- 4.3 The second activity will fund: (i) the definition of the governance and decision-making structure of the new interoperable system; (ii) the adaptation of roles and responsibilities of the existing SINPE-TP amongst stakeholders involved; (iii) the design of the commercial income distribution scheme amongst transport providers; (iv) the definition of the commissions for the technical interoperability of the system so to guarantee the coordination between operators; and (v) the creation of data and payment security systems.
- 4.4 The third activity will cover the establishment of a roadmap/masterplan for the possible future implementation of a MaaS system in GMA San Jose linked to the interoperable electronic payment. It will also fund some capacity buildings and knowledge exchange activities for the MOPT and other stakeholders involved.
- 4.5 **Component II. Piloting of the new interoperable payment system in a real-life environment (US\$100.000).** This component will cover the costs of the testing and experimentation in a real life environment of the new interoperable payment system in one interconnected route (train and bus), for a full cycle process (user payment, collection, revenues distribution). The pilot will allow the identification of possible bottlenecks and bugs of the system and will feed its further improvements.

4.6 Component III. Capacity Building and Knowledge Disseminations (US\$80.000).

This activity will cover the organization of 2 capacity building workshops for Costa Rican government officials in Korea, so to share Korea's acquired knowledge regarding the implementation of interoperable transport system. It will also cover all the costs related to the dissemination and communication activities of the project (possible publications, translations, events organizations, etc.) as well as a communication strategy for the dissemination of the new technology developed.

Indicative Budget

Component	Activity	IDB Funding/ KPC Fund	Total Funding
Component I. Feasibility Study on the Bus/Train Interoperable Electronic Payment System.	Diagnostic Study identifying opportunities and challenges of an interoperable SINPE-TP system.	US\$100.000	US\$100.000
	Creation of an updated structure of the SINPE-TP system for the interoperable electronic payment.	US\$100.000	US\$100.000
	Establishment of a roadmap/masterplan for the possible future implementation of a MaaS system in GMA San Jose.	US\$20.000	US\$20.000
Component II. Piloting of the new interoperable payment system in a real-life environment.	Testing and experimentation in real life environment of the new interoperable payment system amongst one interconnected route (train+bus).	US\$100.000	US\$100.000
Component III. Capacity Building and Knowledge Disseminations.	Capacity building workshop for Costa Rican public Officials.	US\$60.000	US\$60.000
	Knowledge dissemination publications, translations, and events organizations.	US\$20.000	US\$20.000
TOTAL		US\$400.000	US\$400.000

4.7 Supervision. The team leader will be responsible for the supervision of the TC with the support of the alternate team leader and members of the project team. This will facilitate the supervision of project implementation, as well as foster a good communication with local counterparts.

V. Executing agency and execution structure

5.1 In accordance with the IDB regulations and following the request of the Government of Costa Rica¹², the IDB will be the Executing Agency (EA) for this TC. In alignment with Annex II of the document Procedures for the Processing of Technical Cooperations and Related Matters (OP-619-4), this request is justified by the IDB's ample experience in the preparation and development of the operational and technical instruments proposed for this type of operation, and for the experience in coordinating and providing technical assistance to development financial institutions, operators and policy makers. The Bank's participation as EA will also foster independence in the

¹² See TC [Annex I](#).

executing process of the TC and generate a better environment for the knowledge and dissemination of the learned lessons across the region.

- 5.2 The activities of the IDB will be in charge of the Transportation Division (INE/TSP). The IDB's main responsibilities will be: (i) develop the work plan and monitor the schedule of activities; (ii) carry out the financial administration of the project; (iii) coordinate the preparation of the Terms of Reference (ToR) for the contracting, selection, and contracting of consulting services required by IDB rules, policies, and procedures; (iv) preparing/reviewing reports on the status of the project; and (v) prepare and update the procurement plan.
- 5.3 The Unit Disbursement Responsible (UDR) for this TC Will be CID/CCR and will be in charge of the procurement processes, which will allow the contracting carried out within the framework of the TC to be opportune and foreseen at the time of execution. The activities to be executed under this operation have been included in the Procurement Plan (Annex IV) and will be executed in accordance with the IDB's established procurement methods and policies, namely: (i) contracting of individual consultants, as established in the regulations AM-650; (ii) contracting of consulting firms for services of an intellectual nature in accordance with GN-2765-4 and its associated operating guidelines (OP-1155-4); and (iii) contracting of logistics services and other services other than consulting, in accordance with policy GN-2303-28. Since the TC will be executed by the Bank, a financial audit is not required. The times for disbursements and execution of the TC are estimated at 36 months.

VI. Project risks and issues

- 6.1 Under the current global context, there may be a risk that the projects that this TC supports will suffer delays or changes in scope due to the economic and health security complications that the advance of the COVID-19 pandemic in the beneficiary country implies. To mitigate this risk, activities will be developed in such a way that they can be easily adjusted to meet the constantly changing needs due to the uncertainty related to the pandemic. The coordination with the main stakeholders (Government, train and bus operators, team projects and GAM local authorities) is also one of the main challenges of this project, as all of them must be on board of the pilot. The team is aware of this and will take an active role in the coordination activities.
- 6.2 The TC does not present fiduciary management risks since it will be executed by the IDB. Due to the nature and activities described in this TC, other identified risks are minor and do not represent a significant impediment to its development.

VII. Exceptions to Bank policy

- 7.1 No exemptions to Bank policy are envisioned.

VIII. Environmental and Social Strategy

- 8.1 The ESG classification for this operation is "N/A".

Required Annexes:

- [Request from the Client - CR-T1255](#)
- [Results Matrix - CR-T1255](#)

- [Terms of Reference - CR-T1255](#)
- [Procurement Plan - CR-T1255](#)