

TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Supporting E-Commerce through New Technologies
▪ TC Number:	RG-T3388
▪ Team Leader/Members:	Corcuera-Santamaria, Sandra (INT/TIN) Team Leader; Shearer, Matthew Stone (INT/INT) Alternate Team Leader; Allende Lopez, Marcos (ITE/IPS); Contreras Huerta, Rodrigo Andres (INT/TIN); Esteves, Yasmin (INT/INT); Garcia Sanjines, Jose Martin (INT/TIN); Gomez Gonzalez, Maria Margarita (INT/TIN); Imana, Zaida Victoria (INT/TIN); Jimenez Orjuela, July Emperatriz (INT/TIN); Libby Hernandez, Margarita (INT/TIN); Lucenti, Krista (INT/TIN); Medina Villanueva, Daniela (INT/INT); Moreno, Michelle Leonor (ITE/IPS); Negret Garrido, Cesar Andres (LEG/SGO); Rospide, Maria De La Paz (INT/TIN); Valderrama-Celaya, Claudia (INT/INT); Volpe, Christian (INT/INT); Pardo, Alejandro
▪ Taxonomy:	Research and Dissemination
▪ Operation Supported by the TC:	n/a
▪ Date of TC Abstract authorization:	29 Apr 2019.
▪ Beneficiary:	All Inter-American Development Bank (IDB) borrowing member countries Customs and Trade institutions
▪ Executing Agency and contact name:	Inter-American Development Bank through the Trade and Investment Division (INT/TIN)
▪ Donors providing funding:	OC Strategic Development Program for Integration(RIN)
▪ IDB Funding Requested:	US\$350,000.00
▪ Local counterpart funding, if any:	
▪ Disbursement period (which includes Execution period):	24 months (Disbursement period) 24 months (Execution period)
▪ Required start date:	17 oct 2019
▪ Types of consultants:	Individuals; Firms and non consultancy services
▪ Prepared by Unit:	INT/TIN-Trade & Investment
▪ Unit of Disbursement Responsibility:	INT-Integration and Trade Sector
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation; Economic integration; Institutional capacity and rule of law

II. Objectives and Justification of the TC

- 2.1 The overall objective is to support the use of new technologies to increase trade in Latin America and the Caribbean (LAC) countries. The specific objectives are: (i) to achieve a better understanding of the economics of new technologies as applied on regional trade in LAC countries; and (ii) to improve the capabilities of customs in LAC countries to handle e-commerce through the use of new technologies.
- 2.2 Trade institutions, border authorities and the private sector worldwide are undergoing major structural transformations. New technologies are driving forces for new processes for the production, trading, logistics, marketing, control and even consumption of goods and services. As Industry 4.0 progresses, new technologies are

at the core of innovative tools that have the potential to revolutionize trade and logistics. The use of new digital tools can help LAC countries to foster their participation in regional and global value chains, but new knowledge dimensions should be explored to understand better the underpinnings of this interaction between the new digital economy and the promotion of regional trade, particularly in complex issues such as integration of digital markets, potential trade gains, regulatory issues, among others. E-commerce, for example, is thriving alongside increased access to the Internet, to electronic devices, and to technologically-enabled transport logistics.¹ This new type of trade is full of opportunities for trade and for regional and global value chains and market integration, as it is also for businesses and consumers. However, it also poses challenges for governments, especially for regulatory entities, such as customs and border agencies.

- 2.3 These challenges are related to their limited capacity to cope efficiently with increasing volumes of cross border e-commerce.² Furthermore, some of the small shipments and parcels may be used to smuggle illicit goods or to contravene the laws and not pay the duties and taxes due. Government authorities find it difficult to fulfill effectively their mandates to protect revenue collection and the security of their citizens while facilitating the legitimate flow of goods generated by e-commerce. This affects particularly developing countries, as is the case in Latin America and the Caribbean (LAC) where Business to Consumers (B2C) e-commerce is projected to grow at an annual rate of 19%, with the cross-border share expanding at a rate of 44%. Thus, the region's share in cross-border B2C e-commerce worldwide looks set to double, from 2.6% (about US\$ 6 billion) in 2014 to 5.3% (around US\$ 53 billion)³ in 2020.
- 2.4 Efficient and effective risk management systems and automated traceability capabilities are essential tools for customs and border authorities to mitigate the risks associated with e-commerce⁴. At the heart of a sound risk management system, data is the holy grail for successfully profiling the identified risks. The vast amount of structured and unstructured data (including images) available in trade operations is a perfect ground for new technologies such as Machine Learning (ML) and AI to strengthen the potential of risk management systems.
- 2.5 Traceability of the tsunami of shipments that arrive at the borders of LAC countries is another challenge for authorities, as it affects the quantity and quality of the data necessary for implementing risk controls. Blockchain technology has already demonstrated its potential for establishing provenance and sharing data among multiple stakeholders.
- 2.6 Therefore, emerging technologies when applied to customs management of e-commerce could contribute to unlocking the potential benefits of this type of trade for the LAC region. ML and AI can support and enhance customs and border agencies' own risk management systems by helping process and analyze the large amounts of

¹ Worldwide Business to Consumers (B2C) e-commerce grew on average by 31% between 2014 and 2017, and is foreseen to maintain this pace until 2021, according to the "eMarketer" consultancy. Global B2C e-commerce is likely to increase in total from US\$ 1.3 billion to US\$ 4.9 billion.

² Global Cross-border e-commerce is likely to grow its share of total e-commerce from about 15% in 2014 to nearly 30% in 2020, as projected by the consultants AliResearch and Accenture (2016).

³ *International Trade Outlook for Latin America and the Caribbean, 2018*. Economic Commission for Latin America and the Caribbean (ECLAC). https://repositorio.cepal.org/bitstream/handle/11362/44197/5/S1801069_en.pdf.

⁴ Most customs modernization projects funded by the IDB include improvements in risk management systems for cargo, such as in PE-L1239, AR-L1282, Nicaragua NI-L1083, CR-L066, BH-L1016 and also in regional initiatives in Central America. This TC will focus on risk management for ecommerce.

data produced and created by e-commerce with the aim of pinpointing the risks associated with it. In doing so, ML and AI can help reduce the percentages of manual and physical interventions of packages and parcels while improving trade facilitation rates for e-commerce. E-commerce could also benefit from blockchain technology to help customs and border authorities collaborate with carriers to share data to bring visibility and fluidity to the supply chain.⁵

- 2.7 Aware of the increasing dynamism of e-commerce, the World Customs Organization in 2018 in collaboration with the private sector developed a series of standards on cross border e-commerce,⁶ which includes the adoption of new technologies for a more effective and efficient control and facilitation of this type of emerging commerce.
- 2.8 E-commerce is part of the trade and integration agenda of sub-regional initiatives such as the Pacific Alliance and Mercosur where there are working groups to deal with current issues arising from this growing trade flow. The Bank is contributing and facilitating some of these efforts, such as in the Pacific Alliance. It is also at the core of the work by the Americas Business Dialogue⁷ (ABD), a Bank led initiative of more than 300 leading companies and business associations.
- 2.9 Although AI, blockchain and other new digital technologies are in a nascent stage, proof of concepts and pilot projects are already bearing fruit for those entities looking to innovate in the search for new solutions to their operational challenges.⁸ Being near the forefront of this worldwide technical discussion is critical to leading and facilitating innovation for our trade institutions in LAC, and for the Bank's operational agenda promoting trade and integration.
- 2.10 The TC is consistent with the Update to the Institutional Strategy 2010-2020 (AB-3008) and is aligned with the development challenge of Economic Integration, by strengthening countries' capacities for a better insertion into value chains (cf. paragraph 2.2). The TC is also aligned with the cross-cutting theme of Institutional Capacity and Rule of Law, by delivering knowledge and innovative tools to customs officials responsible for delivering timely, quality, and accessible services related to customs and trade facilitation, and by contributing to greater productivity and certainty regarding trade and border transactions (cf. paragraphs 3.2 and 3.3). The TC is also consistent with the Sectoral Framework for Trade and Integration (GN- 2715-8) as it supports the promotion of knowledge and use of new technologies in trade facilitation initiatives. The TC aligns with the 2016-2019 Corporate Results Framework (GN-2727-

⁵ Korea Customs is currently working on pilot projects for this topic applying blockchain and ML/AI <https://mag.wcoomd.org/magazine/wco-news-88/korea-pilots-blockchain-technology-as-it-prepares-for-the-future/>.

⁶ Cross Border E-commerce Framework of Standards. http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/activities-and-programmes/ecommerce/wco-framework-of-standards-on-crossborder-ecommerce_en.pdf?la=en.

⁷ The ABD (<https://americasbd.org/en/2018-report/>) is an IDB-led initiative that brings together more than 300 leading companies and business associations from the Americas to support, strengthen and implement public policies jointly with governments. Leading e-commerce platforms and logistics operators in LAC are part of ABD. One of the objectives is to incorporate high-quality digital trade provisions in trade negotiations and regional integration processes to support the development of a sustainable digital economy in the region, including commitments to facilitate cross-border data flows.

⁸ The IDB together with customs administrations from ME, PE, CH, CR and CO has developed a blockchain platform called CADENA for the sharing of cross border data of the certifications of Authorized Economic Operators. This allows for more efficient and secure exchange of data to be able to provide the private sector with optimal trade facilitation measures. <https://blogs.iadb.org/integration-trade/en/blockchain-trade-safer/>.

- 6) (CRF) by providing knowledge amongst government agencies (customs) in technological tools to improve public service delivery.
- 2.11 Additionally, the document is aligned with the OC Strategic Development Program for Integration (RIN) with the UIS (GN-2819-1) as it sets forth the improvement of trade facilitation and logistics processes, including the strengthening of functional cooperation and capacities to participate in regional and global initiatives through the development of virtual and automated platforms.
- 2.12 This TC will support and bring additional value to other efforts by the Trade and Investment Division (INT/TIN) to generate knowledge and potential applicability of new technologies in trade⁹, in the case of this TC with the focalization on e-commerce. Furthermore, this TC will bring practical applicability through testing and validation during the pilot projects. In particular, the TC will benefit from lessons learned in the design and implementation of CADENA for customs administrations to share cross border data on certificates of compliant private companies. This TC also has synergies with other Sector efforts¹⁰ to provide training on new technologies, as the specific focus of this intervention on ecommerce will be reflected in the learning materials.

III. Description of Activities and Budget

- 3.1 The resources of this TC will finance the following activities:
- 3.2 **Component I: Knowledge and technical capacity to apply new technologies enabled and strengthened.** This component will contribute to create knowledge and capacity in new technologies related to trade in the LAC region and will assist in the drafting of the technical specifications for the use cases to be developed in the pilot projects. This component will finance:
- a. A consultancy to draft a report on the opportunities and challenges to apply new technologies to trade and border management. This report will set the stage to present the potential impact of using ML, AI, blockchain, the internet of things, 3D printing, and others in trade in LAC. The report will consider macroeconomic elements of the technology (productivity improvement, economic growth), and integration factors such as the impact in Global Value Chains and Trade Agreements. The report will tackle efficiencies in trade (investment opportunities, services) and in customs administrations by enhancing their controls and improving the levels of trade facilitation and improving business opportunities and reducing costs. It will also include opportunities and challenges of interagency collaboration and data exchange, such as between customs and tax agencies. Finally, it should also include challenges related to the regulatory aspects around the availability and privacy of data when applying new technologies. A closer look to ML, AI and blockchain applied to e-commerce will be considered.
 - b. Regional workshops for LAC customs officers to be exposed to worldwide initiatives applying ML, AI and blockchain¹¹ in order to mitigate the risks of e-commerce. During the workshops the participants will identify the business

⁹ Current IDB loans designed by INT/TIN incorporate new technologies such as AI in Border Crossings in Nicaragua NI-1083, Intelligent Traceability Systems for cargo EC-L1116 and PE-L1239.

¹⁰ In particular, with TC Capacity Building in Trade Innovation (RG-T3417).

¹¹ The Netherlands customs together with the University of TUDelft and IBM has an initiative to use AI in Customs Risk Management for e-commerce <http://resolver.tudelft.nl/uuid:da9b9c93-eb5f-4954-bdbd-16d2bb61feb5> and Korean custom has worked on a pilot project to develop a blockchain solution to address e-commerce <https://mag.wcoomd.org/magazine/wco-news-88/korea-pilots-blockchain-technology-as-it-prepares-for-the-future/>.

rationale and the functionalities of a use case, as well as the technical requirements in order to draft the specification terms for the pilot projects described in Component II. The pilot projects will be implemented by two customs administrations¹². During the second workshop, the implementers will share with regional counterparts' lessons learned and best practices on the implementation of the pilot projects.

3.3 Component II: Pilot Project to apply and validate the use of ML, AI and Blockchain to harness the potential of e-commerce. This component will contribute to the design and development of a solution to improve customs risk management and to develop a blockchain-based traceability and visibility system for packages, parcels and shipments entering the country through e-commerce. This component will finance:

- a) A pilot project to assist two customs administrations in the design and development of an Information System (IS) to improve customs risk management for e-commerce. The architecture and functionalities will use ML and AI capabilities¹³ to improve risk management systems and will be developed to address a specific use case previously identified during the regional workshop.
- b) A pilot project to assist customs administrations to develop a blockchain system to provide traceability and visibility to packages, parcels and shipments entering the country through e-commerce. The application will be built on the blockchain infrastructure provided by LACChain¹⁴. Likewise, synergies with members of the Americas Business Dialogue (ABD) will be established in order to include in the blockchain solution to logistics carriers and e-commerce online vendors together with customs authorities to jointly work on the pilot project that will aim to share data on real time of ecommerce purchases and transport.

3.4 Component III: Supervision and Monitoring. Given the regional scope this component will aim to create a coordination point to oversee and monitor activities undertaken in this TC, which include the production of status reports, communication with stakeholders, logistical and content-related organization for meetings and for pilot projects implementation.

3.5 The expected outputs¹⁵ are: i) a report on the opportunities and challenges to apply new technologies to trade and border management with the focus on e-commerce, ML, AI, and blockchain; ii) two regional workshops on the application of ML, AI and blockchain in e-commerce; iii) practical solutions developed on pilot projects on the use of ML, AI and blockchain to improve e-commerce by enhancing the capabilities of risk management in the beneficiary countries.

3.6 The total cost of this TC will be US\$350,000, which will be financed by the Multi-Donor OC Regional Strategic Development Program for Integration (RIN), as set out in the Indicative Budget chart below:

¹² They will be selected during the first regional workshop based on level of maturity on new technologies, level of ecommerce flows and developed interest in working on the pilot projects. All the other customs administrations will be observers of the implementation.

¹³ ML and AI have the potential to detect high risk e-commerce shipments when you develop and apply algorithms which take in consideration elements such as weight, classification and origin of the packages.

¹⁴ LACChain is an IDB initiative promoted by the BID LAB to create a regional blockchain infrastructure in the LAC region. The CADENA application is being built on LACChain.

¹⁵ All rights resulting from intellectual property products financed by this TC shall be the property of the Bank.

Indicative Budget (in US\$)

Activity/Component	Description	IDB/Fund Funding	Total Funding
Component I. Knowledge and technical capacity to apply new technologies enabled and strengthened			
Report on the opportunities and challenges to apply new technologies to trade and border management with a closer look to AI and blockchain applied to e-commerce	1 consultancy * 60,000 ea.	60,000	60,000
Regional Workshops	2 workshops * 25,000 ea.	50,000	50,000
Component II. Pilot Projects to apply and validate the use of AI and Blockchain to harness the potential of e-commerce			
Pilot Projects	2 consultancies * 105,000 ea.	210,000	210,000
Component III. Supervision and Monitoring			
Coordination and monitoring	1 consultancy * 30,000 ea.	30,000.00	30,000.00
Total		350,000	350,000

IV. Executing agency and execution structure

- 4.1 In light of the taxonomy of this TC and the applicable Bank policies (GN-2470-2 and GN-2629-1), the Bank, through the Integration and Trade Sector (INT/INT), will be the executing agency of this TC. INT/INT through the team leader will be responsible for the overall execution and supervision of the TC in close coordination with country offices through the Sector's operational specialists.
- 4.2 In addition, there are three primary justifications for execution of this TC by the Bank: (i) this is a regional project that requires high level of coordination and interdependence (ii) likewise, the Bank has the technical experience and capacity, and well-established collaboration relationships with public and private stakeholders working with new technologies to ensure high quality in the delivery of products and activities to be undertaken; and (iii) the project seeks consistency with the Bank's GCI-9 priorities, Integration Strategy, UIS, CRF, and especially its operational program, and Bank specialists are in the best position to ensure this.
- 4.3 All activities to be executed under this TC have been included in the Procurement Plan (see Annex III) and will be contracted in accordance with Bank policies as follows: (i) M-650 for Individual consultants; (ii) GN-2765-1 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature; and (iii) GN-2303-20 for logistics and other related services.
- 4.4 In the event that any contract that includes field activities is eventually considered to be financed, the letters of non-objection will be obtained from the Beneficiary Government corresponding prior to the start of any field activity.

V. Major Issues

- 5.1 Implementation of a regional project implies a higher level of complexity, as well as risks related mainly to inter-institutional coordination and asymmetries in information. It is expected that these risks will be mitigated by having the IDB as the executing agency, especially considering that the Bank has and will continue coordinating relevant and related activities with the different public institutions responsible for trade and customs in the LAC region.

- 5.2 Another risk to this project is the nascent nature of the new technologies to be validated. This will be mitigated by developing a sound technical team with Bank resources through ITE and BID Lab together with external vendors. Also, another mitigation measure to be implemented by the Bank will be to establish communication and technical exchanges with other countries outside the region¹⁶ where they are already conducting proof of concepts on these areas.

VI. Exceptions to Bank policy

- 5.3 This TC does not involve any exceptions to the Bank's policies.

VII. Environmental and Social Strategy

- 6.1 This operation has been classified under the "C" category in accordance with the Environment and Safeguards Compliance Policy (OP-703) (see [Safeguards Analysis Report](#) and [Safeguard Policy Filter Report](#)).

Required Annexes:

[Results Matrix_75823.pdf](#)

[Terms of Reference_79362.pdf](#)

[Procurement Plan_80691.pdf](#)

¹⁶ For example, The Netherlands, Korea, Dubai, Japan and USA.