

## TC Document

### I. Basic Information for TC

▪ Country/Region:	PERU
▪ TC Name:	Applying artificial intelligence (AI) and machine learning to upgrade the IP administration system in Peru
▪ TC Number:	PE-T1434
▪ Team Leader/Members:	Crespi, Gustavo Atilio (IFD/CTI) Team Leader; Suaznabar, Claudia (IFD/CTI) Alternate Team Leader; Castillo Manrique, Rafael (IFD/CTI); Gonzalez Alzualde, Yohana Beatriz (IFD/CTI); Jimenez Mosquera, Javier I. (LEG/SGO); Kelly Castillo, Emily Leticia (IFD/CTI); Miranda Guevara, Lorena Violeta (CAN/CPE); Saldana Galvez, Jorge Hernan (CAN/CPE); Sun, Juyoon (IFD/CTI)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	28 Jul 2020.
▪ Beneficiary:	INDECOPI, Peru
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Knowledge Partnership Korea Fund for Technology and Innovation(KPK)
▪ IDB Funding Requested:	US\$500,000.00
▪ Local counterpart funding, if any:	US\$100,000.00 (In-Kind)
▪ Disbursement period (which includes Execution period):	30 months
▪ Required start date:	01/15/2021
▪ Types of consultants:	Firms and Individuals
▪ Prepared by Unit:	IFD/CTI-Competitiveness, Technology and Innovation Division
▪ Unit of Disbursement Responsibility:	CAN/CPE-Country Office Peru
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Social inclusion and equality; Productivity and innovation; Institutional capacity and rule of law

### II. Objectives and Justification of the TC

- 2.1 The objective of this TC is to enhance the institutional capacity of the National Institute for the Defense of Free Competition and the Protection of Intellectual Property(INDECOPI) by providing the IP examiners modern technological tools that permits management and organization of the information generated in the registration process to enhance the predictability in the decision making and to decrease the response time. The most highly demanded services at INDECOPI is the registration of the trademark, which includes processing and evaluation of the form and required documents, as well as the consultation carried out by the users prior to the submission of the applications for registration. The objective of this TC is to optimize and simplify the related activities and procedures to improve the attention of the requests and provide services with enhanced predictability.
- 2.2 Created in 1992, INDECOPI, as a specialized public agency, has the function to promote the market and protect the rights of the consumers. In addition, it has the

mandate to encourage a culture of fair and honest competition, through overseeing the intellectual property from trademarks and author's copy right to patents. This Technical Cooperation aims to enhance the institutional capacity of INDECOPI and upgrade the IP administration system of Peru by learning about the use, advances and benefits from implementing artificial intelligence, big data, machine learning and other related technologies in the analytical process of applications for trademarks in the business operations of INDECOPI. The business operations of INDECOPI are especially active in the processing of trademarks registered by citizens. Trademarks are assessed in two stages. The stage of the procedure and the stage of the analysis of the substance about the impact that the application could have in the market that it is intended to register. The process also needs to validate the consistency in the examination results.

- 2.3 INDECOPI Digital, INDECOPI's institutional vision to deliver digital services for citizens highlights improvement in the services provided by INDECOPI in alignment with modernization of the state and the regulations of the Secretariat of Digital Government (SEGDI). Trademark registration application is one of the most required services, which is offered during office hours and has an operational capacity established by the outstanding staff. Optimize and expedite the activities carried out in the framework of a trademark registration procedure (which includes the processing and evaluation of formal and substantive requirements) as well as in the queries made by users prior to submitting their requests for registration, will improve the attention of requests and provide a service with greater predictability and efficiency.
- 2.4 Along these lines, INDECOPI has prepared a project idea to be financed with external borrowing resources, which is why it is necessary to advance with preinvestment studies within the framework of the National System of Multi-annual Programming and Investment Management - Invierte.pe. This project idea tackles a central problem, the limited operational capabilities for the provision of services in the Regional Offices and Headquarters of INDECOPI, which translates into negative effects such as a low level of transfer of information to citizens, entrepreneurs, and public entities and a poor provision of services to internal and external users.
- 2.5 Learning from the best practices will be helpful to incorporate the practices and their implications onto developing the technological proposal for INDECOPI for implementation. Based on meetings with the users of INDECOPI, a proposal for developing tools to streamline and optimize analysis of the procedural requirements in the applications for trademark registration as well as the assessment of the same are the followings: 1)a tool for intelligent analysis of documents, especially in the activity to assign the requests to the examiners based on the previous experiences; 2) intelligent search engine for images through figurative searches as well as for classification for similarity analysis vis-à-vis other brands; 3)text search engine to analyze the classification of products and services; 4)centralized data base that contain the criteria used by the examiners when evaluating the origin of the registration of a trademark, in order to standardize the analysis of the merits; 5)making the technological tools available online through cloud computing.
- 2.6 The search for similar images of trademarks in INDECOPI generally takes days to complete to examine the trademarks requested for registration or submitted for consultation. This classification is complex and time consuming as it usually takes several days to complete and to respond to the inquiries of the users, which slows down the examination process. In addition, there are currently 22 examiners at INDECOPI without a registry or database that stores the evaluations conducted. This

poses danger of concluding a new analysis to have results that are, inconsistent from the previous examination results, and the consequent drafting of the suggestion sent to the user requires time invested as no previous records are stored.

- 2.7 The Korea Intellectual Property Office (KIPO) is working to build a IP knowledge base for artificial intelligence and big data in IP administration, especially in the area of intelligent patent search and AI-assisted customer service. In addition, the Korea Intellectual Property Rights Information Service, KIPRIS, the online intellectual property (IP) information service of Korea, which allows users to search for IP information on patents, utility models, design, trademarks, and Korean Patent Abstracts (APA) and to access administrative information online regarding the process, examination, registration and the trial status.
- 2.8 **Strategic Alignment.** This TC is consistent with the Corporate Results Framework 2020-2023 (GN-2727-12) and the Updated Institutional Strategy of the Bank 2020-2023 (AB-3190-2) and is aligned with the development challenges of (i) Social Inclusion and Equality and (ii) Productivity and Innovation. The TC is also aligned with the cross-cutting themes of institutional strengthening and rule of law. Furthermore, it aligns with the objectives of the Sustainability Results Framework (GN-2819-1) and with the objectives of the Country strategy 2017-2021 (GN-2889) to increase productivity and competitiveness and strengthen institutions at the three levels of government. It will contribute to sustainable and inclusive economic development by boosting the country's productivity with significant participation from the private sector and promote regional development. Finally, This TC is consistent with the Innovation, Science and Technology Sector Framework Document (GN-2791-8).

### III. Description of activities/components and budget

- 3.1 **Component 1. Diagnosis, gap analysis and learning from the best practices for enhancement and optimization of the management, information and communication system of INDECOPI.** The objective of this component is to diagnose the current state of the management, information and communication system of INDECOPI. Based on the diagnosis, gap analysis in institutional architecture and process management will be conducted to digitize and enhance the existing services. In other words, the gap analysis will serve as the basis for developing the technological tools for smart IP administration. In addition, activities will be conducted to learn from the best practices and experiences in the use of technological tools including machine learning, cognitive sciences among others in the core business processes of IP offices. It will include the activity of reviewing the legal and policy framework for adopting such technological tools, automated learning processes, and information and cognitive systems utilized, refining functional and non-functional requirements, and security requirements for the solutions and changes experienced in the management process. This component will aim to build capacities for the development and implementation of the smart IP management tools through capacity building workshops, benchmarking best practices by visiting other IP offices.
- 3.2 **Component 2. Designing technological tools for smart IP administration.** The objective of this component is to analyze and design technological tools for the business operations of INDECOPI for time expedition, accuracy of examination results and to streamline the sorting process. Based on the analysis and validation of how AI, machine learning, cloud computing technologies can be utilized for the business operations, technological tools can be proposed, designed and developed. In addition, this component will include training of the examiners in the use of the technological

tools for the deployment. Potential technological tools include (a) Smart document analysis; (b) smart image search engine system; (c) text finder for analysis in the product and services classification; (d) database with criterion for examination standardization; (e) cloud computing for online access to the technology tools.

- 3.3 (a) Smart analysis of documents that permit a smart distribution of the applications to the corresponding examiner based on the criteria built based on past experiences to allow expedition of the file processing time for form examination and higher predictability on similar cases by preventing contradictory results within the INDECOPI's examination procedures.
- 3.4 (b) Smart image search engine system for figurative searches which can easily classify images and figurative trademarks. This classification is complex and takes several days to conduct and attend to the users' inquiries. The tool would facilitate similarity searches based on the designated search systems such as vector. Such search engine will allow time reduction from days to hours.
- 3.5 (c) Text finder for analysis in the products and services classification will serve both internal and external users to analyze if a product or service has been correctly described or corresponds to the item, in which the registration is being requested. Currently, no registry or database is available that store the evaluation carried out. 22 examiners need to always draft new suggestions to the users each time with the danger of sending different comments for similar cases. For the new tool, the synonyms or different names of the products and services would be considered, and search criteria shall be Peruvianized for maximum search findings.
- 3.6 (d) Database with criterion for examination standardization will allow storing all the evaluation results of the registration requests. The objective is to have information generated related to the similar cases for examining the registrability of a trademark. This database can provide similar cases during the examination process of the trademark division to register a trademark to contribute to the expedition and accuracy of administrative process as well as to provide advisory services to the external users interested in registering trademarks.
- 3.7 (e) Analysis and design of the technological infrastructure in the cloud to provide the technological tools developed from the previous component online. The cloud computing infrastructure shall provide tools for trademark registration procedures online utilizing artificial intelligence (AI) and machine learning in the analysis of documents and images; identification of patterns in data sets for data prediction; data analysis and automation of responses to brand inquiries; machine learning techniques and auto-learning ability. In the first stage, a diagnosis will be conducted to analyze the required infrastructure capacity based on the licenses and the requirements for availability, integrity, and confidentiality of the information to be supported. Next, the configuration of the infrastructure and the service level agreements that will be required by the future provider of the cloud service will be defined.
- 3.8 The outputs of this component will design the to-be model of upgraded IP administration system of INDECOPI and strategies and roadmap to develop and implement the model that incorporates the technological tools. It will also identify the required infrastructure, server, licenses, tools for information security.
- 3.9 **Component 3: Feasibility study and public investment project proposal.** Based on the above components to enhance and optimize the services of the INDECOPI, this component will develop an investment proposal and conduct a feasibility study to

analyze its cost and benefit of the upgraded IP administration system of INDECOPI. The investment proposal for public investment project shall cover components of (a) improvement and optimization of the management, information and communication systems of INDECOPI; (b) programs to improve the Institutional architecture and process management for digitization of services; (c) developing the Integrated Management Systems for operations; and (d) digital transformation to improve support services to other technical and administrative areas. The investment plan will be developed in close coordination with INDECOPI and the consulting firm that carries out Component 2 to design the technological tools and to develop the roadmap and strategies.

- 3.10 The total budget of this TC is US\$500,000 to be financed through the Knowledge Partnership Korea Fund for Technology and Innovation (KPK).

#### **Indicative Budget**

<b>Component / Activity</b>	<b>Description</b>	<b>IDB Funding</b>	<b>Counterpart Funding</b>	<b>Total Funding</b>
Component 1	Diagnosis, gap analysis and learning from the best practices for enhancement and optimization of the management, information and communication system of INDECOPI	\$145,000	\$29,000	<b>\$174,000</b>
Component 2	Designing technological tools for smart IP administration	\$280,000	\$56,000	<b>\$336,000</b>
Component 3	Feasibility study and public investment project proposal	\$75,000	\$15,000	<b>\$90,000</b>
<b>Total</b>		<b>\$500,000</b>	<b>\$100,000</b>	<b>\$600,000</b>

#### **IV. Executing agency and execution structure**

- 4.1 This TC will be executed by the Bank as requested by the INDECOPI, as well as expressly stating compliance with section 4.5 of the Bank's TC Policy (GN-2470-2) which requires, in case of Bank-executed TCs in areas of Bank's expertise, that (a) the beneficiary country concurs; and (b) the proposed activities are consistent with the Bank's country strategy and program. Compliance to the requirement mentioned in (a) is evidenced by the non-objection letter attached. The Competitiveness, Technology and Innovation (CTI) Division of the Institutions for Development Department (IFD) will be responsible for the technical supervision and administration of TC.
- 4.2 All activities to be executed under this TC will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual consultants; (b) GN-2765-4 and Guidelines OP-1155-4 for the selection of Consulting Firms for Bank-executed Operational Work and; (c) GN-2303-28 for logistics and other related services.

#### **V. Major issues**

- 5.1 For the developed system to maximize its impact, the design of the technological tools should be user friendly. This will require the demand of the users, both the citizens

and examiners to be reflected in the design through close interaction. In addition, training programs should be offered related to the use of the program.

**VI. Exceptions to Bank policy**

- 6.1 There are no exceptions to Bank policy.

**VII. Environmental and Social Strategy**

- 7.1 Given the nature of the TC, no negative environmental impacts are foreseen. On the contrary, the outputs are expected to have positive environmental and social impacts, by promoting policy and practice that supports improvements in urban and environmental conditions and quality of life of inhabitants. In accordance with the Bank's Environment and Safeguards Compliance Policy (OP703), this operation has been classified in category "C". See Safeguards Policy Filter Report (SPF) and the Safeguard Screening Form (SSF).

**Required Annexes:**

[Request from the Client - PE-T1434](#)

[Results Matrix - PE-T1434](#)

[Terms of Reference - PE-T1434](#)

[Procurement Plan - PE-T1434](#)