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MULTILATERAL INVESTMENT FUND

PARAGUAY

**ADVANCED DIGITAL TALENT FOR AN INCLUSIVE,
RESILIENT DIGITAL ECONOMY**

(PR-T1322)

DONORS MEMORANDUM

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PROJECT SUMMARY

PARAGUAY

ADVANCED DIGITAL TALENT FOR AN INCLUSIVE, RESILIENT DIGITAL ECONOMY (PR-T1322)

Paraguay's growing digital economy offers unlimited job opportunities. However, despite exponential growth in the demand for digital talent, young people lack the skills needed to perform the jobs available in the technology sector. The country's existing vocational education and university system is not preparing sufficient graduates with digital skills quickly enough to meet the needs of an increasingly complex, digital, and competitive economy. Because of their poor qualifications, young people end up working in low-productivity, poor-quality jobs, missing out on Paraguay's unique opportunity to leverage its demographic dividend and achieve a transition toward an inclusive, resilient digital economy.

The objective of the project is to improve the employability of young people in the technology sector. The project will contribute to training the digital talent that the country needs, with a gender approach, in order to diversify the economy and make it more resilient, building installed capacity to replicate the project and scale it nationwide. To do so, coding bootcamps will be organized, offering young people, particularly women, intensive short-length training to raise their awareness as well as accelerated training on advanced digital skills. The direct beneficiaries of the bootcamp models are 1,070 young people (ages 18-30), from vulnerable populations primarily in Itapúa department. It is expected that 50% of the young people will be women, and 70% of the 270 young people who develop advanced digital skills are expected to obtain jobs. This ecosystem project aims to create a new training market in Paraguay, where local actors such as Fundación CIRD and others can experiment, adopt, and continue the implementation in the future, covering training costs.

The project includes three components: (i) raising awareness and establishment of a bootcamp ecosystem, involving various actors in the community such as the Ministry of Information and Communications Technology, the Ministry of Labor, the National Youth Bureau, local governments, universities, civil society organizations working on women's inclusion in the technology sector, and companies from the software industry and others that need digital talent; (ii) implementation of hybrid bootcamp and job placement models, preparing a two-week mini bootcamp to attract and develop a talent pipeline of candidates for a four- to six-month coding bootcamp, which will teach advanced skills and provide support and advice for job placement; and (iii) sustainability of the bootcamp business model and knowledge generation.

Fundación CIRD will be the executing agency, because it has extensive experience and is recognized for promoting the employability of young people and for its work and connections in Itapúa. The National Innovation Strategy and the Federation of Creative Industries will provide strategic advice, coordinate, and facilitate CIRD's efforts to achieve project objectives. The project will have an estimated total cost of US\$2.2 million, of which US\$1.1 million will be provided by IDB Lab as nonreimbursable technical-cooperation funding and the remaining US\$1.1 million will be from counterpart funds.

ANNEXES

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Proposed resolution

ABBREVIATIONS

CIRD	Fundación Comunitaria Centro de Información y Recursos para el Desarrollo [Community Foundation of the Center for Information and Resources for Development]
CISOFT	Cámara Paraguaya de la Industria del Software [Paraguayan Software Industry Chamber]
CTI	Competitiveness, Technology, and Innovation Division
ENI	National Innovation Strategy
FIC	Federación de Industrias Creativas del Paraguay [Federation of Creative Industries of Paraguay]
MITIC	Ministry of Information and Communications Technology
SINAFOCAL	Sistema Nacional de Formación y Capacitación Laboral [National Education and Job Training System]

PARAGUAY
ADVANCED DIGITAL TALENT FOR AN INCLUSIVE,
RESILIENT DIGITAL ECONOMY

PROJECT INFORMATION

Country and geographic location:	Paraguay		
Executing agency:	Community Foundation of the Center for Information and Resources for Development (Fundación CIRD)		
Focus area:	Knowledge economy		
Coordination with other donors/Bank operations:	The project complements the work of the Competitiveness, Technology, and Innovation Division under operation PR-L1153, "Digital Agenda Support Program," and of IDB Lab under operations related to digital talent for young people and coding bootcamps, including Laboratorio (RG-T3510), Youth Programmers in Uruguay (ATN/ME-16123-UR), Kod1ng for a Better Life in El Salvador (ES-T1330), Reprogramming in Brazil (BR-T1458), and DEV.F (RG-T3590).		
Beneficiaries:	The project will have 1,070 direct beneficiaries (ages 18-30) from vulnerable populations mainly in Itapúa department, who are unemployed, working in the informal sector, or looking to change careers but unable to return to college and seeking accelerated job retraining. Of them, 50% are expected to be women and 70% to meet socioeconomic vulnerability criteria. The project will also raise awareness among 10,000 young people about the opportunities of technology careers and of bootcamps as an alternative type of training.		
Financing:	Nonreimbursable technical-cooperation funding:	1,100,000	50%
	Total IDB Lab contribution:	1,100,000	50%
	Counterpart:	1,100,000	50%
	Total project budget:	2,200,000	100%
Execution and disbursement period:	30 months for execution and 36 months for disbursement.		
Special contractual conditions:	Conditions precedent to the first disbursement: (i) an agreement signed between the CIRD, the National Innovation Strategy (ENI), and the Federación de Industrias Creativas del Paraguay [Federation of Creative Industries of Paraguay] (FIC), and evidence of the formation of the internal consultation group.		
Environmental and social impact review:	Pursuant to the IDB's Environment and Safeguards Compliance Policy (Operational Policy OP-703), the project was screened and classified on 11 October 2021. The operation is proposed as a category "C" operation.		
Unit responsible for disbursement:	Country Office in Paraguay.		

I. THE PROBLEM

A. Description of the problem

- 1.1 **The problem.** Most of Paraguay's population is young, with 60% of the people younger than 30.¹ This demographic dividend presents a unique opportunity for the country to transform its economy and improve its productivity and competitiveness. However, 59% of students do not complete secondary school and only 1 of 10 finish college.² Also, the country's available workforce with science and engineering qualifications is negligible, accounting for 1% of all tertiary education graduates.³ Moreover, according to the World Economic Forum, Paraguay ranks 131 of 137 with respect to the availability of scientists and engineers.⁴ A 2016 UNESCO survey found that in Paraguay, 41.5% of graduates with engineering and technology degrees are women.⁵ However, research from the Paraguayan Software Industry Chamber (CISOFT) found that only 30% of information and communications technology professionals working for its members are women. This figure drops to 5% for women-run companies belonging to CISOFT.⁶
- 1.2 The low qualification and productivity of human capital in Paraguay translates into a 12% unemployment rate for young people and 70% of the workforce holding informal jobs, one of the highest rates in Latin America.⁷ For women, the problem is worse. A World Bank survey found that during the COVID-19 pandemic in Paraguay, almost three times as many women as men have lost their jobs.⁸ This data demonstrates the inherent risk in achieving a transition toward an inclusive, resilient digital economy that leaves no one behind.
- 1.3 With respect to demand, many reports conclude that the lack of skills is one of the main barriers that companies face in innovating and being more competitive in a market that is now digital and global. According to a report from Paraguay's Ministry of Labor,⁹ the software industry is among those with the highest growth in the country. However, this industry is unable to meet its demand for talent through traditional education methods, such as universities that offer computer engineering degrees. Universities continue having the same number of information technology graduates every year, which is not sufficient to meet the exponential growth in the industry's demand for advanced digital skills.

¹ https://www.juventud.gov.py/archivos/documentos/caracterizacion-y-lineamientos_zc24e906.pdf.

² <https://coprofam.org/2020/02/27/el-sistema-educativo-de-paraguay-esta-entre-los-peores-del-mundo/>.

³ https://www.una.py/images/stories/Estadistica/estadistica1/Egresados_UNA%202016-.pdf.

⁴ https://www3.weforum.org/docs/GCR2017-2018/03CountryProfiles/Standalone2-pagerprofiles/WEF_GCI_2017_2018_Profile_Paraguay.pdf.

⁵ [Relevamiento de la Investigación y la innovación en la República del Paraguay - UNESCO, Page 141.](#)

⁶ <http://www.decidamos.org.py/mujeryeconomia/wp-content/uploads/2018/05/Echauri-Serafini-Igualdad-Conciliaci%C3%B3n-Familia-Trabajo.pdf>.

⁷ The highest informality level among upper-middle income economies, [The Changing Nature of Work](#), World Bank, 2019.

⁸ [El impacto desigual de la COVID-19 y sus repercusiones en el mercado laboral paraguayo.](#)

⁹ <https://www.mtess.gov.py/noticias/ministerio-de-trabajo-y-gremio-de-industrias-creativas-se-unen-para-impulsar-capacitacion-con-generacion-de-empleo>.

- 1.4 The government has implemented several training strategies to develop the country's digital talent, through the Ministry of Information and Communications Technology (MITIC), responsible for providing digital skills training, the National Education and Job Training System (SINAFOCAL), and the National Professional Promotion System, which offer free job training courses. Nevertheless, these training offerings have low completion and employability rates. Among the reasons for these results, SINAFOCAL points to the importance of working more closely with the private sector and Paraguayans' lack of awareness about training in technology careers and opportunities in this sector.
- 1.5 In summary, two of the most relevant problems in training or reskilling and redirecting workers toward higher growth sectors such as information technology are low awareness and communication about technology occupations and careers, and the lack of flexible, alternative training programs with higher rates of employability.
- 1.6 **The opportunity.** There is an enormous opportunity to implement mass communication and awareness campaigns with a gender approach through social media. These would be aimed at sparking interest and providing young people, especially women, more information about the extensive demand and opportunities available in the information-technology sector and the skills needed to get a job in this sector. This awareness effort will help pave the way for current and future training programs on digital skills promoted by the government, academia, the private sector, and civil society organizations.
- 1.7 In addition, there is an opportunity for innovation in digital talent training through accelerated training methodologies such as coding bootcamps. These bootcamps generally take three to six months and are conducted by disruptive startups, which offer training aligned with the industry's demand. They achieve a completion rate of at least 83% and an employability rate of more than 80% among graduates.¹⁰
- 1.8 Coding bootcamps are enjoying a boom in the region, and their impact has been demonstrated in various countries. They generate a digital talent pool in a matter of months instead of years as is the case with university education. IDB Lab and the Bank's Competitiveness, Technology, and Innovation Division (CTI) are promoting these types of educational innovations to close the region's digital talent gap.¹¹ Laboratoria is one of the region's most experienced coding bootcamps, supported by IDB Lab. During the pandemic, 100% of its students (low-income women) in Brazil were placed in technology-sector jobs within two weeks of graduating from the bootcamp.¹² These results demonstrate the great potential of coding bootcamps to accelerate job retraining, do it in an inclusive manner, and be a valid training alternative for the digital talent that industries need.
- 1.9 This project will complement the government's efforts to develop digital talent in Paraguay. The MITIC Digital Agenda, an IDB-financed project, includes investing

¹⁰ [Disrupting Talent: The Emergence of Coding Bootcamps and the Future of Digital Skills. Navarro and Cathles, IDB, 2019.](#)

¹¹ <https://blogs.iadb.org/innovacion/es/bootcamps-de-programacion-america-latina-y-el-caribe/>.

¹² [Laboratoria Impact Report 2020.](#)

in advanced digital skills training. Specifically, scholarships will be offered to cover certifications in areas previously identified with trade associations, from CISOFIT to banking association ASOBAN. Calls for proposals will be published to receive bids from various training service providers. Unlike the MITIC program, this project focuses on coding bootcamps and populations underrepresented in the technology sector, such as women, low-income people, and people living outside the capital. This project also includes strategies and actions to support young people with job placement, mobilize the private sector to ensure success, and more importantly, make this training model sustainable. To do so, market mechanisms will be tested to make the model self-sustaining and financially viable in the future. Moreover, there will be coordination efforts between this project, MITIC, and the Ministry of Labor to generate synergies, coordination, and knowledge exchange through the initiatives in progress. Conversations with both ministries confirmed their interest in this project, which offers a more comprehensive vision that can increase the impact of the initiatives mentioned.

II. THE SOLUTION

A. Project description

- 2.1 **Project objective.** The objective is to improve the employability of young people (ages 18-30) in the technology sector. The project will contribute to training and increasing the digital talent that businesses and governments need, with a gender approach, in order to diversify the economy and make it more resilient, building installed capacity to replicate the project and scale it nationwide.

Innovation

- 2.2 The project is expected to improve employability by increasing interest in technology careers and implementing coding bootcamps in Itapúa department, which is located five hours from Paraguay's capital. This is expected to decentralize learning opportunities that are generally concentrated in Asunción, bringing these opportunities and educational innovations to more remote areas of the country. Itapúa department has an emerging ecosystem of technology companies. The Community Foundation of the Center for Information and Resources for Development (Fundación CIRD) has more than nine years of experience implementing training and entrepreneurship projects for young people in the area, and is familiar with training ecosystem stakeholders and local and government authorities.
- 2.3 This will be IDB Lab's first project aimed at developing the digital talent ecosystem through coding bootcamps in Paraguay. These bootcamps will strengthen and coordinate a public-private partnership aimed at reactivating cities and areas in Paraguay hard hit by the economic crisis caused by the COVID-19 pandemic. They will also work with early-stage innovation and entrepreneurship systems that can help transform local economies and offer more opportunities for quality jobs in technology to young people and women.
- 2.4 Paraguay does not have either local coding bootcamps managed by domestic companies or international bootcamps managed by foreign companies offering classroom-based, hybrid, or virtual courses with a local-context approach. Therefore, this type of education represents an innovation for the ecosystem. This

project will seek to develop both local and international offerings, so that they are mutually complementary. The intervention model includes attracting an international bootcamp with high quality standards to Paraguay to conduct training jointly with local partners. Knowledge transfer of the project's methodology for its adoption and replication by Fundación CIRD, other interested local training providers, and technology companies that constantly train new talent, is part of this operation. Fundación CIRD, the executing agency, has a recognized track record in promoting the employability of young people and public-private coordination. To maximize adaptation of the bootcamp methodology to Paraguay's labor market, instructors for both types of bootcamps will be programmers who already work for the country's software companies and can develop connections between the industry and bootcamps.

- 2.5 Lastly, a significant innovation is that Fundación CIRD will create an ecosystem to make the project's scaling stage sustainable. This will involve relevant actors such as the Federation of Creative Industries (FIC)—which includes CISOFT—and government institutions that are actively collaborating on talent training, including SINAFOCAL, which follows the policy guidelines of the Ministry of Labor, Employment, and Social Security; the Itaipú Binational Entity; MITIC; Becal; and local governments.
- 2.6 **Beneficiaries.** The direct beneficiaries will be young people (ages 18-30), from vulnerable populations primarily in Itapúa department, who are unemployed, working in the informal sector, or looking to change careers but unable to return to college and seeking accelerated job retraining. The following are the eligibility criteria to participate in the project: (1) having completed secondary school (for everyone); and (2) meeting one of these additional criteria: income less than or equal to minimum wage, unemployed and/or underemployed, head of household, single mother, resident of cities in Itapúa department with the highest poverty levels based on Permanent Household Surveys.¹³ At least 70% of participants will meet one of these eligibility criteria, prioritizing so that at least 50% of the beneficiaries are women.
- 2.7 For example, in a city far from Encarnación, the project team found Juana, who had completed her studies in a public school with good grades. However, Juana became pregnant and had a son when she was very young. She was then unable to continue her studies, because the burden of responsibility for childcare and housework falls mostly on women. Juana lacks the support she needs from her family to be able to study while raising her son. The economic situation in her household is precarious, and Juana worries about her son's future. From time to time, she gets temporary jobs that enable her to earn some money to support her family. Nevertheless, Juana dreams of a better future for herself and her son. She is willing to work as hard as she did in school if she can find a course that enables her to receive training while tending to her other responsibilities.
- 2.8 Women like Juana will benefit from this project, which will seek to attract and incentivize more women to become part of the technology sector. Testimonials

¹³ <https://www.stp.gov.py/v1/mapa-de-pobreza-del-paraguay-por-distrito-2/>.

obtained during National Innovation Strategy (ENI) events show that women end up dropping out of technology careers in universities or choose other careers with more flexible working hours, because of difficulties balancing their many responsibilities (childcare and housework) with the demands of studying computer engineering for five years. Shorter training programs such as bootcamps can be a valid option to include more women in the software industry.

- 2.9 **Gender.** At least 50% of the beneficiaries are expected to be women. To achieve this, the project budget includes items to implement concrete strategies and actions such as those mentioned below. Based on lessons learned from other IDB Lab bootcamp projects with coeducational cohorts, it will be challenging to achieve this percentage with the existing gaps. It will also require a good understanding of the barriers that women face to attend online or hybrid training and then get jobs in the technology sector, which is still predominantly male. To reach this percentage, the bootcamps will include strategies to attract and support women, working closely with organizations such as Kuña Tech, Girls Code, and Kuña++ that are already developing initiatives for the inclusion of girls and women in technology.
- 2.10 **Lessons learned.** The actions planned to achieve the gender target, which have been successful in other IDB Lab bootcamp operations, will include: (i) offering flexible schedules with synchronous and asynchronous hours that enable women to balance other responsibilities; (ii) offering alternatives for the care of dependents and stipends for access to computer equipment, data plans, and stable internet connections; (iii) including women in the teaching staff of bootcamps or as mentors for female students, to provide them advice and support for job placement and the initial stage of their career; (iv) providing visibility to female role models; (v) carefully preparing the advertising, images, and messages to promote the courses; (vi) raising awareness among companies about the importance of including more women in their technology teams and revising their digital talent recruitment strategies; and (vii) launching calls for courses exclusively for women.
- 2.11 In addition, the lessons learned from several CTI initiatives¹⁴ to provide advanced digital skills training through bootcamp-type international companies that offer coding courses include: (i) developing a bootcamp culture is important, to have more acceptance and interest from local providers, because many are unaware of what is involved in teaching using this modality; (ii) facilitating partnerships between potential local providers and more experienced providers enables knowledge transfer between foreign and local companies, incentivizing the development of innovative education methodologies not yet explored in depth and very necessary and useful, and helping tailor them to the local context; and (iii) relaxing the requirements for instructors to teach is advantageous, because earning the international certifications that the industry offers and having work experience are more important. These lessons will be considered in the search for an international partner interested in sharing its experience and knowledge with potential local providers in Paraguay.

¹⁴ For example, in Costa Rica with CINDE.

B. Objectives and activities associated with each component

2.12 Component I: Raising awareness and establishment of the ecosystem (IDB Lab: US\$141,700; Counterpart: US\$178,000)

2.13 The objectives of this component are to: (i) develop an interagency coordination mechanism that strategically leads the process, coordinates efforts, channels resources, and makes the project's scaling stage sustainable so that coding training courses are dynamic and continue over time; and (ii) raise awareness among young people about the opportunities and benefits of working in the technology sector.

2.14 Resources for this component will be used to establish a digital talent community with various stakeholders from the innovation and technology ecosystem in Encarnación—the capital of Itapúa department, where the pilot project will be conducted—and nationwide. Fundación CIRD has been working for years on a number of initiatives and projects in Itapúa and will bring together technology sector companies, universities, and the media, as well as local and national governments. This will be done through periodic events such as meetings, company-hosted informal conversations with the programmer community and interested young people, inspirational talks, and presentations of technology-related projects and studies. These are intended to bring ecosystem members closer and build community. A communications firm will be hired to develop awareness campaigns targeting young people, women, and companies. These will seek to generate more interest in technology careers among young people, particularly women, as well as to expand the commitment of companies to hire the program's graduates. The methods to promote the program among vulnerable young people will include social media, which this group uses the most; other more traditional outlets, such as television and radio ads; and local government entities and social organizations that work with vulnerable young people.

2.15 The main activities of this component will include: (i) conducting outreach and awareness campaigns to generate interest in technology careers among young people, particularly women; (ii) creating interagency partnerships; and (iii) implementing at least one event, talk, or meeting per month to build community and the ecosystem.

2.16 The main outcomes of this component include: (i) five communication campaigns developed with a gender approach; (ii) 10 interagency agreements reached with entities such as MITIC, the Ministry of Labor, the National Youth Bureau, SINAFOCAL, local governments, and universities; (iii) 30 events, webinars, meetups, or talks conducted; and (iv) bootcamp applications received from at least 2,300 young people, at least 50% of whom are women.

2.17 Component II: Implementation of bootcamp and job placement models (IDB Lab: US\$695,800; Counterpart: US\$755,000)

2.18 The objectives of this component are to develop dynamic models for training on coding and advanced digital skills, tailored to the local context and with a gender approach.

- 2.19 This component will finance a study of the gender barriers that deter women from education and jobs in the technology sector, as well as from careers and occupations in the technology world. It will also finance implementation of the study's recommendations calling for concrete actions in the selection, training, and job-placement support processes of bootcamps.
- 2.20 There will be three types of bootcamps: mini bootcamps, international bootcamps, and local bootcamps. The latter, implemented by CIRD, will be conducted toward the end of the project through support from the international bootcamp.
- 2.21 **Mini bootcamp.** First, a local organization with technology training experience will be hired to develop a two-week mini bootcamp with dynamic methodologies that introduce students to the world of coding. Organizations such as Penguin Academy, iPositivo, Girls Code, and Codium were preidentified and will be invited along with others to submit proposals. Interested young people can register and participate in the mini bootcamp, which could be offered online or in hybrid format. To attend, all they need is to have completed secondary school. This mini bootcamp is intended for young people with little knowledge of the field and to raise awareness about technology sector opportunities. The mini bootcamp is expected to have 1,070 young attendees, who will learn basic coding concepts and about career opportunities available with digital coding skills. Participants who successfully complete the mini bootcamp, achieving a basic digital skills level, and who meet one of the additional vulnerability criteria—such as being unemployed, a single mother, a head of household, a resident of one of Itapúa's poorest cities, or having income less than or equal to minimum wage—will be invited to apply to the intensive international bootcamp. Therefore, the mini bootcamp will prescreen or serve as a precursor of the international bootcamp's selection process. The mini bootcamp will be developed considering the [Principles for Digital Development](#) and the requirements of international bootcamp courses. In the future, it is expected to take on a virtual format with a minimal maintenance cost.
- 2.22 **International bootcamp.** Second, the students selected will take advanced skills courses during a four- to six-month online international bootcamp, with synchronous and asynchronous schedules. The objective is to provide them accelerated training for technology sector jobs. Incentives or stipends for young people and women from the most vulnerable environments can be financed, such as for access to computers, data plans, and care for dependents. These will be allocated on a case-by-case basis for each cohort. The project will offer course participants a series of support services for interview preparation and job placement. This will help connect them with companies and place them in technology sector jobs when they graduate. The international bootcamp is expected to train 270 students, who will be part of a network of alumni who will subsequently share their experiences and knowledge with the participants of the next mini bootcamp.
- 2.23 **Local bootcamp.** Toward the end of the project, CIRD, as a result of previous experiences, iterations, adjustments, and systematization of the international bootcamp model, is expected to be able to implement the bootcamp methodology for a cohort of young people. This will be overseen by the international bootcamp, maintaining standards of quality and effectiveness in training and job placement processes. This will get local institutions to implement this training

modality to create sustainability for the intervention and benefit more young people in the future.

- 2.24 The main activities of this component will include: (i) hiring a local provider to develop the mini bootcamp, tests, learning objectives, basic digital skills level, interviews, and the entire student selection process; (ii) hiring an international bootcamp with the ability to transfer knowledge to Fundación CIRD, with high international standards of quality and employability outcomes, and to cofinance the training of the young people; and (iii) supporting students in their job search and placement through coaches and specialists coordinating with employers.
- 2.25 The main outcomes of this component include: (i) mini bootcamps conducted for at least 25 cohorts and a total of 1,070 young people, introducing them to coding and providing them transferable technical and soft skills; (ii) an international bootcamp held with at least 8 cohorts, graduating 270 young people; (iii) at least one cohort and coding course, offered by CIRD, implemented; (iv) a 90% course completion rate achieved among students registered in bootcamps; and (v) incentives provided, such as equipment or data plans for course access, to the most vulnerable 30% of young people.
- 2.26 **Component III: Sustainability of the bootcamp business model and outcome and knowledge generation (IDB Lab: US\$84,000; Counterpart: US\$53,100)**
- 2.27 This component has two objectives. First, to create the financing and cofinancing mechanisms to ensure that local entities such as CIRD and others can be self-sustaining and continue offering these advanced digital skills courses to more young people in the future. Second, to disseminate the lessons learned and best practices to the entire community, including the public and private sectors and academia.
- 2.28 The main activities of this component will include: (i) hiring consultants to analyze alternatives and develop mechanisms for repayment and/or cofinancing of the training provided to young people; (ii) establishing partnerships and/or agreements with institutions that can support young people's participation in training; (iii) hiring specialists and improving monitoring and evaluation systems to have secure, reliable information systems that provide data on participant's career paths, from selection to job placement; and (iv) generating knowledge deliverables about the outcomes and lessons learned.
- 2.29 The main outcomes of this component include: (i) an agreement reached between CIRD and a local partner to replicate the bootcamp methodology beyond Itapúa department; (ii) lending offers obtained from credit institutions or others to finance young people's participation in the courses; (iii) a financial sustainability model designed; and (iv) the bootcamp methodology systematized and a report prepared on the main outcomes and lessons learned.

C. Outcomes, impact, monitoring, and evaluation

- 2.30 **Impact.** The impact results expected from the project during the 30 months of execution include: (i) 70% of the young graduates from the international bootcamp are employed, maintaining the same proportion between men and women; (ii) 80% of the young students submitting applications do so as a result of awareness campaigns; and (iii) 100% of the international bootcamp methodology's training

cost is covered with the financing mechanisms developed. The following outcomes are planned: (i) 10,000 young people from vulnerable populations know about the opportunities and benefits of technology careers and occupations, as well as about the bootcamps; (ii) 1,070 young people trained in basic coding skills, of which 270 are trained in advanced coding skills; (iii) 50% of course participants are women; (iv) 70% of the participants meet the eligibility criteria for socioeconomic vulnerability; and (v) 50 employers are part of the Digital Talent Partner Network consisting of a group of businesses and organizations willing to hire bootcamp graduates.

- 2.31 **Monitoring.** Fundación CIRD will be responsible for monitoring the outcomes as presented in the results matrix, using the analytical tools it has for project monitoring or a project dashboard. CIRD will also submit project status reports within 30 days after the closing of each six-month period or more often, as determined by IDB Lab with notification to CIRD at least 60 days in advance. These reports will contain information on the status of the execution, attainment of milestones, and achievement of the objectives set forth in the results matrix and other operational planning tools. They will also include problems that arise during project execution and potential solutions. Within 90 days after the execution period ends, the executing agency will submit a final project status report to IDB Lab with the outcomes achieved, project sustainability, and lessons learned.
- 2.32 **Evaluation.** CIRD will commission a final evaluation for the project, in agreement with IDB Lab. This evaluation will analyze achievement of the impact objectives and project indicators detailed in the results matrix. The questions that will guide this process include: Are bootcamps an effective response to address the digital talent shortage in Paraguay? Is the bootcamp model effective for creating quality jobs for women and vulnerable young people? Is it possible to have effective knowledge transfer between foreign bootcamps and local training providers in Paraguay? Can this be a sustainable model that effectively meets the industry's demand? Can bootcamps serve as catalysts for digital transformation processes in cities far from the capital?

III. ALIGNMENT WITH THE BANK, SCALABILITY, AND RISKS

A. Alignment

- 3.1 The project is aligned with the **Bank's Vision 2025**, Reinvest in the Americas: A Decade of Opportunity, by focusing on young people and women, the two groups hardest hit by the economic crisis and the pandemic. In this document, the IDB mentions that the COVID-19 crisis has opened new opportunities that should be seized and given particular emphasis within the new pro-inclusive growth strategies.
- 3.2 The operation is aligned with the **second Update to the Institutional Strategy**, because in the priority area of technology, it contributes to the challenges of *social inclusion and equality* and *productivity and innovation*. The project will provide job training and intermediation to vulnerable populations (young people and women), helping increase the supply of qualified employees in sectors with high demand. The project is also aligned with the crosscutting theme of gender equality and diversity, since it includes a particular focus on increasing women's participation in

the technology sector. The project also helps support small and vulnerable countries such as Paraguay.

- 3.3 The project is aligned with the **IDB Group Country Strategy with Paraguay 2019-2023 (document [GN-2958](#))**, specifically the priority area of human capital and living conditions. The operation is directly aligned with the objective of improving the coverage and quality of social services, and with the expected outcome of improving student learning and promoting professionalization, since the strategy highlights the shortage of qualified personnel in Paraguay. The project is also aligned with the strategy by supporting the institutional and productive transformation of Paraguay, under criteria of sustainability, equity, and economic and social inclusion. In addition, it is aligned with its crosscutting objectives of: (a) gender and diversity; (b) regional integration; and (c) innovation and technology.
- 3.4 The Skills Development Sector Framework Document (document GN-3012-3) establishes the importance of investing to develop the cognitive, technical, and socioemotional skills needed to access high-quality jobs and thrive in the labor market. This project is also aligned with the Labor Sector Framework Document (document GN-2741-9), which establishes the objective of workers becoming more productive, earning higher wages, and having stable jobs. In addition, this operation is aligned with the IDB Group's Employment Action Framework with a Gender Perspective, by supporting entrepreneurs and human talent development with a gender perspective, fostering reallocation to emerging sectors.
- 3.5 It is also complementary to an **IDB Group** operation from CTI, loan PR-L1153, "Digital Agenda Support Program."
- 3.6 The project is aligned with the **IDB Lab knowledge economy** thematic area, specifically regarding skills and the future of work, since it emphasizes the need to accelerate the adoption of crosscutting skills—such as digital and socioemotional skills—that are valuable for every job and to start a business. It leverages IDB Lab's experience and lessons learned, by testing models that accelerate skill building among women and vulnerable populations, as well as by developing innovative, sustainable, and inclusive entrepreneurial ventures that increase digital talent among vulnerable populations (including Laboratoria (RG-T3510), DEV.F (RG-T3590), and Youth Programmers (ATN/ME-16123-UR)).
- 3.7 **Sustainable Development Goals.** The intervention responds to four of the Sustainable Development Goals (2030 Agenda): (i) Quality education, by ensuring that more young people have the necessary skills, particularly technical and professional, to access jobs and decent work, with a special emphasis on people in vulnerable situations and women; (ii) Decent work and economic growth; (iii) Gender equality, by improving the use of information and communications technologies to promote women's empowerment and gender equality; and (iv) Reduced inequalities.

B. Scalability

- 3.8 The project is scalable, strengthening the adoption and replication of the bootcamp methodology by Fundación CIRD and other interested providers or companies. On the demand side, it will work with the private and public sectors to obtain

cofinancing and offer this type of accelerated advanced digital skills training to more young people.

- 3.9 Training using the international bootcamp methodology is estimated to cost US\$3,700 per student and expected to decrease, particularly once CIRD can implement the methodology for a cohort of young people at the end of the project. During implementation, various cofinancing mechanisms will be tested to gradually cover a higher percentage of training costs, up to 100%. Young participants will always be asked to contribute something, even if symbolic, to show their interest and commitment to participate in the training, which should discourage them from dropping out. The potential mechanisms to be studied include private sector sponsorships or scholarships for students from vulnerable populations; fees charged to the private sector for hiring the beneficiaries; and income share agreements.¹⁵
- 3.10 On the supply side, in addition to CIRD, some local technology sector organizations known for developing mostly in-house digital skills training programs—such as Penguin Academy, iPositivo, Girls Code, and Codium—might be interested in providing mini bootcamp services. They could retain installed capacity from the training methodologies of the high-quality international bootcamp.
- 3.11 With respect to demand from young people, many of them are unaware of job opportunities in the technology sector, so awareness and dissemination activities are needed. Because of the youthfulness of Paraguay's population (60% are under age 30),¹⁶ estimates show that there could be thousands of young people interested in technology occupations and careers, and that this short, intensive modality could be very well received.
- 3.12 Moreover, the support and investment expected from the private sector and local and central governments to provide cofinancing in order to train young people and develop the digital talent ecosystem are key to further program expansion. Those are the reasons for the workshops, meetings, talks, and the entire social fabric and partner network to be developed under Component I and leveraged under Component III to achieve the sustainability and scaling of models. The most important stakeholders are:
- a. CISOFT, FIC, and other private-sector trade associations, and companies such as Integratevs, Roshka, and SoftwareNatura, which need suitable digital talent to grow and become more competitive. They will benefit from continuously having these types of providers in Paraguay in the future, and can directly influence course content and implementation.
 - b. Kuña Tech, Girls Code, and Kuña++, which can complement efforts so that more women embark on technology careers through coding bootcamps. The success of their efforts is closely related to this project's success and its future scaling.

¹⁵ Income share agreements are a financial instrument that allows for tuition payments in the future, contingent upon obtaining a job with the agreed-upon salary level. Testing of this mechanism started this year under the IDB Lab operation with DEV.F.

¹⁶ https://www.juventud.gov.py/archivos/documentos/caracterizacion-y-lineamientos_zc24e906.pdf.

- c. MITIC will be a key partner, complementing the efforts of the Digital Agenda and reinforcing the digital talent component with a more comprehensive experience, building local capacity with various training providers.
- d. In the public sector, SINAFOCAL, the National Professional Promotion System, and the Ministry of Labor will benefit from the experience and lessons learned from bootcamp models, becoming more familiar with their methodology, replicating it in their offerings, or contracting the services of local bootcamps to expand the country's digital talent supply.

C. Risks

- 3.13 **Connectivity.** Paraguay's households still have very limited access to connectivity and broadband. To address this situation, there are plans to establish strategic partnerships with telephone company TIGO, MITIC, and Compañía Paraguaya de Comunicaciones in order to increase the number of telecenters in the area. This will provide beneficiaries access to computers and connectivity close to their homes. It will also be essential to establish partnerships with universities, so that beneficiaries who need it are able to use their infrastructure. For socioeconomically vulnerable participants, the project includes stipends or direct incentives for access to computers, data plans, and internet connections.
- 3.14 **High dropout rates from bootcamps.** To prevent high dropout rates, a clear, rigorous selection process will be designed, to identify the candidates with the best potential to successfully complete the bootcamp and get a technology sector job. The selection process will consist of several logical reasoning, mathematics, and reading comprehension tests; a personal interview; and participation in the introduction to coding mini bootcamp. While attending the bootcamp, students will receive socioemotional support and ongoing advice from coaches and peers throughout the training process. Students are also expected to contribute to financing their training, which should discourage them from dropping out.
- 3.15 **Low participation of women.** To prevent low interest or limited participation from women, there will be a diagnostic assessment of the main barriers they face to access online or hybrid training. The recommendations to overcome these barriers will be implemented during execution of the bootcamp models. The project team will work with Kuña Tech, Girls Code, and Kuña++ to develop strategies and best practices to attract women. The lessons learned from IDB Lab projects will be incorporated to attract women to coding courses (paragraph 2.10).
- 3.16 **Sustainability of bootcamp models.** From the startup of project execution, different business models for bootcamp programs will be analyzed, implemented, and iterated. IDB Lab's experiences and lessons learned from various bootcamp models in the region will be incorporated into the project's training programs. Business models will be iterated through each cohort, using a continuous improvement mechanism.

IV. INSTRUMENT AND PROPOSED BUDGET

- 4.1 The project budget is US\$2,200,000. IDB Lab will provide US\$1,100,000 (50%), and Fundación CIRD, ENI, and FIC will provide counterpart funds of US\$1,100,000 (50%).

- 4.2 IDB Lab's contribution will be nonreimbursable technical-cooperation funding. The project's budget summary is as follows:

Budget Summary

Project components	IDB Lab US\$	Counterpart in cash-US\$	Counterpart in kind-US\$	Total US\$
Component I: Raising awareness and establishment of the ecosystem	141,700	32,000	146,000	319,700
Component II: Implementation of bootcamps and job placement	695,800	490,000	265,000	1,450,800
Component III: Sustainability of the bootcamp business models	84,000	39,600	13,500	137,100
Project administration	138,500		99,000	237,500
Evaluations	10,000		-	10,000
Contingencies	30,000	14,900	-	44,900
Grand total	1,100,000	576,500	523,500	2,200,000
% of financing	50%	26%	24%	100%

V. EXECUTING AGENCY AND IMPLEMENTATION STRUCTURE

A. Description of the executing agency

- 5.1 **Fundación CIRD.** The Community Foundation of the Center for Information and Resources for Development (CIRD), a nonprofit organization established in Paraguay, will be the project's executing agency. This organization has more than 30 years of experience in executing projects, such as training and job placement of young people throughout the country with projects like NEO Paraguay, as well as an IDB Lab-supported operation, Promotion of the Creative Economy in Paraguay. Among its noteworthy strengths are its ability to develop strategic partnerships with public sector agencies, civil society organizations, and private sector companies; its familiarity with the contextual reality of vulnerable young people; and its knowledge of methodologies and international good practices to guide, train, support, and place young people in quality jobs. Since 2012, CIRD has been promoting the ecosystem of young entrepreneurs in Itapúa department with various programs and projects, such as the Finlandia 2 program, with training for vulnerable young people (ages 18-30) in preparing business plans and life skills, with the support of the entrepreneurship support board comprising a regional bank, the municipal government, the Catholic University of Itapúa, and other sectors of the government; courses on business plans for young people, from vulnerable neighborhoods with SINAFOCAL, the municipal government, the departmental government, and the Catholic University of Itapúa; and the program to strengthen business capacities and competitiveness for microentrepreneurs in Itapúa department. CIRD has the capacity and systems to monitor and evaluate interested students and companies.
- 5.2 While the organization responsible for project implementation and execution is Fundación CIRD, it will closely coordinate actions with two strategic partners: the National Innovation Strategy and the Federation of Creative Industries. To do so,

- the three entities will sign an agreement and designate focal points to support activity execution and coordination.
- 5.3 The **National Innovation Strategy (ENI)** is a private-public initiative established in 2019 to foster innovation and technology development in Paraguay. It consists of a promotion team with representatives from academia, civil society, the business sector, and seven ministers from the Executive Branch. Since its creation, ENI has positioned itself as a key coordinator, showing efficiency in implementing complex programs that need coordinated work from various actors in the public sector, the private sector, and civil society. It works on three pillars: business resilience, job retraining, and personal resilience. In this project, ENI will serve as a strategic advisor, planning and coordinating efforts to achieve the objectives established. ENI will be the liaison between the private sector/civil society and the public sector, such as with MITIC.
- 5.4 The **Federation of Creative Industries of Paraguay (FIC)** is a nonprofit civil organization consisting of 11 civil organizations, trade associations, and federations from the creative industries field. It is intended to promote, cooperate, and participate in all sorts of initiatives to foster and develop creative industries, building relationships with public, private, and academic organizations. In this project, FIC will be a strategic advisor, supporting the implementation of a multisector committee that will determine job profiles and the job placement process for project beneficiaries. It will also provide advice to decide on and execute this operation's awareness and communications component. The organizations include CISOFIT, the Association for Visual Arts in Paraguay (GENTE DE ARTE), and the International Game Developers Association.
- 5.5 **Internal consultation group:** This is a regular mechanism for consultations between Fundación CIRD, ENI, and FIC to determine strategies, explore synergies, and coordinate activities. IDB Lab can participate as an observer.
- 5.6 **External consultation group:** This is a mechanism for coordination and exchange with ecosystem actors such as incubators, accelerators, universities, civil society, private sector companies, entrepreneurs, and public sector institutions, in order to coordinate, exchange experiences, develop networks, and foster synergies. IDB Lab can participate in this group as an observer.

VI. FULFILLMENT OF MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS

- 6.1 **Results-based disbursements and fiduciary arrangements.** The executing agency will commit to the standard IDB Lab arrangements on results-based disbursements, procurement, and financial management, as specified in the technical document. The project's disbursements will be subject to confirming the fulfillment of milestones with the verification methods agreed upon between the executing agency and IDB Lab. Fulfillment of milestones will not exempt the executing agency from the responsibility of attaining results matrix indicators and project objectives.
- 6.2 Under the risk- and performance-based project management modality, disbursement amounts for the project will be determined according to the project's liquidity requirements, estimated for a maximum period of six months. IDB Lab and the executing agency will agree on these requirements, which will reflect activities

and costs scheduled in the annual planning exercise. The first disbursement will be subject to fulfillment of the conditions precedent, and subsequent disbursements will take place provided that the following two conditions are met: (i) verification from IDB Lab that the milestones have been fulfilled, as agreed upon in the annual plan; and (ii) justification from the executing agency for at least 80% of the advances of funds accrued.

- 6.3 **Procurement.** The executing agency's policies will be followed for procurement, except if the Bank determines otherwise during execution. An annual procurement plan for project execution and fulfillment of milestones will be submitted along with the annual work plan. IDB Lab will review the technical elements of the procurement processes it deems necessary on an ex ante basis.

VII. INTELLECTUAL PROPERTY

- 7.1 **Access to information.** The information contained in this document will be classified as public upon approval, pursuant to the Bank's Access to Information Policy.
- 7.2 **Intellectual property.** The Bank will be the owner of any and all intellectual property rights, including but not limited to copyrights, related to and/or associated with all deliverables to be developed. The Bank may grant the executing agency a nonexclusive, free, and noncommercial purposes license to use, copy, distribute, reproduce, display, and publicly perform any work or project outcome, within the country of its execution. Any dissemination, reproduction, or publication will indicate that it was financed by IDB Lab. To that end, any use of the name or logo of the Inter-American Development Bank or IDB Lab by the executing agency for any purpose requires written prior authorization from the Bank.