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URUGUAY

ACELERIA: TAILOR-MADE ARTIFICIAL INTELLIGENCE STRATEGIES FOR UPSKILLING AND RESKILLING THE LABOR FORCE

(UR-T1329)

DONORS MEMORANDUM

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ACELERIA: TAILOR-MADE ARTIFICIAL INTELLIGENCE STRATEGIES FOR UPSKILLING AND RESKILLING THE LABOR FORCE (UR-T1329)

Generative artificial intelligence has sparked both interest and concern since the market launch of ChatGPT in November 2022. This technological disruption is changing the dynamics of employment, making it essential to retrain workers in key areas such as analytical and critical thinking, digital literacy, and artificial intelligence, as well as to develop new spaces for worker learning and support.

In this context, the Universidad Tecnológica del Uruguay (UTEC) created **AcelerIA** to promote a labor force that is more resilient and better adapted to the challenges of the future. This will help UTEC become a key player in an ecosystem with joint efforts to provide people the tools they need to navigate and prosper in a work environment transformed by artificial intelligence, reducing their social and economic vulnerability while helping Uruguay achieve its vision of becoming a leader in innovation in the region.

The objective of the project is to validate a training model and consolidate an ecosystem that enables workers to adapt to the use of artificial intelligence, particularly for workers in vulnerable positions who might be replaced through task automation, with a specific focus on people over age 45, women, and economically vulnerable workers in Uruguay.[1]

The strategy is based on developing an adaptive learning platform designed to evaluate users and create learning environments tailored to their skills and needs. The project includes specific content regarding the application of artificial intelligence in sectors of the economy with the highest concentration of vulnerable workers and small and medium-sized enterprises (SMEs), with a regional connection strategy. The main point of entry for beneficiaries of the project's services is expected to be: (i) the facilitators who will receive training through the project; and (ii) the regional connections with SMEs in the 13 intermediate cities where UTEC has locations. Moreover, UTEC will become a key node in an ecosystem that includes the fAIr LAC initiative, academic partners, the public sector, corporations, and entrepreneurial businesses that develop solutions such as bootcamps or operate in the HRTech vertical at a local, regional, or international level.

These strategies are aimed at not only providing initial services and support to businesses but also developing a financially sustainable, scalable model that can be tailored and expanded over time. Designed specifically for workers in sectors at high risk for task automation powered by artificial intelligence, the project will enable participants to develop critical skills in order to remain relevant and competitive in the labor market. Therefore, AcelerIA not only seeks a more equitable distribution of the benefits of artificial intelligence, particularly for those in highly vulnerable situations, but also benefits employers by training team members who are versatile and prepared for future challenges. This is achieved through the strategies of reskilling, meaning learning the skills to perform a different job, and upskilling, which focuses on acquiring new skills or improving existing skills.

The expected outcomes at the end of the project are: (i) 500 people certified in job skills to use artificial intelligence, of whom 50% will be workers with incomes below US$17 per day, 40% women, and 40% people over age 45; (ii) 30 customized learning paths; (iii) 50 businesses (SMEs) contracting the services of AcelerIA; (iv) 40 national, regional, or international institutions participating in a common action plan (ecosystem); and (v) at least 4 proposals to contribute to public policy on the issue of worker adaptation to technological advances.

For the scaling of this intervention, it will be essential to: (i) engage, from the early stages, robust public and private partners, such as large technology businesses and public entities, ensuring the project's support and sustainability; (ii) work closely with the partners during project execution to

[1] Income below US$17 per day.

ensure that activities are aligned with market needs and the strategic objectives of stakeholders; (iii) consider the disruptive potential of the innovation being proposed with respect to its possibilities to change the labor market and career training practices; and (iv) have government policies and regulations that support digital skills training and the ethical use of artificial intelligence.

The project is aligned with the IDB Group Country Strategy with Uruguay 2021-2025, which has the objective of supporting the Government of Uruguay to achieve inclusive, sustainable growth, with an emphasis on creating quality jobs. It also contributes to the new IDB Group Institutional Strategy (IDBImpact+), and is aligned with the IDB Lab Business Plan (MIF/GN-264) and its strategy for the institution's fourth replenishment (GN-3204). As such, the project complements efforts already being deployed in the region through the pilot projects of the fAIr LAC initiative, as well as those of the Integration and Trade Sector (INT) to develop a more competitive labor force for internationalization.

The contribution from IDB Lab will be US$750,000 as nonreimbursable technical-cooperation funding.

ABBREVIATIONS

AI	Artificial intelligence
B2B	Business-to-business
B2C	Business-to-consumer
CTI	Competitiveness, Technology and Innovation Division
DNA	Diagnostic of Executing Agency Needs
INT	Integration and Trade Sector
LMK	Labor Markets Division
OII	Office of Institutional Integrity
PEU	Project execution unit
SME	Small and medium-sized enterprise
UTEC	Universidad Tecnológica del Uruguay
WEF	World Economic Forum

PROJECT INFORMATION

ACELERIA: TAILOR-MADE ARTIFICIAL INTELLIGENCE STRATEGIES FOR UPSKILLING AND RESKILLING THE LABOR FORCE
URUGUAY
(UR-T1329)

Country and geographic location:	Uruguay, countrywide.		
Executing agency:	Universidad Tecnológica del Uruguay (UTEC)		
Focus area:	Knowledge economy – Talent and employment		
Coordination with other donors/Bank operations:	Uruguay Global (4658/OC-UR) and Uruguay Global II (UR-L1197) programs, led by INT, aimed at promoting advanced digital skills to support the internationalization of knowledge-intensive companies; and the fAIr LAC initiative led by IDB Lab.		
Beneficiaries:	500 people participating in upskilling and reskilling programs, of whom 50% will be vulnerable workers,[2] 40% women, and 40% people over age 45; 50 businesses (SMEs) contracting the services; and 40 national, regional, or international institutions coordinating actions in common and joining ecosystem initiatives.		
Financing:	Technical cooperation financing:		
	Total financing from IDB Lab:	US$750,000	50%
	Counterpart:	US$750,000	50%
	Total project budget:	US$1,500,000	100%
Execution and disbursement periods:	48 months for execution and 52 months for disbursement.		
Special contractual conditions:	A condition precedent to the first disbursement is the selection process of the product owner for the platform.		
Unit responsible for disbursement:	CSC/CUR		

[2] Income below US$17 per day.

I. THE PROBLEM

A. Description of the problem

1.1 **The transformation of the world of work and artificial intelligence.** The world of work is experiencing a profound transformation due to two recent phenomena: the postpandemic scenario and the boom of generative artificial intelligence.[3] These events are altering the essence of work and driving us to reflect upon crucial questions: What are the differences between the work environment now and before 2020? What can we anticipate for the future? How can we more effectively prepare to tackle the challenges and take advantage of the opportunities arising from these changes?

1.2 Generative artificial intelligence has sparked both interest and concern since the market launch of ChatGPT in November 2022. Ever since, leaders from the public and private sectors and academia have been trying to understand and anticipate its effect on work, workers, and society in general (Morris, 2023).[4] Indeed, this was one of the main topics of conversation at the latest World Economic Forum (WEF) conference in Davos in 2024, particularly regarding having a conscious approach to technology in all sectors of the economy and putting people first.[5] The phenomenon of adoption of generative artificial intelligence is of such magnitude that a study by Oliver Wyman (2024)[6] revealed that, in less than one year, 55% of people have started using generative artificial intelligence at work. ChatGPT achieved a record adoption rate, with 100 million users only two months after its launch, compared to for example WhatsApp, which took three and a half years to reach the same number of users. With the advent of generative artificial intelligence, the adoption of this technology is expected to be even more widespread, having a broader impact on the job market.

1.3 Among those surveyed by Wyman, only 61% of respondents said that productivity has improved with the use of generative artificial intelligence. Research also shows a remarkable difference between the optimism of CEOs, with 69% expecting great advantages from generative artificial intelligence, while 59% of employees are afraid that the technology will take away their jobs. This uncertainty is not completely unfounded, given that the WEF's The Future of Jobs Report 2023[7] shows that: (i) employers estimate that 44% of workers' skills will be disrupted in the next five years; and (ii) 6 in 10 workers will require training before 2027, but only half of workers are seen to have access to adequate training opportunities. These trends demonstrate the growing need to address job skills in a way in which productivity gains not only benefit businesses but also workers.

1.4 Parallel to its effects on job skills, the adoption of generative artificial intelligence in all sectors of the economy is now a reality, as are the concerns it entails. According to the International Monetary Fund, artificial intelligence could impact

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[3] How COVID-19 has pushed companies over the technology tipping point—and transformed business forever.

[4] Scientists' Perspectives on the Potential for Generative AI in their Fields.

[5] AI and emerging technology at Davos 2024: 5 surprising things to know | World Economic Forum (weforum.org).

[6] How Generative AI Is Transforming Business and Society.

[7] The Future of Jobs Report 2023.

nearly 40% of jobs globally, replacing and complementing many of them. Therefore, it is necessary to address this issue in detail to ensure that the benefits of this technology are distributed more equitably among society and that inequality gaps are not widened (Pizzinelli, 2023).[8] With respect to automation, a McKinsey report from 2023 mentions that generative artificial intelligence might automate close to 10% of the tasks in the economy of the United States, which has an impact on all types of jobs.[9] This automation poses a risk for those workers who are not prepared to face the fast-paced adoption of this technology.

1.5 **Low-income workers, people over age 45, and women are the most vulnerable.** The lowest-income workers will potentially be impacted the most by the task automation enabled through the use of artificial intelligence. For example, workers earning less than US$38,000 annually in the United States are 14 times more at risk of losing their jobs or having to change occupations than those earning more than US$58,000 per year. However, this will not only impact lower-income workers. It will have more of an impact on Afro-descendants, older adults, and women. For instance, women are approximately 50% more likely to be in an occupation where they have to transition between fields compared to men.[10]

1.6 The same WEF report points out that just in the United States, it is likely that there will have to be 12 million job transitions by 2030, 80% of them in four occupations: customer service, food service, manufacturing, and office support.[7]

1.7 More specifically, artificial intelligence is triggering notable changes;[11] for example, administrative and secretarial roles have been reduced through automation of data management and document processing.[8] In retail, cashiers are being replaced by automated transaction systems. Agriculture and manufacturing are also experiencing a transformation with the adoption of precision technologies and implementation of robots that minimize the need for workers. Even the transportation sector has been evolving, with the development of autonomous vehicles. These transformations underscore the urgency of adopting effective policies for training in artificial intelligence and digital literacy to help workers adapt to the new requirements of the labor market and make the most of emerging opportunities.[12]

1.8 **Uruguay is part of the debate.** Uruguay has not been a stranger to this debate. In 2023, Equipos Consultores conducted research about the knowledge and opinions that workers have about artificial intelligence and its incorporation into the world of work.[13] The report found that 69% of Uruguayan workers have seen, read about, or heard of artificial intelligence. In addition, workers with higher levels of schooling knew more about this technology. While among those with a middle-school education, less than half (46%) were familiar with artificial intelligence, the majority (96%) of those with higher education degrees said the same. Moreover, 11% of employed respondents said that they had used an artificial intelligence tool at work, with clear differentiation between those in middle

[8] Labor Market Exposure to AI: Cross-country Differences and Distributional Implications.
[9] Generative AI: How will it affect future jobs and workflows?
[10] Generative AI: How will it affect future jobs and workflows?
[11] The Future of Jobs Report 2023.
[12] Generative AI: How will it affect future jobs and workflows?
[13] Inteligencia artificial en el mundo del trabajo.

and upper management and lower-level jobs. This dynamic demonstrates that educational level is relevant in leveraging the advantages of artificial intelligence, and people with lower levels of schooling need more training in this technology.

1.9 A report on labor market activity from Advice (2023)[14] highlighted as a market trend that the number of job postings that require digital skills has increased. Of the total postings published in 2023, 17.1% required digital skills, 2.5 times more than in 2019.

1.10 **Changes triggered by artificial intelligence.** Artificial intelligence-driven automation can improve productivity, efficiency, and accuracy in many sectors, enabling workers to focus on more important, creative, and strategic tasks. However, the technology also generates concerns about job displacement, particularly for manual jobs and routine data processing positions (Santhosh et al., 2023).[15]

1.11 From the standpoint of talent management and adaptation to the new dynamics generated by artificial intelligence, the adoption of generative artificial intelligence has been so rapid that it is not only changing the way that people work but also promoting changes in skills-based models within organizations. Analyzing jobs from the perspective of the activities and tasks that they encompass, it is possible to figure out which activities can be replaced, improved, or transformed. According to the "theory of artificial intelligence job replacement," the technology tends to initially replace routine and mechanical tasks, and over time, more complex tasks that require analytical skills and rule-based logical thinking.[16] Empathetic skills and reflective critical thinking remain the most challenging areas to be replicated by artificial intelligence. Moreover, generative artificial intelligence requires new skills that are not always available. At the WEF conference in Davos, Ana Kreacic from Wyman said that "40% of executives think that their workers need upskilling or reskilling, and 98% of employees said the same." Studies[17,18] show that the skills required will include: (i) capacity for adaptation and continuous learning; (ii) a level of technical proficiency (while not everyone needs to be an artificial intelligence developer, it will be necessary to know the basics about how the technology is used in our field of work); (iii) creativity and innovation; (iv) effective communication; (v) critical thinking; (vi) emotional intelligence; and (vii) an understanding of ethics, including privacy, bias, etc.

1.12 As employers transition toward hiring that is more skills-based, placing skills above or at the same level as academic and professional qualifications, this will also help create more jobs in the future compared to now, given trends in demographics, consumption, and GDP growth.

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[14] Monitor Laboral TI / Informe 1 (advice.com.uy).

[15] Santhosh, A., Unnikrishnan, D., Shibu, S., Meenakshi, K., and Joseph, G. (2023). AI Impact on Job Automation. *International Journal of Engineering Technology and Management Sciences*. https://doi.org/10.46647/ijetms.2023.v07i04.055.

[16] Artificial Intelligence in Service.

[17] The Impact of Artificial Intelligence on Workers' Skills: Upskilling and Reskilling in Organisations.

[18] Rebooting employees: upskilling for artificial intelligence in multinational corporations.

1.13 The labor market report from Advice (November 2023)[19] mentions that a trend in Uruguay is that employers have intensified their searches for candidates with complementary skills. Among these, they prioritize soft skills (such as teamwork, commitment, effective communication, and responsibility), although there is also growing demand for knowledge of technology tools and languages in entry-level positions. Tracking of this trend shows that in 2023, there was higher growth than in recent years in the demand for soft skills (3.2 points) and technology tools (3.1 points). The past year has only been an example of upcoming changes for the labor force. WEF measured some of these; for instance, more than 75% of businesses have plans to implement artificial intelligence over the next five years.[20] Generative artificial intelligence is a reality, and constant, accelerated change makes it necessary to create new spaces for worker learning and support, so that they do not have to face on their own the challenge of remaining current in a changing work world.

1.14 **What limits reskilling and worker skills improvement?** To summarize, in this context, to ensure that workers are able to upskill and reskill, it is necessary to overcome four big obstacles:

1.15 **The digital skills gap:** A significant percentage of workers only have basic digital skills. It is essential to increase technology skills to use generative artificial intelligence, close the technology gap, and promote technology self-sufficiency through training programs and certifications in emerging technologies.

1.16 **Inequalities in the use of artificial intelligence:** It is crucial to promote the uniform adoption of artificial intelligence to mitigate technological inequalities and prevent job isolation, as seen in the Uruguay Digital Agenda 2025 from e-government agency Agesic.[21]

1.17 **Empowerment in the face of technological change:** It is necessary to promote increased control and ownership of technological changes among workers, increasing their confidence in the use of technology and decreasing dependence on external solutions.

1.18 **Lack of coordination of efforts related to digital skills and artificial intelligence:** Currently, several institutions and organizations are working to address this challenge. However, in most cases this is happening without the needed coordination or involvement of all stakeholders, so that progress is made and it has a positive impact on the life of workers. A collective effort is necessary to tackle these challenges effectively.

1.19 Artificial intelligence not only automates repetitive tasks but also creates new job opportunities that require knowledge of data analysis, software engineering, and automatic learning. This underscores the importance of ongoing training and adaptation in the workforce (Tailor et al., 2023).[22] However, repetitive and low-level

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[19] Monitor Laboral TI / Informe 1 (advice.com.uy).

[20] AI and emerging technology at Davos 2024: 5 surprising things to know | World Economic Forum (weforum.org).

[21] Agenda Uruguay Digital | Agesic (www.gub.uy).

[22] Tailor, R., Jain, S., and Kamble, A. (2023). A Review Paper on the Impact of Artificial Intelligence on the Job Market. *International Journal of Advanced Research in Science*, Communication and Technology. https://doi.org/10.48175/ijarsct-10724.

tasks might end up being eliminated. Two types of training are needed: experience with the current artificial intelligence tools and development of human qualities that artificial intelligence cannot replicate (Jiménez and Ouariachi, 2020).[23]

1.20 Task automation, both routine and nonroutine tasks, is likely to transform the skills needed in the workplace. This means that coordinated efforts are needed, involving various relevant actors, to improve collaboration between people and advanced artificial intelligence systems (Poba-Nzaou et al., 2021).[24]

1.21 A method to assess job automation risk shows that it is possible to significantly reduce the risk of job displacement through a moderate retraining effort, which can be useful for governments and companies to adjust retraining policies and better understand market needs (Paolillo et al., 2022).[25]

1.22 The WEF Future of Jobs Report 2020 mentions that due to rapid advances in automation and artificial intelligence, 50% of employees worldwide will need significant retraining by 2025.[26] This scenario poses both challenges and opportunities, putting pressure on businesses, governments, and individuals to adapt to a constantly evolving labor market where technology plays an essential role. According to the same report for 2023,[27] more than 75% of the companies surveyed are looking to adopt digital and automated technologies in the next five years, which might result in a 2% net decrease in jobs, with a high labor market churn rate of 23%. This change is expected to mainly impact administrative roles and certain manual jobs, while growth is expected in sectors such as renewable energy and digital.

1.23 **The impact on economic sectors and their employees.** Several sectors of the economy are experiencing significant changes due to the impact of generative artificial intelligence. In the retail and commerce sector, the implementation of generative artificial intelligence in e-commerce and point-of-sale technologies is threatening roles such as cashier, stock worker, and customer service representative. In transportation and logistics, the technology might minimize the need for drivers, delivery staff, and warehouse operators. In administrative and office support services, generative artificial intelligence has the potential to impact roles that perform data entry, administrative tasks, and document management, decreasing the need for administrative assistants and support personnel.

1.24 In summary, this technological disruption is changing the dynamics of employment, making it essential to retrain workers in key areas such as analytical and critical thinking, digital literacy, and artificial intelligence.

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[23] López Jiménez, E. A., and Ouariachi, T. (2021). An exploration of the impact of artificial intelligence (AI) and automation for communication professionals. *Journal of Information, Communication and Ethics in Society*, 19(2), 249–267.

[24] Poba-Nzaou, P., Galani, M., Uwizeyemungu, S., and Ceric, A. (2021). The impacts of artificial intelligence (AI) on jobs: an industry perspective. Strategic HR Review. https://doi.org/10.1108/SHR-01-2021-0003.

[25] Paolillo, A., Colella, F., Nosengo, N., Schiano, F., Stewart, W., Zambrano, D., Chappuis, I., Lalive, R., and Floreano, D. (2022). How to compete with robots by assessing job automation risks and resilient alternatives. *Science Robotics*, 7. https://doi.org/10.1126/scirobotics.abg5561.

[26] The Future of Jobs Report 2020.

[27] The Future of Jobs Report 2023 | World Economic Forum (weforum.org).

1.25 **In this context, AcelerIA was created, to promote a labor force that is more resilient and better adapted to the challenges of the future**, fostering a fairer transition toward technology and helping UTEC become a key player in an ecosystem with joint efforts to provide people the tools they need to navigate and prosper in a work environment transformed by artificial intelligence, reducing their social and economic vulnerability.

II. THE INNOVATION PROPOSAL

A. Project description

2.1 **Generative artificial intelligence has captured the attention of employers throughout the world.** While initiatives for worker upskilling and reskilling have been on public and corporate agendas for years, the emergence of generative artificial intelligence has injected new urgency into these efforts. This project represents a major opportunity to implement solutions that address the workforce's vulnerability to the impacts of many tasks being automated.

2.2 **The objective of the project** is to validate a training model and consolidate an ecosystem that enables workers to adapt to the use of artificial intelligence, particularly for workers in economically vulnerable positions who might be replaced through task automation, with a specific focus on people over age 45, women, and economically vulnerable workers in Uruguay.[28]

2.3 In the context of the postpandemic transformation of work and advances in generative artificial intelligence, this solution will focus on vulnerable groups in the labor market, particularly employees of small and medium-sized enterprises (SMEs) whose incomes and job stability are at risk. These individuals often face the challenge of not meeting the demands of the current labor market because of technological changes and automation. Specifically, the project focuses on people at risk for job displacement, including workers over age 45, particularly women, who are disproportionately impacted by these changes. This focus is aimed at mitigating the vulnerability of these groups and strengthening their capacity to adapt to the new reality of the workplace.

2.4 **The AcelerIA project from the Universidad Tecnológica del Uruguay** (UTEC), in the framework of the fAIr LAC+ initiative and the lessons learned from its operations, **seeks to implement a scalable model that facilitates the adaptation of the labor force to technological and structural changes in a context accelerated by artificial intelligence.** Designed specifically for workers in sectors at high risk for task automation powered by artificial intelligence, the project will enable participants to develop critical skills in order to remain relevant and competitive in the labor market. Therefore, AcelerIA not only seeks a more equitable distribution of the benefits of artificial intelligence, particularly for those in highly vulnerable situations, but also benefits employers by training team members who are versatile and prepared for future challenges. **This is achieved through the strategies of reskilling, meaning learning the skills to perform a different job, and upskilling, which focuses on acquiring new skills or improving existing skills.**

[28] Income below US$17 per day.

2.5 **The intervention strategy.** The strategy is based on developing an adaptive learning platform designed to evaluate users and create learning environments tailored to their skills and needs. Adaptability will be assessed through initial diagnostic assessments and ongoing feedback, ensuring that the project is aligned with the specific needs of certain sectors of the economy and the participants.

2.6 These sectors will be identified during project execution, involving key actors from both the public and private sectors and commissioning specific studies that contribute to the analysis. These inputs will make it possible to select sectors with vulnerable workers and a high density of SMEs.

2.7 The proposal is based on the AiUTECChallenge platform, which promotes skills such as critical thinking and autonomy among users, integrating training, technology, and culture. The platform will be enhanced by incorporating algorithms for recommendations and gamification strategies for a more personalized user experience.

2.8 To ensure that the AcelerIA program adapts to the initial skills of participants, play activities based on psychometric studies will be implemented. These activities are designed to evaluate not only technical skills but also the attitudes, perceptions, and mental models that workers have developed regarding artificial intelligence. This is essential, since artificial intelligence literacy needs to address both the technical and sociocultural aspects of the technology, therefore facilitating its essential integration. The initial evaluations will enable AcelerIA facilitators, through the platform's algorithms, to identify the areas of strength and opportunities for development for every participant. This provides a more personalized, effective teaching approach, complemented by the learning of interpersonal and emotional skills, but acknowledging that this initial evaluation should be easy to use and does not end up becoming a barrier to entry for the intended beneficiaries of project activities.

2.9 The project includes specific content regarding the application of artificial intelligence in sectors of the economy that will be preidentified (such as tourism, logistics, and retail), with a regional connection strategy. Examples are activities focused on the life experiences of participants, in order to explore technology and their communities, as well as the relationship between technology and their job challenges, based on their interests.

2.10 From this perspective, the concept of agency becomes a central pillar of this proposal. Agency is a state in which people understand artificial intelligence and its effects, and can use this knowledge to positively influence their environment. Therefore, agency involves making decisions that reinforce individual and collective autonomy and well-being. The main point of entry for beneficiaries of the project's services is expected to be: (i) the facilitators who will receive training through the project; and (ii) the regional connections with SMEs in the 13 intermediate cities where UTEC has locations, through customized campaigns with specific narratives; and (iii) the social media presence that UTEC already has.

2.11 The project is expected to contribute to strengthening the digital and artificial intelligence skills of participants, promoting broader inclusion, taking into account their gender, age, geographic location, and socioeconomic level. This initiative also

has the objective of creating a network of facilitators and mentors specialized in artificial intelligence, which will expand the project's scope and impact.

2.12 As a result of this intervention, participants are expected to be better trained for jobs in the digital economy and fields related to artificial intelligence, in addition to developing a deeper understanding of the ethical and social implications of artificial intelligence, promoting its responsible use. In the long term, the project is intended to act as a catalyst for more extensive social change, promoting equal opportunities and more equitable access to advanced technology.

2.13 The objective of AcelerIA is to **not only impart skills but also generate equal opportunities** and prepare the labor force to reduce their vulnerabilities in the face of growing automation.

2.14 For Uruguay to be able to achieve its vision of becoming a leader in innovation in artificial intelligence, it is essential to upskill and reskill the labor force, adapting it to the work and the skills that are required. In parallel, this: (i) promotes innovation, since upskilling and reskilling creates an environment of creativity and innovation needed for good implementation of artificial intelligence solutions; (ii) contributes to economic competitiveness by having a labor force trained in emerging technologies; and (iii) prepares the population to be resilient to the changes that the future entails. These strategies are aimed at not only providing initial services and support to businesses but also developing a financially sustainable, scalable model that can be tailored and expanded over time.

2.15 Moreover, **UTEC will become a key node in an ecosystem** that includes the fAIr LAC initiative, academic partners, corporations, and entrepreneurial businesses that develop solutions such as bootcamps or operate in the HRTech vertical.

2.16 **Target population.** The intervention will benefit 500 vulnerable workers at risk of being replaced in their jobs, through automation or by other workers who are better qualified and can use artificial intelligence to improve productivity.

2.17 The project seeks to reach the most vulnerable within this group. At least 50% of beneficiaries will earn an average income of below US$17 per day and will receive training through the business-to-consumer (B2C) model or the freemium solution that UTEC will make available as a public good.

2.18 The project will have a particular focus on women (whose wage gap is 16.2%),[21] whose jobs are more at risk of being replaced through automation, and on people over age 45, who face challenges at work due to the rapid evolution of technology. This segment is particularly important in Uruguay due to the high rate of aging of the population.[22]

2.19 **Innovation.** This proposal is innovative in the region, since few projects have used artificial intelligence for the upskilling and reskilling of workers with this approach of tailoring the experience for every user.[29] The platform will use artificial intelligence to personalize users' experiences learning digital and soft skills, and with the specific training they need to promote the use of artificial intelligence in their job duties.

[29] Artificial Intelligence (AI) Services & Solutions | Accenture.

2.20 While IDB Lab has prior experience working with digital skills training, most of its efforts have been aimed at young people and, more recently, older adults (Silvertech and Fundación Romero). Therefore, no lessons learned are available on training active workers. From the experiences mentioned, two valuable lessons learned are reflected in this project: (i) the importance of providing training in soft skills, which make individuals more resilient; and (ii) the need to deploy robust monitoring and evaluation systems, to be able to monitor the career paths of beneficiaries after the intervention.

2.21 Another innovative characteristic of the proposal is that it combines an adaptive platform with a personalized user experience and training with elements of speculative education[25] and real experiences. In this type of education aimed at developing critical skills, workers analyze hypothetical situations and propose new ways of humanizing the integration of technology. This approach not only promotes problem-solving and critical thinking but also fosters creativity and innovation. In addition, it promotes critical data literacy, enabling project participants to challenge established narratives and develop a deeper, more critical understanding of the influence of artificial intelligence and data over their lives.

2.22 AcelerIA's training is different from what Coursera and Platzi offer, which is designed to be unidirectional and without direct user interaction. In contrast, this new adaptive platform enables interactions that will, for example, guide users on when and how to use artificial intelligence in specific situations or for certain problems. AcelerIA not only seeks to develop technical skills but also promotes a critical and collective understanding of the application of artificial intelligence, preparing participants to use it in a manner that promotes collective well-being and innovation in professional and community contexts.

2.23 This will also be the first ecosystem initiative in Latin America and the Caribbean whose objective is to join forces in order to develop worker skills in the face of technological change.

2.24 **Component I: Development of a platform with adaptive and customizable microtraining.** The objective of this component is to develop a platform with adaptive and customizable microtraining that targets workers, with universal and inclusive design.

2.25 First, there will be a platform prototype to collect input and subsequently move on to a Beta version. This will be carried out by a multidisciplinary team consisting of researchers, mentors and facilitators, educational curriculum designers, and instructional designers, in addition to an educational activities coordinator and a certification coordinator. In addition, there will be a technical development team consisting of full stack developers, a user experience/user interface specialist, a game strategy creator and specialist, a machine learning engineer, a data science specialist, a data visualization expert, and a cybersecurity and DevOps specialist. Both teams will be supervised and managed by a product owner, who will be hired for this purpose.

2.26 Throughout the development, an expert on gender, diversity, and inclusion from UTEC will provide support, with an emphasis on data and artificial intelligence, so that the platform design mainstreams the gender and diversity perspective.

2.27 A significant input for development of the platform and its content will be a study to be commissioned, focused on soft skills and critical data literacy, algorithms, and artificial intelligence in the world of work, about which very little information is available with respect to Uruguay's labor market.

2.28 The platform's testing will be conducted through a specialized consulting assignment and will include older adults and women, to be able to gather feedback with a gender perspective and the inclusion of people over age 45.

2.29 Part of this component is the development of microtraining modules to be included in the platform, which will be prepared using gamification strategies.

2.30 In addition, training will be provided to four cohorts of artificial intelligence facilitators, who will receive training virtually and in a hybrid format. This training is intended to develop professionals with teaching and technical skills to support the process of upskilling and reskilling in organizations. These professionals can also contribute to the development of the AcelerIA adaptive platform by adding new content and tools, and sharing experiences and knowledge obtained while providing support to organizations.

2.31 The expected outputs are: (i) microtraining platform prototype validated by experts in the sector; (ii) microtraining platform in operation; (iii) 30 educational modules for microtraining developed; (iv) 70 facilitators certified by AcelerIA; and (v) 45% of the facilitators are women.

2.32 **Component II: Validation and commercial development.** The objective of this component is to be able to offer businesses and workers a validated commercial proposal.

2.33 For this, a study will be prepared about AcelerIA's direct and indirect competitors at the national, regional, and international levels, while identifying potential strategic partners at every level. Based on the information collected and analyzed, the business model for AcelerIA (which will combine business-to-business (B2B) and B2C models), the communication plan, the indicator monitoring plan, and the plan validation studies will be prepared.

2.34 As with Component I, this component will need an interdisciplinary team consisting of the product owner, specialists in artificial intelligence training, researchers, specialists in digital and offline communication, and legal advisors.

2.35 This component includes: preparing an analysis of existing commercial offerings (competition) for continuing education in artificial intelligence and digital skills; deploying a pilot experience with a company from a sector that meets predefined requirements (high concentration of SMEs and at least 50% of workers with income below US$17 per day); designing a freemium system where users have access to free courses for leveling up; and developing and implementing a communication plan and actions for AcelerIA customer/user traction for both the freemium and fee-based systems. Depending on the target audience (B2B or B2C), communication actions will be implemented through social media, awareness workshops, master classes, success story presentations, and seminars.

2.36 To implement the pilot experience, **the tourism sector has been selected**. This is a leading stakeholder in the Uruguayan economy, which prior to the pandemic represented 7.1% of national GDP and more than 100,000 jobs dedicated to

tourism.[30] In 2023, there were 30,833 businesses recorded in the sector, of which only 14.5% are large enterprises.[31] In this sector, examples of average monthly salaries[32] are Ur$24,000 for a receptionist and Ur$16,000 for a reservations agent. For these roles, as an example, artificial intelligence has the potential to significantly improve the customer experience and generate efficiencies through virtual assistants or chatbots, by automating administrative tasks and personalizing services.

2.37 The pilot will include preparing a diagnostic assessment of the situation of the participating company; developing at least one personalized path for this organization; evaluating the various paths that the workers followed; and preparing a study of the user experience, to become more familiar with the experiences of workers from a quantitative and a qualitative perspective.

2.38 For the commercial validation of the proposal, it is important to conduct an analysis and monitoring of the people registered and their activity levels on the platform, including specific monitoring for women and people over age 45.

2.39 The expected outputs are: (i) at least 6 studies analyzing solutions that are similar to AcelerIA (including business model, technology stack used, communication strategies, and target audience), to be repeated annually; (ii) a pilot evaluated with an industrial/commercial sector for prototype validation; (iii) the business model for AcelerIA developed; (iv) 65 communication actions targeting AcelerIA customers; (v) 4,000 people registered on the platform, of whom 60% are economically vulnerable persons, 50% women, and 50% people over age 45; and (vi) 1,000 active users of the platform, of whom 50% are economically vulnerable persons, 40% women, and 40% people over age 45.

2.40 **Component III: Ecosystem development.** The objective of this component is to generate a collaborative network and joint actions among organizations, businesses, academic institutions, think tanks, public agencies working on the issue of developing technical skills in the context of artificial intelligence, and the Artificial Intelligence Task Force of the Americas Business Dialogue.

2.41 An important aspect in the development of this ecosystem will be networking with other entities. To do so, with support from the fAIr LAC community, there will be outreach to organizations interested in participating in this network. Other ecosystems that are working to address the challenge of helping workers adapt to technological advances will also be identified. This is a key element in enriching existing viewpoints regarding the project and avoid having an ecosystem that is inflexible to change. The organizations participating in the ecosystem will have a virtual space for exchange (LinkedIn or another).

2.42 Joint actions will be promoted, such as joint applications for research funding; joint organization and/or participation in regional and international conferences; codesign of learning paths; and exchange of experts to design training curricula and/or events.

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[30] 4.8 Turismo | INE (www.gub.uy).

[31] Evolución del sector empresarial turístico en Uruguay (bps.gub.uy).

[32] Salaries in the category: Tourism, Gastronomy, Hotel Business, Uruguay (paylab.com).

2.43 UTEC, as an academic institution, is expected to generate knowledge related to: (i) the platform, including research on the user experience/user interface to improve its design; and (ii) case studies regarding the responses of specific groups, such as women or people over age 45, in their process of adaptation to change. This will be shared with other stakeholders that are part of the network.

2.44 In addition, the network is expected to produce at least one position paper on the transformation of the labor force in the face of technological advances, to serve as an input for public policy actors.

2.45 The expected outputs are: (i) at least 10 calls for participation to organizations implemented; (ii) 4 studies for validation of the platform and commercial development; (iii) 6 case studies; (iii) 1 virtual space for exchange; (iii) 10 events with the organizations belonging to the ecosystem; and (iv) at least 20 joint actions with the organizations that are part of the ecosystem.

B. Results, measurement, monitoring, and evaluation

2.46 The expected outcomes at the end of the project are:(i) 500 people certified in job skills to use artificial intelligence, of whom 50% will be workers with incomes below US$17 per day, 40% women, and 40% people over age 45; (ii) 30 customized learning paths; (iii) 50 businesses (SMEs) contracting the services of AcelerIA; (iv) 40 national, regional, or international institutions participating in a common action plan (ecosystem); and (v) at least 4 proposals to contribute to public policy on the issue of worker adaptation to technological advances.

2.47 UTEC will be responsible for the project's monitoring and evaluation activities. To do so, AcelerIA will have a data management system that will clean, transform, and standardize the data generated through the platform. The security and privacy of participants will be prioritized for the data managed, not handling sensitive data that might compromise their safety. Data anonymization techniques will be applied to maintain the privacy of AcelerIA users.

2.48 Data management for the platform will focus on its use and learning paths, course selection, student profiles, and how these profiles influence their decision-making regarding courses and difficulty levels. With this information, the educational experience can be improved and personalized, guaranteeing a safe environment that focuses on the development of technology skills.

2.49 Data will be stored at a data warehouse. Various data marts will be used to extract the data needed to establish the indicators to monitor functionality, opportunities for improvement at a technical level, and the learning processes of the various platform users. The data management system will be able to extract and/or provide data from other sources through the application programming interface, enabling information about different experiences to be unified and providing aggregated, quality inputs for decision-making and proposals to develop public policy.

2.50 AcelerIA will include a dashboard to analyze the platform's technical performance and the learning process of users in a personalized manner. Tailor-made access will be provided to businesses and institutions that incorporate the service, so that they can review the programs' progress and the students' skills development.

2.51 Project indicators will be monitored annually through the project status report, and final outcomes will be reported at the end of the project's disbursement period.

III. ALIGNMENT WITH THE IDB GROUP, SCALING, AND RISKS

A. Alignment with the IDB Group

3.1 The project is aligned with the IDB Group Country Strategy with Uruguay 2021-2025, which has the objective of supporting the Government of Uruguay to achieve inclusive, sustainable growth, with an emphasis on incorporating a gender and social inclusion perspective. Specifically, it is aligned with two of the strategy's strategic areas: (i) sustainable productive development, under the objective of increasing innovation; and (ii) equity and social inclusion, under the objective of improving education and job training.

3.2 The project also contributes to the new IDB Group Institutional Strategy (IDBImpact+), which renews the Bank's mission of being the partner of choice for the region, committed to addressing its vulnerabilities and unlocking its potential to foster transformative social and economic progress. Specifically, it contributes to two of its priority objectives: (i) reducing poverty and inequality, maximizing among others investments in human capital; and (ii) bolstering sustainable growth, including by empowering the private sector to drive productivity and innovation.

3.3 The project is aligned with the IDB Lab Business Plan (MIF/GN-264) and its strategy for the institution's fourth replenishment (GN-3204), which focus on entrepreneurial innovation as a vehicle to improve the quality of people's lives, making new technologies accessible, and promoting their responsible development and adoption. In this respect, the project complements efforts already deployed in the region through the pilot projects of the fAIr LAC initiative, in line with the vision of building a portfolio consisting of both "AI for Development" and laying the groundwork for an artificial intelligence ecosystem in the region that is responsible and addresses emerging risks to inclusive socioeconomic development.

3.4 Moreover, the operation addresses one of the central issues in large-scale adoption of artificial intelligence, related to its impact on labor markets and particularly the risk of workers being replaced through increased automation. It also tackles the resulting need to help workers acquire the skills to benefit from the use of these types of technology.

3.5 The projects that IDB Lab has promoted through the fAIr LAC initiative are: (i) Market Opportunities for Technology Firms – Public Procurement of Responsible, Ethical, and Transparent Algorithms (CH-T1246), executed by the Universidad Adolfo Ibáñez to promote ethical data management and the responsible development and implementation of algorithms, automated decision systems, and artificial intelligence in the public and private sectors; (ii) Efficient Social Services for Vulnerable Populations in Jalisco through Responsible Artificial Intelligence (ATN/ME-17550-ME), executed by Tecnológico de Monterrey to leverage the responsible, ethical adoption of artificial intelligence for

social good in Jalisco, bringing together academia, civil society, and the public and private sectors to build capacity, boost the social scope of artificial intelligence, and leverage the impact of the technology for more efficient social services. With respect to the use of artificial intelligence for the common good, the Gender and Artificial Intelligence challenge that IDB Lab launched in 2022 resulted in three interventions that use artificial intelligence to address the gender gap in the workplace, financial inclusion, and the use of algorithms: (iii) Jobecam: The Workplace Diversity Booster (BR-G1021), a platform to reduce bias in recruitment; (iv) Quipu: Promoting Financial Inclusion for Women Microentrepreneurs (CO-G1050), to strengthen an alternative and fair credit scoring system; and (v) Quantil AI: Algorithmic Audits (CO-G1049), to develop responsible artificial intelligence by automating bias evaluations in algorithms.

3.6 At the IDB Group level, through the fAIr LAC initiative, IDB Lab has closely coordinated its work with the public sector with the following technical cooperation operations: (i) Support for the Guiding Framework for the Responsible and Ethical Use of Artificial Intelligence in Costa Rica (CR-T1242), to build capacity for the responsible use of the technology, promote a dynamic ecosystem, and empower people to promote Industry 4.0; (ii) Design and Execution of Pilot Projects Under fAIr LAC Initiative (RG-T3638); and (iii) Fair LAC – Responsible Artificial Intelligence for Efficient and Individualized Provision of Social Services for All (RG-T3450), through which actions were implemented in Uruguay and Colombia. In Uruguay, a technical cooperation operation was implemented to promote and strengthen the responsible use of artificial intelligence, particularly in public administration, by implementing the artificial intelligence strategy for digital government. The strategy was submitted for public consultation; contributions were received, reviewed, and answered, and in some cases included in the final text of the current version of the artificial intelligence strategy.

3.7 In summary, the project seeks to continue contributing to the impact of the fAIr LAC initiative based on the knowledge acquired and the networks developed, as well as by fostering public-private cooperation to develop a responsible artificial intelligence ecosystem that meaningfully addresses the main challenges that the large-scale adoption of this technology poses.

3.8 In addition, the project complements the programs Uruguay Global (4658/OC-UR) and Uruguay Global II (UR-L1197, to be approved in 2024), led by INT, aimed at promoting advanced digital skills to support the internationalization of companies. While operation UR-L1197 focuses on increasing the supply of human capital with advanced digital skills for the knowledge-intensive goods and services sector, AcelerIA will be more focused on the upskilling and reskilling of workers whose jobs are at risk of being eliminated or who might be replaced by other people with more advanced digital and artificial intelligence skills. It is desirable and probable that a percentage of the workers who improve their digital and artificial intelligence skills as a result of this intervention could later participate in the more advanced training that will be offered under operation UR-L1197. Both interventions are certainly necessary and complementary for the objective of positioning Uruguay as a true hub of innovation in the region.

3.9 The project team evaluated this operation for alignment with the Paris Agreement, finding that it is aligned with building block 1 (mitigation) and building block 2 (adaptation and resilience).

The project is also aligned with the following Sustainable Development Goals:

3.10 *No poverty*: targets 1.4, “By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance”; and 1.b, “Create sound policy frameworks at the national, regional, and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions.”

3.11 *Quality education*: targets 4.3, “By 2030, ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university”; 4.4, “By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship”; and 4.5, “By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples, and children in vulnerable situations.”

3.12 *Gender equality*: targets 5.b, “Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women”; and 5.c, “Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.”

3.13 *Decent work and economic growth*: target 8.2, “Achieve higher levels of economic productivity through diversification, technological upgrading, and innovation, including through a focus on high-value added and labor-intensive sectors.”

3.14 *Reduced inequalities*: target 10.2, “By 2030, empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion, or economic or other status.”

B. Scalability

3.15 The combination of free and paid services, along with to focus on continuing education, are essential to the success of the AcelerIA project in the medium and long terms. The paid services will be marketed to three types of customers: (i) individuals; (ii) companies; and (iii) public agencies such as the Instituto Nacional de Formación y Empleo (National Training and Employment Institute) and the Agencia Nacional de Desarrollo (National Development Agency). The latter is executing the Modo Digital program, led by the Competitiveness, Technology and Innovation Division (CTI), which focuses on the digital transformation of micro, small, and medium-sized enterprises.

3.16 This will enable the establishment of a fund to ensure the sustainability of the project, whose resources can be used for specific programs for other industries and to expand services to other countries in the region.

3.17 Considering the project's total cost and the number of users reached by the end of the period, the cost per user is estimated at US$375.

3.18 Cost per student. The cost of US$375 per student was calculated based on the total of 4,000 people who will have accessed the platform by the end of the project period. This number refers to all of the platform's potential users, not only those who will complete their certification. It is important to highlight that the students who receive certification will have to complete educational paths comprised of several modules or micromodules.

3.19 Comparative market analysis. While similar proposals do exist in the area of training in artificial intelligence, no solution with the same characteristics as AcelerIA was identified in the region. This platform offers comprehensive training that combines practical learning with personalization, according to the profile and needs of each user, in particular sectors and for specific beneficiaries; this makes it hard to compare it directly with other options available in the market. However, the project includes preparing a broader analysis on a worldwide basis to identify comparable solutions and improve the value proposition of AcelerIA.

3.20 In addition, users will have the option to connect with other initiatives for training in more advanced skills. With cooperation from facilitators and mentors, a support network will be created to enable the project's scalability and adaptation to the changing needs of society and the accelerated pace of technological advances. In the long term, AcelerIA seeks to become a benchmark for other technology training programs and a driver of inclusive policies in the digital world.

3.21 As a node in a new ecosystem, opportunities to expand and/or customize the use of the platform beyond the university will be explored. This will be essential for the scaling of the AcelerIA project, combining cooperation with key public and private stakeholders so that the operation has a larger scope.

3.22 If UTEC reaches 50 companies and 1,000 workers by the end of the project in 2030, by 2035 it is expected to be able to have provided services to at least 20,000 companies (1% of the total number of micro, small, and medium-sized enterprises) and at least 100,000 workers, and reduce the cost of training per beneficiary by 50%, according to estimates from UTEC.

3.23 Some of the factors that will be essential for this expansion include:

- Engage, from the early stages, robust public and private partners, such as large technology businesses and public entities, ensuring the project's support and sustainability. These partners can provide essential resources, such as financing and access to relevant networks. The actors identified for future collaboration include Codiversity, Flipando, Spacedev, Globant, Mercado Libre, Microsoft, Google, Meta, Intel, and Schwab Foundation's Global Alliance for Social Entrepreneurship.
- Work closely with the partners during project execution to ensure that activities are aligned with market needs and the strategic objectives of stakeholders.
- Consider the disruptive potential of the innovation being proposed with respect to its potential to change the labor market and career training practices. The growing need to adapt to automation and artificial intelligence

in various sectors has created a natural market demand for the solutions proposed by AcelerIA.

- Legal and regulatory frameworks: Have government policies and regulations that support digital skills training and the ethical use of artificial intelligence, which favors the implementation and expansion of the project.

3.24 For the scaling of this intervention, the project will include: (i) workshops and events with key actors in the public and private sectors, to discuss and plan the project's expansion and sustainability; (ii) knowledge products, to raise awareness among external audiences about the project's benefits and impact; and (iii) strategic cooperation, particularly with the fAIr LAC initiative, as well as other operations led by the IDB Group and other key organizations in geographical areas with potential to expand the operation.

3.25 With respect to the IDB Group, the participation in the design team and, during the critical phases of monitoring of the operation, of teams from the Labor Markets Division (LMK), INT, CTI, and IDB Invest, will support the gathering of the lessons learned for future interventions.

3.26 For the future scaling of the operation, it would be very favorable to proactively search for an IDB Invest client that can participate in this pilot project, and be able to involve others as partners in order to identify and anticipate needs.

3.27 The Digital Economy team of IDB Invest has pointed out the relevance of this initiative, since they understand that the availability of human resources is fundamental to energize the market and spark more initiatives based on technology for their possible financing in the future. In the more traditional sectors, many IDB Invest clients are currently involved in digital transformation initiatives. Joint work will take place to pitch a proposal to the technical assistance teams, to incorporate this component into the context of their sustainability strategies, both for their own operations and the tools available for the development of their providers.

3.28 These activities will help ensure that AcelerIA not only meets its initial objectives but is also established as a replicable, scalable model for various contexts and needs, regionally and internationally.

C. Project and institutional risks

3.29 **Risk: Flexibility of the training proposal.** Continuing education programs of a flexible nature might cause learning fragmentation in skills development.[33] As a result, a share of the participants do not acquire the skills expected upon completion of their training, and their vulnerability to changes in the environment cannot be reduced. For example, if a user designs learning paths that exclude certain skills, they might complete their training without having developed the critical skills needed to achieve this project's objectives. **Mitigation action:** It is essential for this project to be guided by a skills matrix developed in advance and revised periodically. With this matrix, it will be possible to design learning paths that incorporate, in a balanced manner, all of the skills to be developed, preventing users from designing paths that only include some of those skills.

[33] https://www.unesco.org/en/articles/flexible-learning-pathways-more-relevant-future-all.

3.30 **Risk: The training curriculum is not relevant or adequate.** It is vital for the training curriculum to be relevant and adequate for users and/or organizations. Otherwise, workers may end up not being able to connect what they learn through the platform with what they need at work. This lack of relevance and adequacy between the content and the reality of workers might negatively impact the upskilling and reskilling objectives presented in this project. **Mitigation action:** Place workers and their organizations at the center of the development process for training programs, both for initial curriculum design and to obtain feedback during their participation. Through participatory design methodologies, the AcelerIA project can adjust potential mismatches between the content to be covered and worker expectations.

3.31 **Risk: Exclusion and lack of transparency.** Using usability metrics in the platform to create new training paths might cause a risk connected to having a content personalization system that ends up prioritizing a certain type of user. This would result in a situation where the training paths are unfair, exclusionary, and lack transparency, instead of being a solution that prioritizes the most vulnerable workers with respect to income, gender (women), and age (older adults). For example, if the first users of the platform work in the tourism and restaurant sector, the personalization of content results might result in a more satisfactory experience for workers in that same sector and a more limited experience for other workers. **Mitigating action:** Conduct detailed diagnostic assessments of these potential biases, analyzing the profiles of users who are registered and active on the platform and the way that they use the platform. These diagnostic assessments ensure that the project follows the digital principles and the artificial intelligence principles of the Organisation for Economic Co-operation and Development, also followed by the fAIr LAC initiative.

3.32 **Diagnostic assessment of integrity and institutional capacity.** The diagnostic assessment of integrity and institutional capacity showed a low risk level under the various dimensions analyzed. The executing agency is governed by the procurement procedures for the public sector (Consolidated Code of Accounting and Financial Management (TOCAF)).

3.33 **Integrity.** The project team, with assistance from the Office of Institutional Integrity (OII), conducted an integrity due diligence review of the project and did not identify any integrity or reputational risks for IDB Lab that warrant disclosure.

3.34 **Responsible management of technology, data governance, and artificial intelligence.** IDB Lab supports the fAIr LAC initiative, which promotes the ethical and responsible adoption of new data-intensive technologies and/or technologies that incorporate artificial intelligence in the region. As part of this initiative, IDB Lab has established a process to identify and mitigate the risks of artificial intelligence based on tools for ethical self-evaluation for entrepreneurs and determination of the risk level of a solution proposed based on the technology used, the sector where it operates, and the populations that it serves or benefits. The tools that IDB Lab designed through fAIr LAC serve as an input for entities and entrepreneurs in the region to analyze their automated decision models and systems and practices for data processing and privacy protection for consumers and users, in order for these to follow international good practices and standards. As a result, entrepreneurs can minimize the risks of their projects for vulnerable groups while

generating value added for the business model by strengthening its reliability and soundness, increasing their opportunities for access to markets.

3.35 This entity agrees to contribute to the general purpose of the initiative, as well as to undertaking the ethical self-evaluation of artificial intelligence and sharing relevant information about the development and use of artificial intelligence in its own solution, in order to conduct a risk assessment to identify the steps to follow, establish measures for risk monitoring and mitigation, and, if applicable, receive recommendations on the ethical use of artificial intelligence.

3.36 The executing agency agrees to adopt the principles of digital development and implement the recommendations prepared by the IDB Lab team, if applicable. It also agrees to monitor and share the results of the project periodically, to *identify* early any sensitive considerations with respect to data management and privacy, and to communicate this quickly to the Bank, in order to adopt in a timely manner the risk mitigation measures that are considered necessary by mutual agreement.

IV. INSTRUMENT AND PROPOSED BUDGET

4.1 The project has a total cost of US$1,500,000, of which US$750,000 (50%) will be provided by IDB Lab and US$750,000 (50%) by the local counterpart.

4.2 The instrument to be used is technical cooperation, since the project will include work to develop a new ecosystem for capacity-building, so workers can weather the transformation processes triggered by artificial intelligence.

Budget (US$)

Project components	IDB Lab	Counterpart	Total
Component I	542,900	327,800	870,700
Component II	29,500	64,500	93,900
Component III	135,700	80,600	216,300
Project management	41,900	233,000	274,900
Contingencies	0	20,000	20,000
Total	750,000	750,000	1,500,000
% of financing	50	50	100

V. EXECUTING AGENCY AND IMPLEMENTATION STRUCTURE

A. Description of the executing agency

5.1 The Universidad Tecnológica del Uruguay (UTEC) will be the executing agency for the project. UTEC is a public autonomous university created under Law 19,043 of 2012. Its mission is to perform tertiary, university-level teaching activities, research, innovation, and establish connections associated with technology in the various regions of Uruguay.

5.2 UTEC was designed to promote development with equity in various regions of the country, expanding access to university education and promoting research and innovation. This university educates creative professionals and entrepreneurs with

a deep ethical and social commitment, focused on technological innovation and improving social and technical processes. Closely connected with the productive and services sectors, UTEC is financed through government contributions, agreements with the productive sector, donations, and service delivery. UTEC currently has 13 locations in 11 departments and a student body consisting of 3,580 students from 235 cities and towns, 84% of them the first generation in their families to attend college. Of its infrastructure, 98% is outside Montevideo's metropolitan area.

5.3 Since its foundation, UTEC has shown that it is a strategic and effective partner for the IDB Group, implementing various programs and projects, among which the following are noteworthy: UR-T1115 (ATN/KP-14561-UR), Support for the Implementation of the Technological University (UTEC), with the Korea Poverty Reduction Fund; UR-T1141 (ATN/KK-16332-UR) Support for Developing a Master Plan for a TECHNOPARK in Rivera's UTEC Campus; and UR-L1150 (4658/OC-UR), Uruguay Global: Promoting Digital Skills for Internationalization - Ordinary Capital. Flexible Financing Facility.

5.4 UTEC's organizational capacity and experience in the management of educational and technological projects support its role as the main executing agency for this initiative, as demonstrated by its personnel who will manage this operation:

a. Ezequiel Alemán. Adjunct professor and director of the Instituto Tecnológico Regional Este of UTEC. Doctorate in Educational Technology and Human-Computer Interaction from Iowa State University (2019-2023). Fulbright Scholar. With more than 15 years of professional experience in technology education, he holds a Master's in Learning, Technology, and Education from the University of Nottingham. He has led projects to design learning experiences related to digital literacy, creativity, games, and young people's identity.
b. Juan Marrero. Director of the Centro de Transformación Digital of UTEC, where he leads strategies for digital transformation. He has more than 11 years of experience in the field of technology and innovation, leading the development of advanced technological solutions. He also has experience in the fields of artificial intelligence, digital experience design, and leadership of multidisciplinary teams.
c. Belén González. She was executive director of TECHO and Knowledge Hub coordinator at MIT CoLab in Colombia. She holds a Master of Science in Sustainable Development from the University of Sussex. She also holds a postgraduate degree in Urban and Regional Development from the Massachusetts Institute of Technology (MIT) and an Advanced Diploma in Gender and Climate Change from CLACSO. Currently, she is a consultant for UTEC.
d. Álvaro Pena. Adjunct on Strategic Transformation and Global Futures for the Central Management Board of UTEC. Professor for the Innovation Postgraduate Degree at Universidad ORT. He previously worked at the Accelerator Labs of the United Nations Development Programme (UNDP), and was a researcher at the Institut Pasteur of Montevideo, applying data science and natural language processing to the study of rare infectious diseases. He holds a Master's in Bioinformatics from UDELAR and a Diploma in Innovation Management from UPV in Spain. He has more than 10 years

of experience with education, technology, and territorial development programs at UDELAR, Plan Ceibal, and UTEC.

B. Structure and implementation mechanism

5.5 UTEC will establish a project execution unit (PEU) and the structure necessary to execute project activities and administer project resources efficiently and effectively. It will also be responsible for submitting progress reports on implementation of the project. This unit will be composed of a multidisciplinary team of experts dedicated to ensuring the achievement of the project's objectives. The PEU will be led by the director of the project, who will supervise all of the activities and serve as the main point of contact with IDB Lab and other essential stakeholders. The team will also have a coordinator; a specialist responsible for financial and administrative management and other operational duties; and a marketing and communication specialist, who will lead the project's promotion and dissemination. In addition, the unit will have a consultant for evaluation and monitoring, responsible for the ongoing monitoring of the project's progress and evaluation of the results achieved. The members of the PEU will be selected through competitive processes, ensuring that the team consists of individuals who are highly qualified in key areas such as education, technology, and project management.

5.6 UTEC has agreed to promote an inclusive and participatory environment throughout all phases of the project, ensuring that both experts and beneficiaries contribute to the feedback process and development of project activities.

5.7 A project advisory committee will be established, including representatives from UTEC, IDB Lab, and other experts in the technology industry and academia. This committee will play a vital role in making strategic decisions and will ensure that the project is aligned with public policy and the demands of the labor market.

5.8 IDB Lab will play an active role in the project's governance and technical support, particularly for the components related to project development. IDB Lab's experience with other initiatives such as fAIr LAC, involving innovation and development of digital skills, will be essential to the project's success, contributing its technical knowledge and resources for the implementation of key activities. The organization's cooperation will ensure the implementation of effective monitoring and evaluation practices, essential in measuring the project's impact on participants and the transformation of the educational and employment outlook related to artificial intelligence.

5.9 An independent external evaluator will verify fulfillment of the results, ensuring transparency and accountability in project execution.

VI. Fulfillment of Milestones and Special Fiduciary Arrangements

6.1 **Results-based disbursement and fiduciary arrangements.** The executing agency will adhere to the standard IDB Lab arrangements on results-based disbursements, and to the Bank's procurement policies and financial management guidelines.

6.2 Disbursement amounts for the project will be determined according to its liquidity requirements, as agreed upon by IDB Lab and the executing agency, and will be conditioned on verification that the milestones, activities, and costs scheduled in the annual planning exercise were achieved. Fulfillment of milestones will not exempt the executing agency from the responsibility of attaining the agreed-upon results.

6.3 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 be able to review the technical elements of the procurement processes it deems necessary on an ex ante basis, particularly those that are considered critical.

6.4 The executing agency will submit to the Bank **its audited annual financial statements.** With resources from the contribution, the Bank may review the financial statements and the use of the resources for the project, verifying financial, procurement, and integrity practices.

VII. ACCESS TO INFORMATION AND INTELLECTUAL PROPERTY

7.1 **Access to information.** The information contained in this document will be classified as public upon its approval by the Donors Committee, pursuant to the Bank's Access to Information Policy.[34]

7.2 **Intellectual property.** The intellectual property of all the work and results obtained under the project will be the property of the executing agency. The executing agency will grant the Bank an irrevocable, global, perpetual, free, and nonexclusive license to use, copy, distribute, reproduce, display, and publicly perform any proprietary product of the executing agency resulting from the project's execution, as well as to develop derivative works, except for the adaptive learning platform. The executing agency guarantees to the Bank that the project execution does not and will not violate the rights of third parties, and agrees to undertake all the activities necessary for the Bank to be able to exercise the rights mentioned herein without limitations.

7.3 The Bank may disclose, reproduce, and publish any information associated with the project and include in this information the name and logo of the executing agency.

[34] Link to the Access to Information Policy.