

TC Document

I. Basic Information for TC

▪ Country/Region:	TRINIDAD AND TOBAGO
▪ TC Name:	Driving Economic Dynamism through Tech Transfer in Trinidad and Tobago
▪ TC Number:	TT-T1138
▪ Team Leader/Members:	Dohnert De Lascurn, Sylvia Eva (IFD/CTI) Team Leader; Grant, Kayla Sharee (IFD/CTI) Alternate Team Leader; Agostini, Dorri Michelle (CCB/CTT); Lewis, Alix (CCB/CTT); Louis-Grant, Paula (VPC/FMP); Maria Alejandra Galeano (IFD/CTI); Mayrett Sierra (IFD/CTI); Sara Vila Saintetienne (LEG/SGO); Thomas, Stephen (INO/FLI); Dookiesingh, Vashtie Kookiesingh, Vashtie K. Dorri Michelle (CCB/CTT); Brathwaite, Neece N. (CCB/CTT); Lewis, Alix (CCB/CTT); Louis-Grant, Paula (VPC/FMP); Maria Alejandra Galeano (IFD/CTI); Sara Vila Saintetienne (LEG/SGO); Thomas, Stephen (INO/FLI); Dookiesingh, Vashtie
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	10 Mar 2023.
▪ Beneficiary:	Trinidad and Tobago
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Knowledge Partnership Korea Fund for Technology and Innovation(KPK)
▪ IDB Funding Requested:	US\$150,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	36 months
▪ Required start date:	July 2023
▪ Types of consultants:	Individuals and Firms
▪ Prepared by Unit:	IFD/CTI-Competitiveness, Technology and Innovation Division
▪ Unit of Disbursement Responsibility:	CCB/CTT-Ctry Off Trinidad & Tobago
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	Yes
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation; Institutional capacity and rule of law

II. Objectives and Justification of the TC

- 2.1 **Objective.** The objective of this TC is to strengthen the capacity of the University of the West Indies (UWI) St. Augustine, to stimulate tech transfer in a way that dynamizes the economy of Trinidad and Tobago. The specific objective is to support the UWI to produce and broker research, development and innovation outputs that are utilized and scaled up by private counterparts.
- 2.2 Globally, universities are playing an increasing role in innovation, as companies choose to license research from universities rather than carrying out their own.¹ A sophisticated entrepreneurship and innovation eco-system requires mechanisms to

¹ Global Innovation Index 2022: What is the future of innovation-driven growth? World Intellectual Property Organization.

encourage knowledge generation and diffusion. Trinidad and Tobago scores very low (104th out of 132 countries) in terms of Innovation linkages, specifically university-industry Research and Development (R&D) collaboration (107th), although the UWI is ranked in the top 4% of universities worldwide², Trinidad and Tobago has many new businesses are created relative to the population (32nd), it has a relatively high proportion of high tech exports as a % of total trade (62nd), a high proportion of PCT patents (74th), and a relatively high degree of production and export complexity (51st in the world).³

- 2.3 The UWI St. Augustine campus in Trinidad and Tobago has a trajectory of R&D in engineering; and has also produced innovations in the social sciences, natural sciences, and agriculture. This Research, Development and Innovation (R&D&I) activity has resulted in valuable Intellectual Property (IP) (both protected and as trade secrets) that UWI has not yet commercialized. Some examples of research produced by the university with potentially high demand uses by industry are: (i) Carbon capture storage at Point Lisas;⁴ (ii) Microbial breakdown to treat oil spills/contamination; and (iii) Antibiotic Adjuvants.⁵
- 2.4 The UWI St. Augustine campus has strengthened its IP policy, which is awaiting approval by the university governing bodies. The UWI also has Standard Operating Procedures (SOP) for commercialization of university generated IP. Both the IP policy and the SOP have benefitted from technical assistance from the World Intellectual Property Organization (WIPO). As part of these strengthening efforts, the WIPO has provided UWI with training on IP, and UWI now has 5 WIPO certified IP assessors, whose skills will become invaluable in the IP agreements that this TC is hoping to foster between the university, researchers and the private sector.⁶ One aspect of this IP support was the recently launched “Appropriate Technology Competition” – a partnership between WIPO, the Korean Intellectual Property Office (KIPO), UWI and the Government of Trinidad and Tobago Intellectual Property Office. Through this competition, applicants had to use patent information to identify potential applications of IP in the Trinidad and Tobago context. This WIPO support has enhanced management of IP and raised awareness of the importance of IP and opportunities for commercialization, upon which this project will build on.

² <https://sta.uwi.edu/world-rankings/>

³ Ibid.

⁴ Point Lisas is Trinidad and Tobago’s industrial park, which has high carbon emissions related to ammonia and other high carbon content intensive processes. The existence of this complex makes Trinidad and Tobago rank second in the world in per capita production for carbon emissions. UWI is working on how to capture this carbon and sequester it in end-of-life, on-shore wells.

⁵ These antibiotic adjuvants would help patients use regular antibiotics and bypass the defenses of antibiotic-resistant bacteria. It has been genetically engineered by UWI and could potentially be a billion-dollar pharmaceutical product.

⁶ UWI St. Augustine already diffuses knowledge for public sector work, as evidenced by the genome sequencing capabilities that the university developed during COVID-19, [becoming the only entity in CARICOM able to do genome sequencing, and providing this service to 16 Caribbean countries](#) during the pandemic.

- 2.5 UWI has established a St. Augustine Center for Entrepreneurship and Innovation (STACIE)⁷ to promote innovation, fund research, and foster entrepreneurship. STACIE is keen on expanding the generation of commercially valuable R&D&I outputs and strengthening the links between UWI and the Trinidad and Tobago private sector through licensing and knowledge transfer. STACIE manages the UWI's Research and Development Impact (RDI) Fund, the Innovation and Technology Transfer (ITT) Fund, the Intellectual Property Help Desk, and works with other university offices, like the University Office of Research and the University Office of Global Partnerships and Sustainable Futures to find and access opportunities for external funding to support the work of UWI researchers.
- 2.6 The UWI St. Augustine campus has also established a venture capital (VC) company (UWI Ventures Limited, or UVL) to scale-up university spinoffs or other knowledge-based entrepreneurship ventures in Trinidad and Tobago, for which it is seeking strong private sector partnership. The existence of this venture capital company in Trinidad and Tobago is an exciting development for the entrepreneurship and innovation ecosystem, as no other VC fund currently exists in the English-speaking Caribbean countries, severely limiting the capability of private sector driven, innovative projects to scale.⁸ UVL has started engaging with some Trinidad and Tobago funds and local companies to raise investment.
- 2.7 The expected outcome of the project is increased tech transfer capabilities by the UWI St. Augustine. Measurement of this outcome is related to the number of private sector companies engaged in tech transfer activities with the UWI, the number of solutions being considered by the private sector for tech-transfer, and the number of university staff participating in tech transfer activities.
- 2.8 In its efforts to identify tech transfer opportunities aligned to its engineering and life science capabilities, STACIE has approached the Center for Excellence for the Caribbean energy transition and identified a preliminary list of technology development initiatives, each of them backed by private sector companies: developing the hydrogen economy, waste to energy/bioenergy/biomethanol, data analytics/optimization/data science for the energy sector, integrating renewables into the regional energy ecosystem, low carbon transportation, carbon credits and carbon markets. UWI STACIE wants to position itself to develop and broker solutions for these initiatives, without excluding the possibility of working on other sectors that may be identified during implementation of this project. UWI STACIE has also met with [ConnectBogota](#) to learn from their experience developing tech transfer opportunities in the life sciences industry and is interested in following their tech transfer model.⁹

⁷ [St Augustine Centre for Innovation and Entrepreneurship | St. Augustine Centre for Innovation and Entrepreneurship \(uwi.edu\)](#)

⁸ Another VC fund is being established by the Development Bank of Jamaica, with support from the IDB operation "Boosting Innovation, Growth and Entrepreneurship Ecosystems in Jamaica".

⁹ [ATN/OC-17073-CO](#)

- 2.9 **IDB Group Complementarities.** This project would strategically build on the Shaping the Future of Innovation program ([GRT/ER-17966-TT](#) and [ATN/ME-17852-TT](#)) and directly complements digital skills building efforts such as [ATN/OC-19342-TT](#). Additional complementarities may exist with [ATN/OC-19299-TT](#) (Support to the digital connectivity strategy in Trinidad and Tobago, to the extent that the tech transfer solutions utilize the ICT infrastructure), currently being implemented. The project will draw on and complement the studies related to intellectual property valuation in the digital economy and mission-oriented innovation currently being completed by the UWI under [ATN/OC-19078-TT](#) (Digital Innovations for Sustainable Environmental and Economic Recovery in Trinidad and Tobago).
- 2.10 This TC is consistent with the Second Update to the Institutional Strategy 2020-2023, by promoting technology and innovation through increased private sector adoption of technological solutions, and enhancing Institutional Capacity and the Rule of Law, through increased capacity of the UWI St. Augustine to foster tech transfer. The TC is also aligned with the objective of the Knowledge Partnership Korea Fund for Technology and Innovation (GN-2374-1(7/05)) by enhancing Trinidad and Tobago's capacity to generate science, technology and innovation related projects, and strengthening the performance of the national innovation system. This TC is aligned with the 2021-2025 Country Strategy for Trinidad and Tobago (GN-2888) as it aims to support the digital transformation agenda to achieve more sustainable and inclusive growth by way of supporting a digital friendly business environment. The project contributes to the IDB's Corporate Results Framework (GN-2727-12) through the following indicators: projects supporting productivity and innovation (% of new approvals/commitments), and support for small and vulnerable countries (%).
- 2.11 This TC also aligns with and supports the goals of the GORTT's Vision 2030: National Development Strategy of Trinidad and Tobago 2016 – 2030 of: (i) putting people first; (ii) building globally competitive businesses; and (iii) placing the environment at the center of social and economic development. The TC also aligns to and will contribute to the United Nations Sustainable Development Goals as follows: (i) #9 Industry, Innovation and Infrastructure, specifically target 9.5 "Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per one million people and public and private research and development spending"; and (ii) target 9.B "Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities". Tech-transfer is a disciplined method of knowledge transfer – in that regard, the project also aligns with the objective of supporting activities to generate and disseminate knowledge to accelerate sustainable development in the Caribbean, as outlined in the most recent Memorandum of Understanding (MOU) signed between the IDB, IDB Invest and the UWI, dated December 2021.

III. Description of activities/components and budget

3.1 Component 1. Develop an enhanced model for Tech Transfer (US\$120,000).

Using an open innovation model, this component will support the UWI in experimenting with a methodology for tech transfer that has proven successful in similar contexts and that can become a backbone for its new R&D&I strategy. The project will support the UWI to identify and codify technology problems/needs highly sought by the Trinidad and Tobago private sector, and in scouting and supporting the brokering of technology solutions for those problems. The project will provide IP protection and negotiation support for the relationship between the technology user (also called problem owner) and the technology provider (also called solutions provider). Envisioned results are: (i) a clear identification of critical problems that need to be addressed in the private sector, and their problem owners; (ii) an enhanced role for UWI in producing and/or brokering solutions for those problems from either internal R&D&I that has already resulted in potential solutions, or from external solutions providers; and (iii) one or more R&D&I partnerships between solutions providers and their private sector problem owners. The component will finance technical advisory services so that the UWI can complete: (i) a call for technology problems and related problem owners; (ii) a call for solutions to those problems and related solutions providers; (iii) an online resource database that codifies the information gathered from the problem owners and from the potential solutions providers; (iv) a matchmaking round to introduce problem owners to potential solutions providers; (v) IP advisory services to complement UWI's own internal IP team, to accompany the IP aspects of the negotiations between problem owners and their preferred solutions providers. The UWI will conduct workshops, communication and dissemination activities to achieve the outreach necessary to carry out the activities of this component.

3.2 Component 2. Financing spinoffs and scale-ups (US\$30,000). This component will support the capacity of UWI Ventures Limited to attract venture capital investments and identify fundable projects. Following on lessons learned from other attempts at equity financing in the Caribbean, the project will support UVL in developing an investment valuation model that can help both founders and potentially funded start-ups reach consensus on how to value the start-up and the equity funders' contribution. In the past, disagreements in valuation between equity funds and potentially financed entrepreneurs/companies throughout the Caribbean have led to few Caribbean businesses being financed.

3.3 Budget: The total cost of the TC is US\$150,000 to be financed with resources of the Knowledge Partnership Korea Fund for Technology and Innovation (KPK) to be executed and disbursed up to 36 months.

Indicative Budget (US\$)

Activity/Component	Description	IDB/Fund Funding	Total Funding
Component 1	Developing an Enhanced Model for Tech Transfer	120,000	120,000
Component 2	Financing Spinoffs and Scale-ups	30,000	30,000
Total		150,000	150,000

IV. Executing agency and execution structure

- 4.1 **Executing Agency.** The execution of this TC will be carried out by the Competitiveness, Technology and Innovation Division (IFD/CTI) of the IDB, in close coordination with the University of the West Indies, at the explicit request of the Government of Trinidad and Tobago. Currently, the UWI STACIE does not have the technical capacity to duly and timely execute the activities provided in the respective project, the intention of the project is precisely to develop this technical capacity. As per OP-619-4, Annex II, C 2.2, the Bank is the proposed executing agency.
- 4.2 **Execution.** The execution and disbursement period will be 36 months and the unit of disbursement responsibility will be the Trinidad and Tobago Country Office through its designated focal point. IFD/CTI will have overall responsibility for the direction, supervision, coordination, and evaluation of this TC through the Team Leader. A final independent evaluation to identify lessons learned will be carried out at the end of the project.
- 4.3 **Procurement.** The activities to be executed will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual consultants; (b) GN-2765-4 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature; and (c) GN-2303-28 for logistics and other related services.

V. Major Issues

- 5.1 There is a risk that the UWI loses control of IP ownership generated by the R&D&I activities to the problem owners. The mitigation strategy is proper legal advice from the beginning of the problem owner/solution provider relationship on the distribution of IP and its benefits. The UWI's strong relationship with Trinidad and Tobago's Intellectual Property Office (TTIPO) will be an asset in this situation.
- 5.2 Gaining the trust of the private sector may be a challenge that may result in insufficient response to a call for problems. The project will provide support to UWI to train a vanguard outreach team that will proactively identify opportunities to potential problem owners, deliver key messages, and conduct follow-up, to create an attractive portfolio of problems.
- 5.3 The inability of indigenously sourced solutions to satisfy the expectations of the problem owners is a reputational risk for the UWI. The mitigation strategy is to open the call for solutions to international participants if they partner with a domestic entity to provide the solution, thus embedding capacity in the Trinidad and Tobago economy.
- 5.4 There is a reputational risk that the solutions facilitated by the UWI are ineffective, causing a loss of confidence by problem owners. This risk is going to be mitigated by involving the UWI in an advisory/brokerage capacity, presenting to each problem owner at least 3 solutions and leaving the selection of the solution to the problem owner. The UWI will also conduct tracer studies in terms of the effectiveness of the solution every 6 months to evaluate the effectiveness of different profiles of solutions providers (scale, level of experience, geography, etc.), to refine its process of finding ideal solutions providers.

- 5.5 Sustainability after the end of the project is a risk. The UWI wants to make sure that the enhanced tech transfer model established persists beyond the project, to generate momentum and produce higher-level results. The mitigation strategy is to identify the value proposition for the two different types of beneficiaries (problem owners and solution providers) and how each one of them perceives value, and the potential revenue streams that can produce a business model for sustainability for UWI, so that it can operate sustainably.

VI. Exceptions to Bank policy

- 6.1 No exceptions to Bank policy are required for this TC.

VII. Environmental and Social Strategy

- 7.1 This TC will not finance feasibility or pre-feasibility studies of investment projects with associated environmental and social studies. Therefore, it is excluded from the scope of the Bank's Environmental and Social Policy Framework (ESPF).

Required Annexes:

[Request from the Client - TT-T1138](#)

[Results Matrix - TT-T1138](#)

[Terms of Reference - TT-T1138](#)

[Procurement Plan - TT-T1138](#)