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MULTILATERAL INVESTMENT FUND

# TRINIDAD AND TOBAGO

# BRIDGING THE GAP TO COMMERCIAL APPLICATION OF INNOVATION

**TT-T1073**

**DONORS MEMORANDUM**

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**PROJECT SUMMARY**

**TRINIDAD AND TOBAGO**

**BRIDGING THE GAP TO COMMERCIAL APPLICATION OF INNOVATION**

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The key problem to be addressed is the low level of innovation exhibited by enterprises and entrepreneurs in Trinidad and Tobago, which is a constraint to economic growth and competitiveness. Recent analysis of innovation in Caribbean firms conducted by the IDB,[1] concludes that the lack of innovation demonstrated by Caribbean firms is concentrated in the Small and Medium Enterprises (SME) segment of firm populations, as these firms lack in house capacity, systems and knowledge to develop and commercialize innovations.

The proposed intervention seeks to bridge this gap to commercial application of innovation through the adaptation and implementation of an Innovation Advisory Services (IAS) model originally developed by the Danish Technological Institute. The program will engage participants (SMEs and individuals) to develop innovations in business models, goods, services and technologies via a structured process including: (1) proof of novelty, (2) definition of the intellectual property, (IP) asset inherent in the innovation, (3) development of the business value proposition, (4) assessment of market demand,(5) rapid *pretotyping* (as opposed to traditional prototyping) to demonstrate functionality, and (6) commercialization via startup or in-house commercialization by program participants, or via sale/licensing to larger commercial enterprises. In the latter case, the program provides trusted intermediation between inventors/innovators and established firms that may be interested in the acquisition or licensing of an innovation for commercialization. In this way, innovators realize an economic return, and larger, established firms can access a pipeline of innovations for commercial application. The path to commercialization is fast tracked, as firms acquiring rights to innovations, typically have the capital base, infrastructure and channels needed for roll out, which start-ups often lack. The proposed project is expected to engage 740 individuals and 50 SMEs in developing and commercializing innovations over a 3-year period.

The IAS programme responds to specific challenges in supporting innovation as identified in IDBG Country Strategy 2016-2020. The IDBG Country Strategy for the Republic of Trinidad and Tobago highlights support for private sector development as one of three core areas for IDBG strategic intervention and support. Furthermore, the Country Strategy makes specific reference to initiatives that will assist companies to achieve productivity gains through investments in innovation and adoption of modern business practices, an approach that is directly aligned with the proposed project design.

[1] Engine of Growth? The Caribbean Private Sector Needs More than an Oil Change, Inder Ruprah and Ricardo Sierra, IDB Country Department Caribbean, 2016 pp 123-133

## ANNEXES

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **CARIRI** | Caribbean Industrial Research Institution |
| **CED** | Centre for Enterprise Development |
| **DNA** | Diagnostic of Executing Agency Needs |
| **DTI** | Danish Technology Institute |
| **FABLAB** | Fabrication Laboratory |
| **IAS** | Inventor Advisory Services |
| **ICT** | Information and Communications Technology |
| **IDB** | Inter-American Development Bank |
| **IDBG** | Inter-American Development Bank Group |
| **IGAP** | Innovation Gap Analysis |
| **IIC** | Inter-American Investment Corporation |
| **IP** | Intellectual Property |
| **IPO** | Intellectual Property Office |
| **i2i** | Ideas to Innovation |
| **MIF** | Multilateral Investment Fund |
| **R&D** | Research and Development |
| **RTO** | Research and Technology Organization |
| **SME** | Small and Medium Enterprises |
| **TTO** | Technology Transfer Office |
| **TTS** | Technology Transfer Services |
| **UWI** | University of the West Indies |
| **WAITRO** | World Association of Industrial and Technological Research Organizations |
| **WEF GCR** | World Economic Forum Global Competitiveness Report |

**PROJECT INFORMATION**

**TRINIDAD AND TOBAGO**
**BRIDGING THE GAP TO COMMERCIAL APPLICATION OF INNOVATION**
**(TT-T1073)**

| | | | |
|---|---|---|---|
| **Country and Geographic Location:** | Trinidad and Tobago | | |
| **Executing Agency:** | The Caribbean Industrial Research Institute (CARIRI) | | |
| **Focus Area:** | Knowledge Economy | | |
| **Coordination with Other Donors/Bank Operations:** | The project complements 2 existing Competitiveness, Technology and Innovation Division (CTI) operations in the country portfolio:<br>RG-T2536 Caribbean Regional Entrepreneurial Assets Commercialisation Hub (REACH)<br>And TT-T1054 Strategic Roadmap for Productive Development Policy in Trinidad and Tobago | | |
| **Project Beneficiaries:** | 50 enterprises operating in a range of economic sectors with sales of US $750K per annum or higher.<br><br>740 individuals via specific targeting of tertiary students and professionals from strategic sectors interested in, or in the process of, transition from full time employment to entrepreneurship | | |
| **Financing:** | Technical Cooperation: | US$ 992,000 | 46% |
| | **TOTAL MIF FUNDING:** | US$ 992,000 | 46% |
| | Counterpart: | US$ 1,151,500 | 54% |
| | Co-financing (if available; include a separate line for IDB Co-financing if applicable): | | 00% |
| | **TOTAL PROJECT BUDGET:** | US$ 2,143,500 | 100% |
| **Execution and Disbursement Periods** | The execution period will be 36 months with a 42-month disbursement period. | | |
| **Special Contractual Conditions:** | Special conditions precedent to first disbursement will be: (i) agreement for technical support and training in the IAS methodology from the Danish Technology Institute and (ii) Draft terms of Reference for Development of the IAS programme Licensing Framework. | | |
| **Environmental and Social Impact Review** | This operation was screened and classified as required by the IDB's safeguard policy (OP-703) on November 6, 2017. Given the project impacts and risks, the proposed category for the project is C. | | |
| **Unit responsible for disbursements** | Trinidad and Tobago Country Office (CTT) | | |

# I. The Problem

## A. Problem Description

1.1. The key problems to be addressed are the low level of innovation demonstrated by firms in Trinidad and Tobago, and the absence of a coordinated innovation ecosystem; two key factors that are constraints to economic diversification, growth and firm competitiveness. Recent analysis of innovation in Caribbean firms conducted by the IDB[2] concludes that, in comparison with firms in other small economies, the lack of innovation demonstrated by Caribbean firms is concentrated in the Small and Medium Enterprises (SME) segment of firm populations. The IDB study links this phenomenon to an absence of in-firm departments dedicated to innovation, as larger Caribbean firms with this capacity innovate at a similar level to firms in other small economies. The study further states that Caribbean countries do not differ significantly from other small economies in terms of their potential capacity for innovation, as measured by the quality of scientific research institutions, Research and Development (R&D) spending and other factors. Lower rates of innovation as exhibited by SMEs in Trinidad and Tobago are compounded by critical gaps in the innovation ecosystem and capital market development, which hinder the commercialization of innovations in goods, services and processes. Such gaps have developed in part, due to the country's high dependence on monetization of its nonrenewable energy resources, which has resulted in de-prioritization of a policy and financing focus on the non-energy sector. As the country faces a declining energy resource base, increased competition and depressed pricing for its energy commodities, the IDBG country strategy has identified diversification within the private sector as a critical lever of development. Based on analysis completed by the IDBG's Competitiveness, Technology and Innovation (CTI) division in Trinidad and Tobago 2015-2016, there is a need to focus on the commercialization of innovation as a key driver of both economic diversification, firm competitiveness and growth.

1.2. The 2016-2017 World Economic Forum Global Competitiveness Report (WEF GCR) highlights innovation and business sophistication as key drivers of diversification and competitiveness, particularly in the context of the Fourth Industrial Revolution[3]. However, the creation of an innovation, knowledge driven economy demands that critical gaps in the innovation eco-system, which constitute hindrances to the achievement of the desired developmental outcomes, be addressed[4]. These shortcomings are reflected, at a macro level, in the country's ranking in the latest editions (2015-2016 and 2016-2017) of the WEF GCR, in which Trinidad and Tobago's ranking in innovation were 89/144 countries and 105/138 respectively, despite the country's categorization as an innovation driven economy. Among the pertinent shortcomings in Trinidad and Tobago are the following: **(**1) inadequate level of knowledge and experience in the area of technology transfer/commercialization;(2) bias of existing support systems towards firm creation reflecting a tendency to equate

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[2] Ibid

[3] The World Economic Forum describes the fourth industrial revolution as a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres: The Fourth Industrial Revolution

[4] Assessment of the national innovation system of Trinidad and Tobago Final Report Jean Guinet September 2014

innovation with entrepreneurship;[5] (3) limited awareness of the importance of, and general underutilization of Intellectual Property Rights as a tool in the economic development process; and (4) underdevelopment of capital markets, in particular, avenues for financing research and development and business start ups. These gaps have also been identified as factors contributing to low levels of investment by SMEs in Trinidad and Tobago relative to the region.[6] In addition, a recent (2016) IDBG study characterizes a significant segment of established firms in the private sector of Trinidad and Tobago as mature and/or declining. These entities require innovations to reinvent themselves, but the human, financial and technical resources, and the innate capacity to innovate, may be lacking in enterprises in the late stage life cycle. To stay competitive, one option is to leverage technology transfer from universities and other inventors via outright acquisition or licencing of innovations for commercialization; another is to accelerate innovation processes with dedicated technical support, but Trinidad and Tobago currently lacks programs and institutions that can facilitate such investment.

1.3. The direct beneficiaries of the proposed project will be: (i) dynamic startups / micro-enterprises with high potential to grow through innovation; (ii) SMEs that are seeking to innovate, but have no in-house capacity and systems to guide this process; (iii) individuals with innovative ideas for business models, products and services that are seeking to develop these ideas to the point that they can be operationalized in a new commercial enterprise, or monetized through a process of licensing or sale; and (iv) building on the previous grouping, larger firms that are seeking to acquire and operationalize innovations. In the context of Trinidad and Tobago, micro-enterprises are characterized as firms with 1-5 employees, and SMEs are firms with 6-50 employees and sales of up to US $1.5 M[7]. Outside of Trinidad and Tobago's energy and financial sectors, micro-enterprises and SMEs dominate the local business landscape. For the Caribbean region as whole, the Association of Caribbean States estimates that SMEs account for approximately 45% of employment[8]. In engaging SMEs as participants in the proposed project, a multi-sectoral approach will be adopted, targeting firms with annual sales of US $750K or higher, but with preference given for existing exporters or enterprises pursuing export.

1.4. Founded in 1970, the Caribbean Industrial Research Institute (CARIRI), is the country's primary agency with responsibility for developing Trinidad and Tobago's technological base, and will be the Executing Agency for the project. CARIRI is governed by a board drawn from the University of the West Indies, the private sector and government, and is headed by a CEO with over 20 years' experience, and a track record of leadership in business development, technology and innovation. CARIRI houses multimillion dollar modern laboratories with state-of-the-art equipment, and is supported by a cadre of highly trained specialist professionals, technologists,

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[5] Ibid

[6] Are Oil and Gas Smothering the Private Sector in Trinidad and Tobago, Jeetendra Khadan IDB Publications 2016

[7] Official definition of SMEs for Trinidad and Tobago (central Statistical Office) categorize small enterprises as firms with 6-25 employees and sales up to TT $5M (approximately US $735,000) and medium enterprises as firms with 26-50 employees and sales up to TT $10M (approximately US $1.5M)

[8] Research on Small and Medium Enterprises in The Greater Caribbean

technicians, and researchers. The organization is widely recognized as a trusted provider of value added technical services and business solutions to industries and firms in the region. Originally established to deliver technical quality and metrology to private firms, over the years, CARIRI has evolved to develop and implement a range of additional services, including establishment of a Caribbean Food Safety Centre, an Information Communication and Technology (ICT) support program for SMEs, and a Centre for Enterprise Development. CARIRI is a well-established Research and Technology Organization (RTO), deriving at least 40% of annual revenue from commercial delivery of services to the local and regional private sector, and has an excellent reputation for the delivery of technical and technology-based support services to the manufacturing and services sectors. In addition, as a founding member of the World Association of Industrial and Technological Research Organizations (WAITRO), as well as acting as regional WAITRO co-ordinator for Latin America and the Caribbean, CARIRI has engaged and leveraged regional and international partnerships in knowledge transfer and capacity building. CARIRI has successfully collaborated with the Multilateral Investment Fund (MIF), the European Union, the World Bank, Microsoft Caribbean, and Digicel (the regional telecommunications provider) in the successful implementation of previous technical co-operation projects centered on innovation. CARIRI has defined innovation and "creativity applied", and has invested in a series of annual surveys to assess the key drivers behind low levels of innovation demonstrated by SMEs in Trinidad and Tobago. CARIRI's findings are that firms need technical support in the adoption and commercialization of innovations. In the absence of in-house resources dedicated to innovation, these enterprises must look externally for innovative ideas and solutions for new products, processes and services to maintain and sustain competitive advantage in an increasingly competitive domestic and regional market space. As a key RTO in Trinidad and Tobago and the Caribbean region, CARIRI has invested resources in identifying a practical and scalable solution to accelerating innovation of SMEs.

## II. The Innovation Proposal

### A. Project Description

2.1. The project objectives are (i) to support local enterprises to apply innovation for increased competitiveness and sustainability; and (ii) to support individuals and firms in the development and monetization/commercialization of business innovations.

2.2. The solution proposed by CARIRI involves building capacity in Technology Transfer Services (TTS). As a national leader in efforts to promote commercial applications of innovation, CARIRI has experience in managing Trinidad and Tobago's ideas to innovation (i2i) program[9] over 3 consecutive years. In this regard, CARIRI has recognized that persons developing innovative ideas, goods and services, do not always have the capacity, mindset and interest in commercialization. Moreover, even where they do, absence of access to seed and early stage funding are barriers to progress**,** which manifests itself in many ideas failing to achieve commercial application. In searching for a solution, CARIRI has turned to the Danish Technology

[9] i2i was a competitive call for innovative ideas where top ranked innovators received financial and technical support to move ideas to proof of concept. CARIRI expressed deep concern on the low level of commercialization that resulted, as the program assumed business startup to be the only route available

Institute (DTI), which is also a member of WAITRO to adapt DTI's highly innovative Innovation Advisory Services (IAS) programme to the Caribbean context. DTI's IAS programme was founded in 1972 and is a unique innovation scheme, offering support, advice and counselling to Danish citizens with inventive ideas; and to help these inventors commercialize their ideas via licensing and other financial arrangements with existing established companies[10]. In the Trinidad and Tobago context, this methodology will be adapted to provide a dedicated system of technical support to individual inventors, as well as firms seeking to innovate. CARIRI has already engaged in an initial partnership to contract DTI as a technical advisor for the provision of training, capacity building and coaching to CARIRI's team in adapting and piloting this service in the Trinidad and Tobago context[11]. The IAS programme supports persons with innovative ideas through an ideation process, via the provision of special expertise in idea validation, commercialization of intellectual property (IP) and licensing. CARIRI is now seeking financial support to fully operationalize and launch this service locally. The locally based IAS programme delivered by CARIRI can significantly contribute to the national innovation eco system, and will accelerate commercialization of innovation via: (i) business support and mentoring for innovative start-ups: (ii) technical support to SMEs seeking to innovate; and (iii) the medium of licensing or sale of innovations to established firms, providing inventors with financial returns, and firms with a pipeline of innovations that are ready for investment and commercial roll out.

2.3. The implementation of the Innovation Advisory Services (IAS) programme in Trinidad and Tobago, represents an important innovation in the national eco-system. The proposed intervention presents individual innovators and firms with (i) a structured process and access to technical expertise to refine and monetize innovative ideas; and (ii) partnerships with existing businesses to realize the commercialization of these ideas in delivery of new products and services; while (iii) addressing a market failure; and (iv) generating a pipeline of new ideas for firms within and even outside of the region. This approach will be the first initiative of its kind in the Caribbean, and offers a differentiated approach to driving innovation to commercial application, while complementing MIF's existing investments development of the innovation eco system in the region.

2.4. The proposed programme will include 3 key technical components as follows:

2.5. **Component I: Awareness Raising & Stakeholder Outreach (MIF $234,000, Counterpart $43,500)**

The objective of this component is to increase the pipeline of individual, dynamic microenterprise and SME applicants to the IAS programme, and to sensitize larger firms on the model for acquisition of innovations. CARIRI will develop targeted outreach programmes, including start-up weekends, ideation workshops, social media campaigns, and specific interventions in firms, to engage firm and individual participants in the programme. The intent of the outreach programme, is to recruit applicants with ideas in a range of sectors that are interested and committed to

[10] DTI reports that over the period 2000-2009, the accumulated effects of inventions commercialized through the IAS resulted in a turnover of roughly 370 million EUR and 1,000 fulltime equivalents

[11] The initial pilot attracted 215 applicants of which 70 are actively pursuing the core phase of IAS support with CARIRI

engaging in a structured programme to develop innovations in business models, and goods and services for commercial application. While the programme will be open to all citizens to ensure diversity and inclusion, specific pools of applicants to be targeted include students and recent graduates (to leverage Trinidad and Tobago's investment in increased tertiary enrollment which is currently at 60%), as well as transitioning professionals from sectors that have recently reduced employment due to the country's economic downturn, who are interested in leveraging their professional experience to develop and commercialize an innovation in their respective fields.

2.6. In addition, CARIRI will expand a current initiative to engage firms in an Innovation Gap (IGAP) Analysis. Over the past 3 years, CARIRI has conducted surveys of firms' intent to innovate in Trinidad and Tobago, and has initiated small scale interventions with targeted firms to assist them in defining technical and organizational gaps in their innovation capacity; barriers that can be overcome via participation in the IAS programme. Scaling this IGAP Analysis to a broader range of SMEs across Trinidad and Tobago will support the engagement of firms in CARIRI's IAS programme. To scale this intervention, CARIRI has already partnered with Export TT, the trade organization charged with supporting development and growth of firms that are currently exporting, or are pursuing export opportunities. Export TT has engaged CARIRI to conduct IGAP Analysis for high potential exporters as these firms are natural candidates for the IAS programme.

2.7. Through this combination of outreach activities, CARIRI is targeting the enrollment of 740 individuals and at least 50 SMEs in the IAS programme

2.8. Finally, this component will seek to sensitize potential investor/anchor firms that may be interested in acquiring innovations for commercialization as a strategy to expand/diversify existing business operations. While specific models to facilitate firm investment as buyers or licensors of innovations will require development of a licensing and corporate venturing models (to be developed in Component II), IAS workshops on the methodology and value addition for potential investor firms will be developed and delivered under Component I to build interest and support from the initial stages of the project.

2.9. **Component II: Adaptation & Delivery of IAS Programme (MIF $600,000, Counterpart $919,500)**

The objective of this component is to adapt and implement the DTI's IAS programme in the local business culture and context of Trinidad and Tobago. CARIRI will structure the delivery of the programme into two groups, core services and advanced / follow on services. The programme will support participants (firms and individuals with innovative ideas for business) via the following processes: (1) proof of novelty of the proposed innovation; (2) definition of the IP asset inherent in the innovation; (3) development of the business value proposition; (4) market demand assessment for the proposed innovation; (5) rapid ***pretotyping*** (as opposed to traditional prototyping) to demonstrate functionality; and (6) commercialization either via business support services, or sale/licensing to an existing commercial enterprise. In the latter case, the programme provides trusted intermediation between inventors/innovators and established firms that may be interested in acquisition or licensing of an innovation for commercialization. In this way, innovators realize an economic return, and existing firms can access a pipeline of innovations for commercial application. The path to commercialization is fast tracked, as firms acquiring rights to innovations typically

have the capital base, infrastructure and channels required for roll out and scaling, which start-ups often lack. In Component II DTI will be retained under a contract for specialist technical advice and support through the life of the project to assist with staff training, licensing arrangements and valuation, showcasing of innovations and models for negotiations with potential investor firms.

2.10. The IAS programme will be delivered in two phases. The first phase is a 6-month engagement covering core elements of the methodology to help participating individuals, microenterprises and SMEs develop and prototype their innovations. At this point participants may exit the programme to start up a new business, or implement the innovation in their existing business with support where needed from CARIRI's Centre for Enterprise Development (CED) business incubation and acceleration services. On completion of the 6-month core programme, participants wishing to monetize their innovation via sale or licensing will participate in the second advanced phase of the IAS programme to develop specific licensing/sale agreements, showcase innovations and engage potential investing firms (larger firms) in a transaction to monetize the innovation through sale or license agreements. Moreover, this component will finance the engagement of specialist support and IP partners to develop licensing frameworks and valuation models that can be adapted for commercial licensing or sale of innovations.

2.11. This component will also support expansion of CARIRI's Fabrication Laboratory[12] (FABLAB) facilities, as well as costs of specialized engineering, technology, legal and other services required by IAS participants.

2.12. **Component III: Scaling of IAS Model (MIF $79,000, Counterpart $22,000)**
The objective of this component is to support horizontal scaling of the IAS model by: (i) building CARIRI's capacity to sustain and scale programme delivery and (ii) promoting replication of the IAS programme in other jurisdictions in the Caribbean region. These objectives will be realized via: (i) the development of a business model for the IAS programme; (ii) the promotion of the IAS programme through CARIRI's network of Research and Technology Organizations in the LAC region as well as WAITRO; and (iii) through the showcasing of the programme via a regional forum (s). Provision has also been made for the delivery of technology transfer services from CARIRI to partner institutions interested in replication of the IAS programme. Additionally, the project will finance development and promotion of a corporate venturing models for larger firms in Trinidad and Tobago and the wider region that are interested in forming ongoing partnership arrangements as investors in the IAS programme.

### B. Project Results, Measurement, Monitoring and Evaluation

2.13. The project will measure and contribute to the following MIF Corporate Results Framework Indicators: (i) number of people trained (CRF# 110100), measured as the number of individuals (a) enrolling in, and (b) completing the core IAS programme; (ii)

[12] Pioneered by Professor Neil Gershenfield at Massachusetts Institute of Technology (MIT), a **FABLAB** (fabrication laboratory), is a small-scale workshop offering digital fabrication and is typically equipped with an array of flexible computer-controlled tools that cover several different length scales and various materials, with the aim to make "almost anything", quickly and inexpensively. CARIRI has invested in setting up a basic FABLAB facility which includes 3d printing facilities. CARIRI'S FABLAB will be expanded during the project, in terms of both physical facilities and virtual access to other FABLABS across the world

number of enterprises that have received technical advice (CRF# 130100), measured as the number for firms (a) enrolling in, and (b) completing the core IAS programme; (iii)number of people who adopt new practices or technologies (CRF# 210400), measured as the number of individual participants engaging in the advanced IAS programme; (iv) number of companies that adopt new practices or technologies (CRF#230100), measured as the number of firms engaging in the advanced IAS programme; and (v) number of key actors who adopt new practices or technologies (CRF #450300), measured as the number of institutions adopting the IAS model.

2.14. To facilitate collation and monitoring of all project results, a dedicated monitoring platform will be developed to track the progress of participants of the IAS program and outcomes of their participation, including new business development, adoption of innovations by participating firms, and licensing and sale of innovations to larger enterprises. The emphasis of project monitoring will be on the commercialization of innovations developed via the IAS programme, as well as achievement of targets outlined in the results framework of the project. In addition, reasons for shortfall in targeted participant enrollment and attrition from the programme will be assessed and applied (where applicable), to adapt/strengthen programme design over time.

2.15. In addition, CARIRI will report on project results every six months via the MIF's Project Status Reporting (PSR) system, and will also complete a final Project Status Report on conclusion of the project.

2.16. The project will be subject to a midterm evaluation to be conducted by an independent consultant, either upon reaching 50% of disbursement, or at mid-point in the project execution period, whichever comes first. The objectives of this evaluation will be to (i) assist CARIRI in strengthening its intervention strategy, and (ii) recommend changes to project activities and expenditure, to improve results and impact over the life of the project. In this regard the key focus of evaluation questions will be the distillation of institutional, cultural, financial and organizational barriers faced by individuals, startups and established firms in developing and commercializing innovation. The evaluation will also seek to assess any specific challenges faced by the youth demographic and women engaged in the programme. Additionally, the evaluation will assess the level of interest and appetite of larger firms to acquire and adopt innovations developed through the IAS programme, their assessment of the valuation methods used, and perspectives of the programme. This information will be used to formulate specific recommendations to strengthen the results, impact and sustainability of the IAS programme, including changes required in implementation strategy, targeting, key indicators and budget allocations.

## III. Alignment with IDB Group, Scalability, and Risks

### A. Alignment with IDB Group

3.1. The IAS programme responds to specific challenges in supporting innovationas identified in IDBG Country Strategy 2016-2020, which highlights support for private sector development as one of the three core areas for IDBG strategic intervention and support. The current IDBG Country Strategy for the Republic of Trinidad and Tobago makes specific reference to initiatives that will assist companies to achieve productivity gains through investments promoting innovation and adoption of modern business practices, interventions that are embedded in the proposed project design. Moreover, the project

directly addresses key challenges outlined in the Country Development Challenges, specifically low levels of innovation, the need for diversification and low growth rates of the non- energy sector. In terms of alignment with IDB Invest, the proposed project is directly relevant to the IIC's position in supporting firms seeking to innovate and diversify. The IDB's Country Strategy for Trinidad and Tobago 2016-2020, makes specific reference to the intent of IDB Invest to work with the MIF and the IDB "on increasing firms' access to credit and assisting companies to achieve productivity gains through investments promoting innovation and adoption of modern business practices".

### B. Scalability

3.2. The successful piloting of an IAS programme in Trinidad and Tobago can be scaled horizontally within the Caribbean, and potentially within the wider LAC region. CARIRI as a research and technology institute serving the Caribbean has developed strong partnerships with RTOs, as well as Technology Transfer Offices (TTO) in universities throughout the region, which are potentially strategic partners to effect replication and scaling of the IAS programme. In addition, CARIRI's position and network as the LAC coordinator for WAITRO, provides a forum and institutional relationships to extend this approach beyond the Caribbean to the wider LAC region. Success in the earlier stages of the IAS programme could also potentially attract corporate and public investment in further expansion over time. To support scaling, Component III will focus on developing models for business sustainability of the IAS programme, promotion of the programme results in strategic forums, and provision for technical support to partner institutions for adoption and replication of the IAS model.

### C. Project and Institutional Risks

3.3. The key project implementation and institutional risks identified, and the corresponding mitigating strategies embedded in project design are as follows:

3.4. **Expected levels of participation by individuals and firms do not materialize**. To mitigate this risk, the project outreach strategy includes: (i) broad outreach via social media and facilitation of ideation/startup workshops to ensure inclusion and diversity; (ii) specific activities to target the local pool of tertiary students and graduates; and (iii) more formal engagement of firms via IAS structured workshops and expansion of CARIRI's IGAP analysis of firms' innovation potential and capacity. To reduce the risk of attrition from the IAS programme due to competing demands on the time of participants, CARIRI in delivering the programme, will leverage its installed technology capacity, and will promote virtual interaction to increase flexibility, and reduce travel time and associated logistics for participants. In addition, all outreach activities will seek to market and leverage CARIRI's track record and brand as a proven and trusted partner of Trinidad and Tobago's private sector, as well as the organization's positioning as the leading regional RTO focused on applied innovation.

3.5. **Lack of a transparent basis for the valuation of innovations developed for licensing and sale**. To mitigate this risk, CARIRI will draw on the experience and technical support of DTI, to develop practical valuation and licensing frameworks that will serve as a basis for negotiations with prospective firms, interested in the acquisition and commercialization of innovations developed by IAS participants.

3.6. **Sustainability of the IAS programme beyond the period of MIF investment.** To mitigate this risk, the project includes specific technical and financial support to develop an IAS business model, as well as a scaling strategy and partnerships with

large private enterprises via corporate venturing models. Additionally, CARIRI as an organization with broad regional reach and technology capabilities, will work towards reducing direct costs via scaling and replication of the model from initial stages, to support sustainability of the project investment over time.

## IV. Instrument and Budget Proposal

4.1. The project has a total cost of US $2,143,500 of which US $992,000 (46%) will be provided by the MIF as a non-reimbursable technical co-operation, and US $1,151,500 (54%) by the counterpart, financed from CARIRI's recurrent budget and new investment. The project budget is summarized in the following table:

| | MIF | Counterpart | Total |
|---|---|---|---|
| **Project Components** | | | |
| Component 1: Awareness raising & Stakeholder Outreach | 234,000 | 43,500 | 277,500 |
| Component 2: Adaptation & Delivery of IAS programme | 600,000 | 919,500 | 1,519,500 |
| Component 3: Scaling of IAS Model | 79,000 | 22,000 | 101,000 |
| Project Administration (Executing Unit costs) | 0 | 166,500 | 166,500 |
| Evaluation | 20,000 | 0 | 20,000 |
| Ex Post Reviews | 9,000 | 0 | 9,000 |
| Contingencies | 50,000 | 0 | 50,000 |
| **Grand Total** | 992,000 | 1,151,500 | 2,143,500 |
| **% of Financing** | **46%** | **54%** | **100%** |

4.2. **Retroactive Recognition of Counterpart Funding**: The initial funding of CARIRI's investment to pilot the IAS model in Trinidad and Tobago, 12 months prior to project approval, and up to a value of maximum value of US $100,000, may be recognized as retroactive counterpart resourcing.

## V. Executing Agency (EA) and Implementation Structure

### A. Executing Agency Description

5.1. CARIRI will be the Executing Agency of this project, and will sign the agreement with the IDB. CARIRI was established in 1970, with technical and financial assistance from the United Nations Development Programme (UNDP), and United Nations Industrial Development Organization (UNIDO). As a state agency, CARIRI acts as the national and regional focal point for technology and innovation to the private sector via the provision of value added technological and business development solutions to both the manufacturing and service sectors. CARIRI is governed by a Board of Directors drawn from the University of the West Indies, the local private sector and the Government of Trinidad and Tobago. CARIRI is funded via a mix of government transfers, revenues for the delivery of technical services to firms, and project financing from international donors. Over the past 5 decades, CARIRI has evolved from its core base of quality and metrology services to deliver additional value-added services,

including food safety, data science and analytics, information and communications technology, business hatchery and accelerator support. In addition to its main location at the University of the West Indies St. Augustine Campus, CARIRI operates a business incubation and support centre, the Centre for Enterprise Development located in central Trinidad. This centre includes a mobile application laboratory, a FABLAB equipped with 3D printers, technology bays and related infrastructure, state of the art business facilities, CARIRI's ICT services hub serving the SME sector, the Microsoft Innovation Centre, as well as the pilot site for delivery of the IAS programme. CARIRI is strategically positioned and resourced for delivery of the project, having initiated a small pilot of the IAS programme, including training of core staff in the IAS model, development of a virtual platform for screening and tracking applicants, and piloting of IAS interventions with over 70 of an initial 215 applicants.

5.2. CARIRI has successfully implemented 2 MIF operations TT-M1009[13] and TT-M1014[14], both of which have been mainstreamed into the organizations' current business operations.

5.3. CARIRI will work with the following strategic partners in implementing the project: (i) the Intellectual Property Office of Trinidad and Tobago in development of licensing arrangements (ii) Export TT in targeting existing and potential exporters for participation in the IAS programme (iii) WAITRO, as a network to showcase the IAS programme (one element of the scaling strategy), (iv) the Danish Technological Institute as a key technical partner and (v) the University of the West Indies (UWI), as a direct channel to engaging tertiary level participants in the programme.

### B. Implementation Structure and Mechanism

5.4. CARIRI will establish the necessary structure to execute project activities, manage project resources effectively and efficiently, and provide progress reports on project implementation. To implement the project, over the 3-year project execution period, CARIRI will strengthen its existing IAS team of 5 professional staff to include a total of 10 professionals trained in the delivery of the IAS model, and will also contract a dedicated technical co-ordinator for FABLAB operations. The work of the team will be managed by a project co-ordinator, reporting directly to CARIRI's CEO, and project steerage and oversight will be provided by a senior management committee, chaired by the CEO. This committee will be convened on a quarterly basis, or more frequently as needed to monitor progress and assist in addressing any challenges arising. CARIRI's Board of Directors will also receive regular updates on the status of the project through the CEO's reports, and will provide strategic support as required. Support for fiduciary management will be provided by CARIRI's procurement and finance departments.

## VI. Compliance with Milestones and Special Fiduciary Arrangements

[13] TT-M1009 - Improving performance of SMEs through the application of ICT

[14] TT-M1014 - Improving Food Safety Standards among Street Vendors in Tobago

**6.1 Disbursement by Results, Fiduciary Arrangements.** The Executing Agency will adhere to the standard MIF disbursement by results, Bank procurement policy[15] and financial management[16] arrangements as specified in Annex V.

## VII. Information Disclosure

**7.1 Access to information.** Project information is not considered confidential under the IDB Access to Information Policy. This document is therefore public in accordance with said policy.

[15] Link to the Policy: Procurement of Works and Goods Policy

[16] Link to the document Financial Management Operational Guidelines