

Enabling Child-Centric Innovation in Timor-Leste: **Mapping the Social Innovation and Entrepreneurship Ecosystem**



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Preface

This document serves as a complementary analysis to the stakeholder map of [Timor-Leste Social Innovation Ecosystem](#) and it is part of the larger Social Innovation consultancy undertaken by UNICEF Timor-Leste and supported by the UNICEF Office of Innovation.

Mapping the innovation ecosystem serves as the first step for the Country Office's Innovation Strategy and as consequence indicate for specific UNICEF programmes or partnerships in unlocking innovative social impact from children and adolescents. By researching this ecosystem, we can identify barriers and opportunities, perceived critical inflexion points and key actors to enable an ecosystem for child-centric innovations and design tailored interventions to support it.

In that sense, like a classic map, this work can also suggest navigation routes about ways forward, unexplored areas and what directions to avoid. This is particularly relevant considering the Timorese context has a small private sector and many of the relevant initiatives are led by a small number of UN agencies and government bodies. If any ecosystem requires coordination among stakeholders, it is even more essential in resource-limited contexts like Timor-Leste to prevent duplication of efforts.

The underlying belief is that identifying barriers and designing tailored interventions will create an enabling ecosystem for child-centric innovations and ensure their rights and well-being are prioritized. This initiative is crucial in understanding the local entrepreneurial and innovation landscape as it clarifies whether local innovations or startups can address Timor-Leste children's needs to help them fulfill their potential and if not, what could be an alternative course of action.

Finally, this document also attempts to cover findings about Digital Public Goods in Timor-Leste.



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Executive Summary

This report explores the social innovation ecosystem in Timor-Leste, focusing on the roles of key stakeholders such as the government, UN agencies, and the private sector. It identifies critical challenges, including limited digital infrastructure, a lack of financial resources for entrepreneurs, and potential for collaboration. Despite these barriers, significant opportunities exist to unlock innovation, particularly through the adoption of Digital Public Goods (DPGs), improving digital literacy, and fostering entrepreneurship among youth—the greatest asset of Timor-Leste.

Key Findings

- **Ecosystem Overview:** Timor-Leste's social innovation ecosystem is in a nascent stage. Government and UN agencies dominate the landscape, while private sector engagement remains limited.
- **Opportunities for Growth:** The country has an untapped youth population, a growing interest in entrepreneurship, and potential for collaboration across sectors. New infrastructure projects, such as expanded broadband access, are poised to support digital innovation and leapfrog traditional development pathways by directly adopting frontier technologies, bypassing the limitations of legacy systems.
- **Digital Public Goods:** DPGs, such as open-source platforms and real-time data tools, are underutilized but present a clear opportunity for enhancing public service delivery and fostering social entrepreneurship.

Recommendations

1. **UNICEF:** Strengthen partnerships with educational institutions and promote digital literacy among youth.
2. **Government:** Implement supportive policies to foster public-private partnerships and enhance digital infrastructure.
3. **Private Sector and ESOs:** Collaborate on capacity building initiatives and explore innovative financing models to support youth entrepreneurship.

The report concludes that while Timor-Leste's innovation ecosystem faces significant challenges, it has unique opportunities to leapfrog traditional development pathways by adopting frontier technologies—an effort that will require coordinated stakeholder collaboration, particularly around youth engagement, digital infrastructure, and the potential of Digital Public Goods to foster a sustainable and inclusive ecosystem.



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Background

Timor-Leste is a Small Island Developing State that regained its independence in 2002. It is one of the world's youngest countries in terms of both nationhood and demography. Since independence, the population has increased by 40 per cent, from 955,000 in 2002 to 1,341,737 in 2022.

As a result of this “baby boom”, children aged 0-17 years account for almost half (42 per cent) of the Timorese population and adolescents (10-19 years) close to a quarter (23 per cent). One in two children in Timor-Leste under five years of age is stunted—one of the highest rates of stunting in the world.

The percentage of rural and urban population is respectively 28,6%/71,4% (INETL 2022). As this is a general categorization we can extrapolate for urban vs. rural youth of 125,125 and 312,378 people.

Timorese Adolescent and youth population (10-24 years)	437,503
Rural Youth	312,378 (71,4%)
Urban Youth	125,125 (28,6%)

Education

In terms of **education**,¹ Timor-Leste's percentage of population with primary education is 75.2%, while secondary education is 40.1% and tertiary education is 18.3% (INETL 2022). Tetum is the first official language, spoken by over 90% of the population, followed by Portuguese as a secondary language close to 40%, while Bahasa Indonesia (30%) and English (24%) are considered “working languages” (INETL 2022).

Such a large percentage of TL's population is under 35 years old which from a labor point of view presents a formidable opportunity as that means a big percentage of people in working age; at the same this is a big challenge as 30 percent of youth between 15-24 are not in employment, education or training (NEET) (ILO 2023). It is widely recognized in TL that this situation can contribute to nefarious social consequences such as reported violent and antisocial behavior in youth (Fundasaun Mahein 2024) with particular importance of the adherence of youth connecting and finding a sense of community with Martial Arts Groups (Fundasaun Mahein 2019), which have been now suspended by the current government (Government of Timor-Leste 2023).

A large percentage of the population lives in poverty, although this has improved. Between 2007 and 2014, the proportion of the population living below the national poverty line fell from 50 to 42 per cent (INETL 2014, p.6). In rural areas, poverty declined from 55 to 47 per cent and in urban areas from 38 to 28 per cent. The poverty rate is higher for children than adults, with 47.8 percent of children (age 0-17 years) (INETL, et al. 2014, p.33) living under the national poverty line.

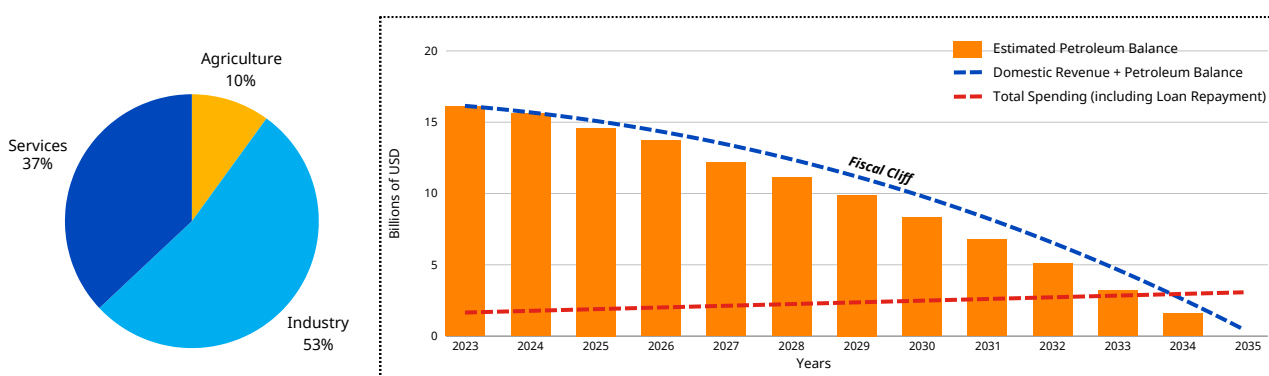
Timor-Leste's Ninth Constitutional Government was sworn into office on the 1st of July 2023 bringing a change of political party in power with a returning prime Minister Xanana Gusmão to the government.

¹ Considering net attendance ratios as the indicator collected by the 2022 Population Census.

Economy

The country is classified as a lower middle-income country (World Bank 2024) because of its gross domestic product and at the same time as a least developed country (United Nations 2024) mainly due to its economic and environmental vulnerability with 80 per cent of the population depends on agriculture, forestry and fisheries for their livelihood (INETL 2022). Most indicators regarding the country reveal a large disparity between rural and urban areas with the former facing deeper isolation, worse WASH conditions, higher level of food insecurity, disaster vulnerability and financial exclusion.

The Timorese economy had a GDP of US\$2.24B in 2023 (World Bank 2023) with agriculture contributing to about 10%, industry 54% and services 37% (World Bank 2022). The economy is overly dependent on the exploitation of the country's gas and oil fields with estimates accounting for 80% of its GDP (World Bank 2015), despite some progress towards economic diversification. Timor-Leste is confronting a “fiscal cliff” due to the declining revenues from its depleting oil fields and the ongoing pace of withdrawals from the sovereign wealth fund. Government spending reached 87 percent of GDP in 2023, among the highest globally, while non-oil-related revenue stood at merely 14.1 percent of GDP (World Bank 2024). The fund is expected to run dry by 2034.



Source: National Directorate for Economic Policy, Ministry of Finance, September 2022

The “Doing Business” report measuring regulations across 190 economies in 12 business regulatory areas to assess the business environment in each economy classified Timor-Leste as “Below Average” ranking 181/190 (World Bank 2020), suggesting there is room for improvement in business reform in particular for the categories “registering properties” (a looming challenge in the country), “getting credit”, “contract enforcement” and “resolving insolvency”. Such reforms could no doubt better the business environment and provide safety to investors.

Financial System and Literacy

The official currency is the US Dollar and the financial system has four foreign-owned banks and one government bank, which serves as the monetary authority and regulator of most financial institutions. Beside the banks, the financial sector also includes insurance companies, microfinance institutions, money transfer operators, financial cooperatives, and credit unions. The cash-based economy makes payments inefficient and insecure (Asian Development Bank 2019) and Timorese citizens possess low-to-moderate levels of digital and financial literacy with significant room for growth in the uptake of digital financial services (UNCDF 2023).

However there are encouraging signs with e-wallets (for more information check the [Innovation Pockets Outside Startups](#) section) becoming increasingly popular. In fact, e-wallet adoption grew 32 per cent from 2020 to 2022 with 22 per cent of the adult population currently using them (Central Bank of Timor-Leste 2023).

Adding to that, about 64 per cent of the population is served by banks and 6 per cent by ODTIs, so an estimated of at least 30 per cent of the adult population still not having access to essential financial services (Central Bank of Timor-Leste, et al. 2023, p.41).

Telecommunications, Internet and Social Media

According to the 2015 Population and Housing Census, 81 per cent of households had a mobile phone, an important figure as most people in Timor-Leste access internet through mobile rather than computer (only 18 percent of households with Internet access at home compared to around 30 per cent of active mobile-broadband subscriptions (ITU 2023) and a a mobile coverage of at least a 3G mobile network is quite high at around 97 per cent. However it should be noted that oftentimes Timorese people will have sim cards from different operators as coverage changes according to geography.

Internet penetration in Timor-Leste is estimated at 45 per cent of total population (Kemp 2024) below of an average of approximately 68.25 per cent in [ASEAN](#)² (Bain & Company 2022).

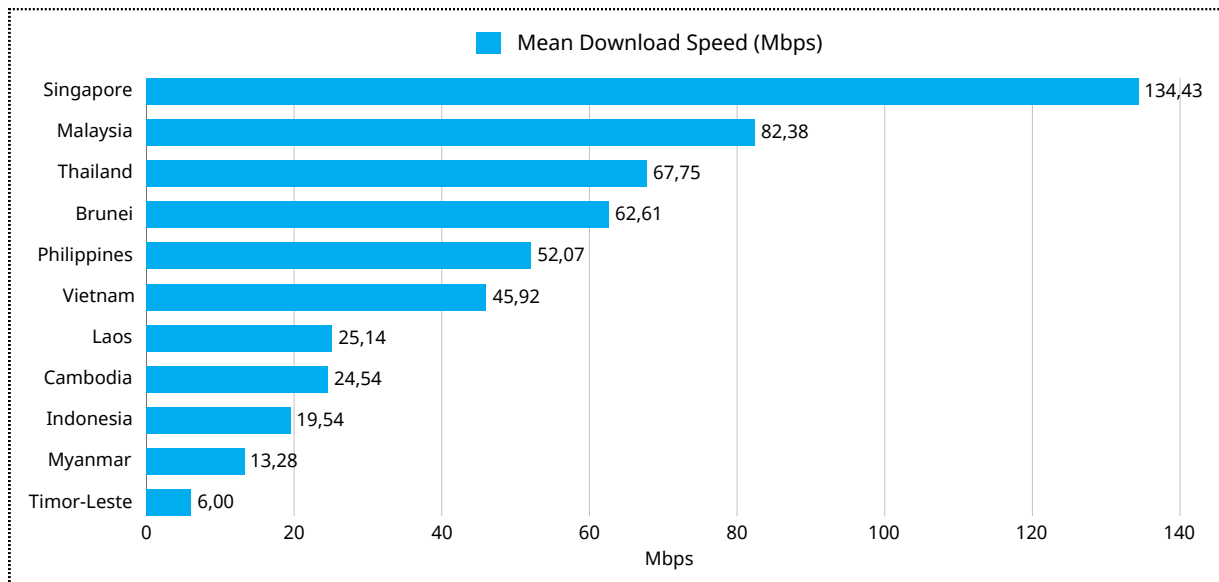
As for social media engagement, 42.2 percent of the total population are estimated to be social media users, with Facebook being the most widely used platform with 578.5 thousand users in Timor-Leste in early 2024 (Kemp, et al. 2024). Although a usage per age is not available, Social media importance cannot be understated, in particular Facebook and WhatsApp (no available data). These platforms are used by a large percentage of population and youth specifically, sometimes as the first source of information because of wider popularity and also lower bandwidth requirement making them good options considering the connectivity status of Timor-Leste (more information below).

Following the establishment of the National Communications Authority in 2012, the telecommunications sector was liberalized, leading to increased competition and improved network connectivity. This liberalization included the introduction of two mobile network operators Telkomcel and Telemor joining Timor Telecom (previously the sole operator) and a reduction in broadband prices. This initiative followed a new tax regime for telecommunications services approved in 2008 which also aimed to address high broadband prices and support the growth of the telecommunications sector.

In 2022, Kacific Broadband Satellites Group started operating in Timor-Leste introducing satellite based internet service in the country and in 2024 three more operators were granted licenses by the NCA to operate in the country—Starlink, Gonsoa and Nevarri Network. [On that occasion, Prime Minister Xanana Gusmão mentioned telecommunications](#) liberalization as an “example in providing more options and better prices in broadband to Timorese citizens” (Tatoli 2024). For the time being, the prices offered by Kacific are not affordable by a large segment of the population (starting price is 173 USD per month).

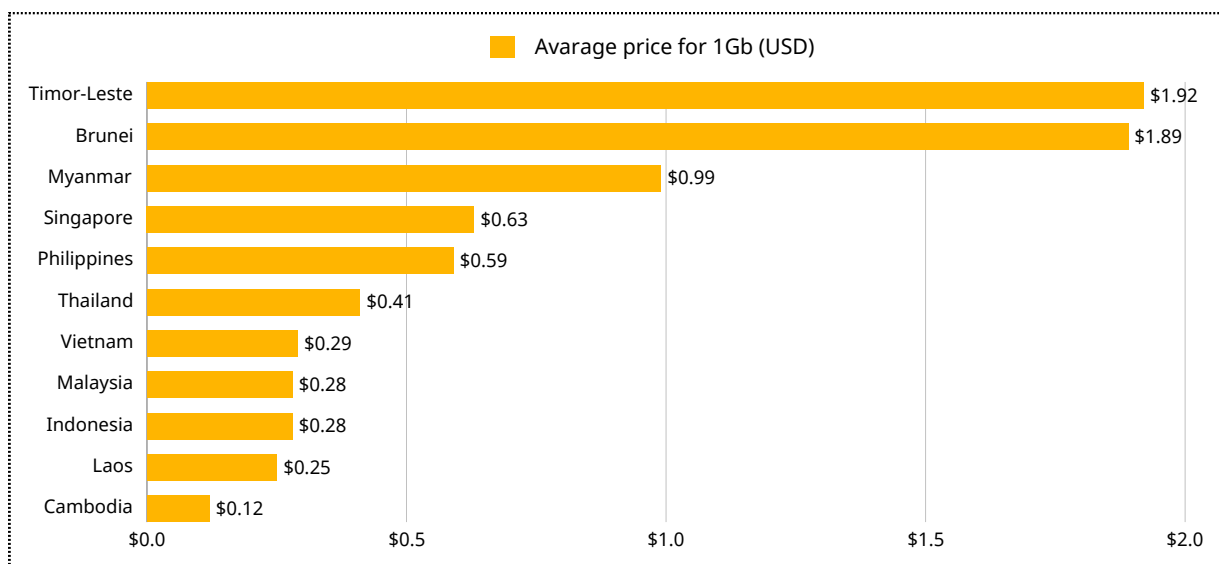
According to connectivity research (Cable.co.uk 2024), Timor-Leste has an average speed of 6.00 Mbps, more than 12 times under the average of 74.279 Mbps for ASEAN countries (global value was 55.58 Mbps).

² Calculated by the percentage by dividing 460 million Internet users in ASEAN to total ASEAN population of 673.02 millions inhabitants



Source: Cable Worldwide Broadband Price Research 2024

Research (Cable.co.uk 2024) from the same source focusing on worldwide data pricing lists the average price of 1GB in Timor-Leste at US\$1.92 higher than the average ASEAN value at US\$1.38 (global value is US\$2.59). For the time being affordability and reliability continue to be challenging (ABC News and Vieira 2024).



Source: Cable Worldwide Broadband Speed League 2024

However, there are high hopes that the reported [new submarine fiber optic cable connection](#) (Tatoli 2024) being implemented by Alcatel will change things for the better.

It should also be noted that although Timor-Leste has significantly increased electricity access, [energy security](#)³ remains a challenge. Despite government subsidies, electricity costs for consumers are still high, and power outages occur frequently. Furthermore, the majority of the country's electricity is produced using expensive and environmentally harmful diesel generators.

In the 2024 United Nations E-Government Development Index (EGDI), Timor-Leste scored 0.3406 in the Online Service Index (OSI), 0.3551 in the Telecommunication Infrastructure Index (TII), and 0.5104 in the Human Capital Index (HCI), resulting in an overall EGDI score of 0.4020. The country also achieved a score of 0.3288 in the E-Participation Index (EPI). These scores place Timor-Leste at rank 159 globally out of 193 countries, with the HCI indicating progress in education and health, while lower OSI, TII, and EPI scores highlight challenges in digital service delivery, infrastructure, and participatory governance.

³ Energy security is “uninterrupted availability of energy sources at an affordable price” according to the International Energy Agency.

Digital Public Goods

Digital Public Goods (DPGs) are defined as "open-source software, open data, open AI models, open standards, and open content that adhere to privacy and other applicable international and domestic laws, best practices, and do no harm" (United Nations 2020). These resources are designed to be accessible to everyone, providing a foundation for inclusive digital development and equitable access to information and technology. By adhering to these principles, DPGs aim to foster innovation, transparency, and collaboration across various sectors and communities worldwide.

For developing countries such as Timor-Leste, DPGs play a crucial role in promoting accessibility and inclusion. By offering free or affordable access to essential services such as education, healthcare and financial services, DPGs help bridge the digital divide, especially in remote and underserved areas. They can support economic development by reducing costs for businesses and governments, fostering innovation and creating job opportunities. Additionally, DPGs enhance education and skill development through online courses, digital libraries, and educational platforms, preparing the workforce for better employment prospects and contributing to overall economic growth.





DPGs improve government efficiency and transparency, empowering citizens by facilitating better data management, streamlined processes and enhanced engagement. They are instrumental in disaster response and resilience by providing real-time data and coordination tools, helping countries respond to emergencies effectively. Furthermore, DPGs support environmental sustainability by enabling digital tools for monitoring, resource management, and sustainable practices. Overall, digital public goods are essential for accelerating development, promoting equity, and building resilient, inclusive, and sustainable societies in developing countries.









Building on the transformative potential of Digital Public Goods (DPGs), the [Digital Public Goods Alliance \(DPGA\)](#) was established in 2021 as a global partnership to maximize their impact.

Recognizing the critical role DPGs play in achieving the Sustainable Development Goals (SDGs), the DPGA brings together key stakeholders—including UNICEF—to ensure that these open-source resources are effectively developed, deployed, and scaled in low- and middle-income countries. By fostering collaboration, driving investment, and providing strategic guidance, the DPGA aims to make DPGs more discoverable, adaptable, and impactful, enabling them to address pressing challenges such as equitable access to education, healthcare, and sustainable development. The alliance also works to ensure that DPGs adhere to the highest standards of ethics, privacy, and inclusivity, positioning them as a cornerstone of global efforts to bridge digital divides and promote sustainable development.

Methodology

This mapping exercise employed snowball (or network) sampling, leveraging its ability to identify and access hard-to-reach information and key stakeholders. This sampling method draws on multiple sources of information, combining primary and secondary research methods for data collection. This mix included:

-  Desk research and social media screening;
-  Field Observation;
-  Interviews with stakeholders;
-  Two Universities (a public one - UNTL (National University of East Timor) - and private one - Dili Institute of Technology (DIT);

-  UN agencies such as UNICEF, UNDP and UNCDF;
-  Tibar's National Centre for Employment and Vocational Training (accredited Centre);
-  MOVE NGO, an NGO supporting entrepreneurs;
-  2 Tech companies—Catalpa (non-for-profit) and Simile (for profit and supported by UNICEF Venture Fund);
-  3 private non tech companies—Caltech Group (resources company), ISAT (training company) and Diligente (local media company);
-  A consultation session with Timorese adolescents on their challenges and priorities regarding engaging with entrepreneurship.
-  Peer Validation and Recommendation—Digitally requesting different players to add or validate valuable information not included in the stakeholder map providing a similar function to a stakeholder engagement session.
-  In person Validation—Meeting formally and informally with different stakeholders such as UN Agencies or Government for mapping validation.

In the context of this research the decision to use snowball sampling in a qualitative manner was informed by the reduced number of stakeholders in the area of entrepreneurship, (social) innovation and ecosystem development as well as the little data available for Timor-Leste's reality. Following the identification of the initial crucial stakeholders, key informant interviews followed to allow for more targeted and in-depth insights into the subject matter. On the recommendations and insights uncovered, a new set of stakeholders was identified and led to an ongoing chain of interviews and research gradually unlocking different levels of mapping.

Following a recommendation from a UNICEF colleague, the online platform to host the map is Graph Commons due its collaboration features, easiness of use, sharing and embedding possibilities.

Limitations of research

As much as the mapping undertaken tries to cover different stakeholders and their relevant portfolios (initiatives, projects, and partnerships), there are some areas less mapped out. Because this is a live document, these blind spots will be mitigated as mapping progresses over time.

However, some limitations should be considered.

For starters, this mapping should be viewed as a generic sample of the ecosystem it captures and not an exhaustive research piece. Besides this, ecosystems are constantly changing so this analysis might eventually become obsolete (even more as more inputs are added to the map). As an example, as this document was being drafted new projects showed up in Timor-Leste. Likewise, on a review phase new information showed up about mapped stakeholders scaling down or shutting down operations. In short, this analysis is like a snapshot, but ecosystem evolution is rather like a movie.

Secondly, local cultural norms can slow down progress and/or prevent research to its full capacity. For example, it is quite common for email contacts to go unanswered for extended periods of time.

Another case is that in dealing with state/government bodies cooperation is often only achieved with a top-down orientation. In that sense, failure to secure high-level decision makers limits the reach of this work. Likewise, cultural and business rules must be considered. Relying on warm introductions done by national colleagues has been effective to secure access to stakeholders but is also difficult to sustain; in general, cold email outreach has proven unsuccessful with national organizations. In that sense, access to some stakeholders might take too long or not be possible at all.

Thirdly, while there has been significant progress on developing the ICT infrastructure and connectivity in Timor-Leste in the last decades, the digital divide is still a considerable constraint to the overall country's development in general and to economic growth opportunities and future investments in particular. As we will see from this analysis this is an unavoidable and ever-present obstacle to the country in general and youth and entrepreneurs in particular. Because it affects Timor-Leste at a foundational level, it inhibits the next stage of many subsequent measures and initiatives that could and need to take place. That matter adding to limited sources of information meant that some information simply is not online and/or in inactive websites or just untrustworthy. For example, it has not been uncommon to find government bodies without websites at all or civil servants without secured/professional emails. In that sense, moving digitally can happen at a slower pace.

Fourth, there is also limited research on the topics of innovation, entrepreneurship and startups not only for Timor-Leste but to some degree for the wider geographical region. This holds another challenge which is what to choose as a wider reference to benchmark and compare TL: ASEAN countries, Wider Asia, or Small Island Developing States (SIDS). When there was available information, ASEAN countries were selected as a primary choice.

Last but not least, having had a change in Government in mid 2023 there has been an observable disruption in relevant initiatives from the previous government and/or suspension without further clarification which may difficult to assess the full scope of government policies and initiatives.

Scope, Definition of Stakeholder, Ecosystem and Social Innovations

The term stakeholder can be defined as *“individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion”* (Smith 2000). In the context of this work, the “project” is an entrepreneurial ecosystem. Expanding on the work (Stam and Spiegel 2016) we came define:

“An entrepreneurial/innovation ecosystem is a complex network of interconnected actors, institutions, and resources that interact to foster entrepreneurship and innovation within a specific geographic area. This ecosystem typically includes elements such as entrepreneurs, startups, established companies, investors, universities, research institutions, government agencies, and support services like incubators and accelerators. The goal of such an ecosystem is to create a conducive environment that supports the creation, growth, and sustainability of innovative ventures.”

Entrepreneurial ecosystems are defined as a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory.

And going even deeper, our “project” is the Social Innovation Ecosystem of Timor-Leste. According to UNICEF's Global Innovation Strategy and Framework 2.0: the latter *“is a new or significantly improved solution that contributes to progress for children and accelerates results for children or young people. It is about doing new things to solve problems and improve the lives of children around the world”* (UNICEF 2020).

So, for the purpose of this mapping, we can assume a stakeholder is an organization or individual whose interests may positively or negatively affect the development of the network of interconnected actors able to influence the creation and adoption of solutions which improve the lives of Timorese children and adolescents.

This map can be a valuable resource serving a wider audience outside UNICEF. In doing this research UNICEF has also encountered adjacent dimensions of the social impact universe worthy of being included in this map such as: social enterprises, green/climate change initiatives and blue/ocean related initiatives.

In that sense, this mapping goes beyond its original scope to include a wider version of social innovations providing valuable information to a bigger number of beneficiaries but also to reflect what social innovations mean in Timor-Leste.



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Timor-Leste's Innovation Ecosystem Mapping

This mapping exercise identifies crucial players and illustrates how these entities interact and influence each other, indicating the flow of resources, information, and support. This stakeholder map for Timor-Leste Social Innovation Ecosystem shows various interconnected nodes representing key stakeholders and their relationships. Key entities include government bodies, NGOs, educational institutions, and community organizations. The map highlights how these stakeholders collaborate and influence each other within the ecosystem.

Besides that, it includes "Focus Areas" - external categories about resources that any given ecosystem resources needed for the former to prosper. Examples of these focus areas are Financial Support, Training/Capacity Building, Incubators/Hub [support players], policy/regulatory environment and voluntary/peer organized grassroots communities/networks.

This means that as ecosystems grow, they can provide the different resources entrepreneurs need and in their various stages as captured in the focus areas.

For example, entrepreneurs often need access to capital [*Focus Area: Financial Support*] to be able to build/expand their operations and hire qualified people [*Focus Area: Training Capacity Building*]. But they also need an encouraging legal framework [*Focus area: Regulation*] or the aid of support players [*Incubators/Hubs*]. This brief explanation highlights how different focus areas can support entrepreneurs with different resources. In the case of this mapping, some focus areas are not present in the map because either there seems to be not any visible initiatives—such as in the case of policy/regulation—or it was simply impossible to assess its status.

The criteria used to analyze and guide this map were:



Comprehensiveness

Inclusion and diversity of Key Stakeholders: Ensuring all relevant stakeholders from different sectors and levels (e.g., government, NGOs, private sector, community groups, UN agencies) are represented.



Clarity and readability

Visualization Quality: The map should be easy to read and understand, with clear labels and a logical layout.

Connection Clarity: Relationships and connections between stakeholders should be easily distinguishable.



Interconnectivity

Degree of Connectivity: Evaluating how well-connected the stakeholders are, indicating the strength of the network and their particular positions.

Key Hubs: Identifying central nodes that play a significant role in the ecosystem.



Influence and Power Dynamics

Influence Mapping: Determining which stakeholders have the most influence or power within the ecosystem.

Power Relationships: Analyzing the nature of power dynamics, such as which stakeholders are decision-makers or resource providers.



Stakeholder Roles and Contributions

Role Clarity: Each stakeholder's role and contributions to the ecosystem is clearly defined.

Impact Assessment: Assess the impact of each stakeholder on the overall goals of the ecosystem.



Collaboration and Interaction

Level of Collaboration: Evaluating how stakeholders collaborate and interact with each other.

Support Networks: Identifying support networks and alliances within the map.



Updates and Maintenance

Currentness: Ensuring the map is up to date with recent changes in stakeholders or their relationships.

Adaptability: The map should be adaptable to reflect new stakeholders or changing dynamics.



Relevance for partnering with UNICEF

Potential for a stakeholder to align with UNICEF's programme areas and/or complement UNICEF goals in Timor-Leste.

General Mapping Analysis

Going through the inclusion of key stakeholders we can detect a good diversity of represented profiles including UN Agencies, Government, Financial Institutions, key private sector companies, universities, or community groups.

On the government side, it is also observable the inclusion of distinct levels of administration including ministries, secretaries of state or even state institutions such as employment centers.

In terms of clarity, there is quite some room for improvement. The mapping can benefit from a logical narrative to organize the way information is displayed. Complementary research with Timorese youth might provide a “user journey” to aid in the layout.

NGOs and Government play pivotal roles giving the idea they have a central influence on the ecosystem and resource distribution capabilities.

For example, The Ministry for Economic Affairs, Tourism, and the Environment seems to have a big footprint as does UNDP's project [Youth Employment and Entrepreneurship Skills \(YEES\)](#). Because these actors have a portfolio to show in a small ecosystem, they also command a high number of partnership connections.

On the other hand, there are fewer initiatives without government or UN agencies, reflecting a heavy dependence from the government and lack of resources. It is important to stress that this can lead to an imbalance of power and decision making, particularly with UN agencies trying to avoid double efforts, making it harder to help bring new initiatives.

The dense network involving UN Agencies and Government suggests a strong connection among these two clusters but with [room to include a higher level of collaboration with different stakeholders](#) in the fold, which is vital to drive social innovations forward.

By contrast, the map is also defined by the small footprint the private sector and community/network stakeholders carry, reflecting a fragile economic tissue and a centralization of initiatives in the axis of UN-Government and cooperation agencies.

For a more subsequent analysis of relevant players from within the different stakeholder categories please check the table in the appendix section.

Innovation Ecosystem Analysis

Although each innovation ecosystem develops in its own unique way, when analyzing one we pay attention to its stakeholder density, a dimension defined as “the concentration of startups, investors, and other ecosystem stakeholders within a specific area and how these entities are interconnected” (Startup Genome 2021).

We can also consider Techstars definition as “the ratio of startup actors to all other professionals in a defined area” (Techstars 2022, p.25). Density is a critical factor in determining the effectiveness of an innovation ecosystem, as it fosters collaboration, competition, and innovation.

The presence or absence of stakeholders can be read as a sign of the stage where an ecosystem is; this is both valid for the agents who directly do/produce innovation—startups, entrepreneurs, innovative companies, tech companies—as well as for members whose activities facilitate the development of the innovation ecosystem activity without playing a direct role; such support players are widely described as ESOs (Entrepreneur Support Organizations) and in this role we can include players such as incubators, accelerators, coworking spaces, mentorship and community programs.

In Timor-Leste, based on the undertaken mapping we consider 8 ESOs from different categories.

Timor-Leste ESOs

Incubators

SENTRU WYCF

The SENTRU WYCF is a women and youth development training center hosted inside of Dili’s university Institute of Business (IoB) and supported by USAID and NBCC CLUSA. The center provides timorese youth (including out-of-schools) and women with practical, market-relevant skills that opens doors to entrepreneurship, employment and active contributions to the prosperity of the nation.

It is a component of a wider activity called the Women and Youth Creating Our Future (WYCF), a 5-year employment and entrepreneurship program funded by the US Government in Timor-Leste to strengthen workforce readiness, technical and entrepreneurship skills for youth and adult women.

As part of the SENTRU WYCF there is a business incubator including loan program activities.

Oé-Cusse Business Incubator

The Oe-cusse Business incubator (OBI) is an initiative led by the UNDP agency and helps develop new entrepreneurs and supports them to start up business and be better able to survive on a longer-term sustainable basis. It is located in Oe-Cússe Ambeno Special Administrative Region Authority (RAEOA) and targets small entrepreneurs that want to grow, new graduates and those who would like to develop their talent and ideas and commercialize them. In 2023 organized the Business Innovation Challenges Competition to encourage productive and creative young people with innovative business ideas to create jobs for themselves.

Micro-Enterprise Development Incubator (MEDI)

MEDI is a program that aims to promote the creation, development and consolidation of companies from the National Center for Employment and Professional Training (CNEFP). Through training, technical support, provision of facilities, infrastructure and equipment, as well as human resources support, MEDI seeks to facilitate the autonomous integration of these companies into the market.

The main objectives are to contribute to local and regional economic development, encourage the creation of small businesses, diversify economic activities through innovation and foster self-employment, promoting greater participation of private enterprise in Timor-Leste, balancing it with the public sector.

MEDI operates in three main areas: Entrepreneurship Training, Pre-Incubation and Incubation. Entrepreneurship training is mandatory for all Level II CNEFP trainees and focuses on basic financial literacy and the exploration of new business perspectives, stimulating creativity and innovation. Pre-Incubation is aimed at trainees with promising business ideas, providing 240 hours of in-depth training in management and prototype development and the preparation of a detailed business plan.

The final phase, Incubation, involves monitoring the implementation of business ideas, with gradual support from the Center until trainees achieve full autonomy, promoting the sustainability of companies, in a practical implementation of the knowledge and skills acquired. This phase is divided into two stages: Pre-Autonomy, where the process of legalizing the company, establishing contacts and entering the market is monitored, and the Autonomy phase, with a more refined focus on long-term strategy and continuous improvement of service quality and customer service.

Accelerators

UNDP Timor-Leste Accelerator Lab

UNDP's Timor-Leste Accelerator Lab is one among 91 labs in 115 countries working to accelerate social innovation in tackling wicked development challenges by 2030. The main services that the lab offers are sense making, solutions mapping, portfolio of experimentation and collective intelligence. The lab aims to bring new ways of doing development that enable systemic approach and accelerate impact. This includes a new way of understanding the root causes of the issues by immersing into the grassroots communities, building partnership for collaboration and co-design solutions for sustainable development. An example of a previous edition was a youth-led green building design challenge. It was initially launched in partnership with UNICEF and is funded by the State of Qatar and the Federal Republic of Germany.

Multidisciplinary Programs

YEES

The YEES project is funded by KOIKA and has UNDP as the main implementing entity, in collaboration with the Ministry of Tourism, Commerce and Industry (MTCI), the Secretariat of State for Professional Training and Employment (SEFOPE), the Institute of Support to the Development of Entrepreneurship (IADE), the Secretariat of State for Youth and Sports (SEJD) and other entities such as the National Bank of Commerce of Timor-Leste (BNCTL).

The project aims to overcome the lack of sustainable opportunities and increase young people's capacity for employment and self-employment. It focuses on two main strands. Firstly, to increase young people's ability to find employment by improving their social skills, providing counseling and information on work and work experience through internship opportunities. Secondly, it aims to increase job creation by fostering entrepreneurship among young people with entrepreneurship training, business competition and financial access through a low-interest loan guarantee scheme.

As part of the project YEES also organizes a Business Innovation Challenge in partnership with the Government, an ongoing UNDP initiative on its fourth edition.

The project is being executed over six years, between 2022 and 2027, and implemented in four municipalities, Dili, Baucau, Ermera and Liquiça.



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Training Institutions

IADE

The Institute for Business Support (IADE) is a semi-autonomous government institute in Timor-Leste which aims to support development of entrepreneurial awareness and business skills. IADE's services include business skills training, business counseling, business incubation, marketing and research support; it also organizes business competitions. IADE supports the government in delivering thematic business competitions (often in partnership) throughout the year according to the different needs of each ministry such as tourism or agriculture. One particular competition is the **Youth Business Challenge Competition** having had eight editions and granting up to US\$7,000 to the winners.

Young Southeast Asian Leaders Initiative (YSEALI)

YSEALI is the U.S. government's signature program to strengthen leadership development and networking in Southeast Asia. YSEALI includes Professional and Academic Fellowships to the United States as well as Regional Workshops. Through a variety of programs and engagements, including U.S. educational and cultural exchanges, regional exchanges, and seed funding, YSEALI builds the leadership capacity of youth in the region, strengthens ties between the United States and Southeast Asia, and nurtures an ASEAN community. YSEALI focuses on critical topics identified by Southeast Asian youth: civic engagement, sustainable development, education, and economic growth.

It is included in this list because it includes a specific Academic Fellowship on Innovation, Entrepreneurship, and Economic Empowerment and although not exclusive to Timor-Leste activities such as YSEALI Cultural Heritage Hackathon.

MOVE NGO

MOVE NGO, is a Portuguese non-profit organization providing entrepreneurship training in portuguese speaking countries. Beside organizing an Entrepreneurship Fair, in Timor-Leste MOVE offers three different programs to support entrepreneurs according to different stages. The first one, WAKE, is oriented for idea generation and support on a business plan level. The second, SHAKE, is focused on developing their ideas to sustainable business models. The third one, MAKE supports on going entrepreneurs with consultancy and implementation of recommendations to the business.

Below is a comparison chart of Timor-Leste's ESOs by stage, funding origin, target audience as well as model of operation.

ESO	Model	Stage	Funding	Target Audience
SENTRU WYCF	University business incubator	Seed stage, ideation, training and mentorship	USAID	Youth and Women
OBI	Regional Business Incubator	Seed stage, ideation, training and mentorship	UNDP/Regional Government	Aspiring local entrepreneurs
MEDI	Employment Center Business Incubator	Seed stage, ideation, training and mentorship	Government	Aspiring local entrepreneurs
UNDP Timor-Leste Accelerator Lab	Acceleration Program with thematic editions	Seed stage as well as training for more mature businesses	State of Qatar, Federal Republic of Germany, UNDP	Aspiring local entrepreneurs
YEES	Multidisciplinary program	Seed stage pre-incubation, incubation, training, SEED Funding, idea competition	KOICA, Government, UNDP	Youth and young entrepreneurs
IADE	Training institute	Seed stage, incubation, training	Government	Aspiring entrepreneurs
YSEALI	Training institute	Training grant with possibility of project seed money	U.S. Department of State	Youth
MOVE ONG	NGO training program	Early stage, ideation and consultancy	Volunteer/Donations	Aspiring entrepreneurs

Other Notable Mentions

Samsung Solve for Tomorrow

UNDP Timor-Leste in collaboration with Samsung New Zealand and the Secretary of State for Secondary Schools and Technical Vocational Schools hosted in June 2024 the final competition Samsung Solve for Tomorrow. This is an innovation challenge aiming to develop students' capabilities in critical thinking, collaboration, communication, and creativity (4Cs) and the winners a US\$600 Samsung shopping voucher. Something worth noting is that the **participants had access to two design thinking workshops delivered by the UNDP Timor-Leste Accelerator Lab, exposing students to innovation methodologies.**

Business plan Competition

As part of ILO's Building Youth Capacity and Network in Asia Pacific project funded by the Government of Japan a Business plan competition for young hospitality and tourism entrepreneurs took place in July 2024. The three best ideas received awards of US\$3,000, US\$2,000 and US\$1,000. The event was organized by the International Labour Organization (ILO), in partnership with the HOTL Association, Pro Ema restaurant School and Fundação Cicanda (STVJ).

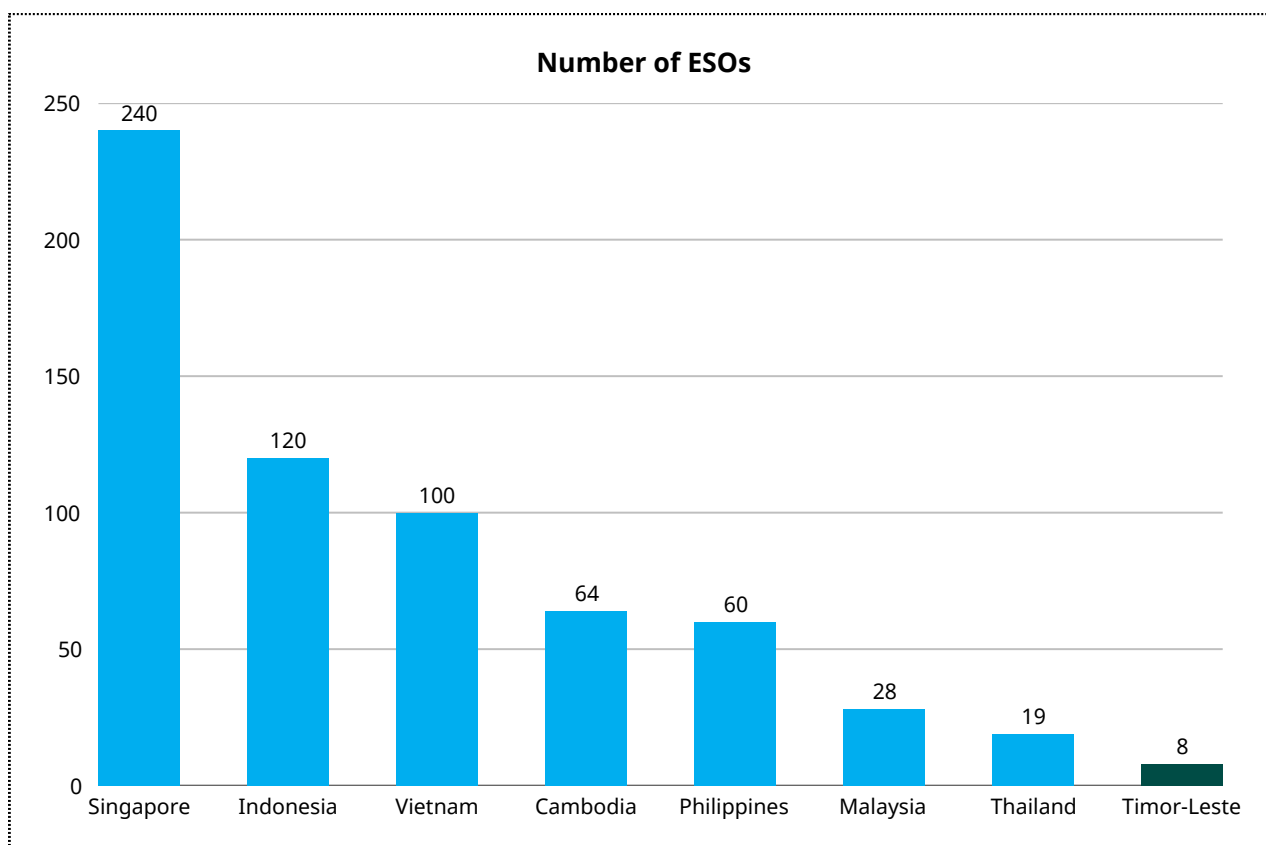
Blue Economy Ideation Workshop

UNDP Timor-Leste hosted a Blue Economy Ideation Workshop, on April 30th of 2024, aimed at stimulating innovative solutions for sustainable ocean economic development in Timor-Leste. This workshop is a lead up to the [ASEAN Blue Innovation Challenge](#) organized by UNDP Indonesia with financial support from the Government of Japan.

Timor-Leste's ESOs and ASEAN

Something that stands out is that none of the ESOs in TL is supported by the private sector, all of them are backed either by the government and/or cooperation agencies. This is consistent with early stage ecosystems where there is an absence of many types of players. For example, **it was not possible to find any activity of coworking spaces, investors [venture capitalists, angel investors, impact investors, corporate or institutional] or dedicated mentorship programs (neither local nor international chapters) for entrepreneurs.**

Although it was not possible to gather information for all country members and considering a small margin of error, we can take for reference the data below and compare Timor-Leste with its ASEAN prospective peers.



Data source per country: Singapore (Startup Genome 2024), Indonesia (Asian Development Bank 2023), Cambodia (Startup Cambodia 2024), Philippines (only Manila) (Startup Genome, et al 2024), Thailand (Startup Thailand 2024), Vietnam (Swiss EP Viet Nam 2024), Malaysia (Ministry of Science, Technology & Innovation Malaysia 2021). It was not possible to find available data about Brunei Darussalam, Myanmar and Lao PDR.

Financial Support

The financing landscape of the ecosystem is defined by three types of resources—bank loans, micro-finance funding and grants—delivered by two groups of stakeholders - Financial Services Providers (FSP) and Programmes for Private Sector Development.

Financial Services Providers

On the FSP side, commercial banks and microfinancing institutions are available. There is one national bank - BNCTL - and four international branches - BNU, ANZ, BRI Bank and Mandiri - offering only traditional loans apart from the Soft Loan Program introduced by the previous government, UNDP Timor-Leste, BNCTL and KOICA to support TL business to expand their business. This loan guarantee program facilitates MSMEs to access the soft-loan from the bank with an interest rate of 3% which is 4-5 times lower than the interest of other commercial banks and a grace period of up to 6 months. (UNDP Timor-Leste 2023). Currently, the program is suspended and under revision by the current government.

Microfinance institutions (MFI) include Kaebauk Investimentu No Finansas (KIF) as the largest microfinance institution and Moris Rasik. KIF is one of the largest private sector employers in the country and has a nationwide presence across all 13 districts of Timor-Leste, providing financial products, including credit, savings accounts and micro-insurance, to more than 12,000 clients (primarily women entrepreneurs through the IFC's investment). The other MFI company is Moris Rasik, provides microfinance outreach to the poor rural Timorese women by providing innovative products and services. Moris Rasik demonstrates a social impact that is characterized by a 98 per cent portfolio made up of women's group and 92 per cent rural, with an average disbursed loan of US\$663 (Luxembourg Microfinance and Development Fund 2020).

Programmes for Private Sector Development

This type of financial support relies on grants given either directly by different bodies of the Government and by International Development Agencies who conduct programmes to develop the private sector, mainly focused on capacity development, and income generation.

Government grants are generally attributed in idea competitions and/or through partnerships with existing programs such as YEES. The amount of the grants is generally under US\$10,000 "Taking an example" the Youth Business Innovation Challenge held in 2023, the winner took US\$7,000, runner-up US\$6,000 and third place US\$5,000.

Another form of financial support relies on Credit Unions (CUs) who have a wider presence outside the urban centers of Dili and/or other municipalities. CUs are supervised by the Secretary of State for Cooperatives (SECoop). As of 2022 there were 127 credit unions (Tatoli 2023) although it should be noted that by nature entrepreneurial ventures imply a high credit risk so this type resource may have limited use by entrepreneurs.

On the other hand, agencies like USAID, NZAID or European Union Delegation tend not to provide direct financial support to entrepreneurs but to wider reaching initiatives within well defined strategic sectors such as agriculture or tourism. However, the Australian supported Market Development Facility (MDF) which promotes economic diversification and encourages business growth does co-invest directly on entrepreneurs.

Like in other dimensions of the TL ecosystem, the funding pillar also has a wide space for growth. In this dimension, **“Investment readiness”** is an important concept, defined as the capacity of an enterprise to understand and meet the specific needs and expectations of investors. At the national or regional level, investment readiness is about the size of the pipeline of investment-ready enterprises (Huppé 2014).

The absence of venture capital, business angels, private sector incubators (who would be able to take equity in startups) or overall notorious personal investors may be an indicator that TL generates few investment opportunities. In that sense it needs to develop solid foundations to build the impact ecosystem so that it is conducive to the growth of more and better startups which in turn will increase overall investment readiness and access to external funding.

Public Sector, Policy and Telecommunications

In 2010 the National Strategic Development Plan (SDP) 2011-2030 (Government of Timor-Leste 2011) was created as an overarching plan guiding the country's long-term development with a focus on three pillars: social capital, infrastructure development, and economic development. The SDP offers a vision to reduce multidimensional poverty in the country and transition Timor-Leste from a low-income country to an upper middle-income one.

The telecommunications sector was recognized as a crucial part of the infrastructure in the SDP. This plan has facilitated the opening up of the sector to private investment and competition, while also setting up an independent regulatory authority, the National Communications Authority (NCA) aiming to accomplish that **“all people in Timor-Leste will have access to reliable, secure and affordable Broadband Internet Services by 2030”**. The aforementioned measures were intended to enhance the availability and affordability of dependable mobile and broadband services.

In Timor-Leste the Ministry of Transport and Communications has the responsibility for the development of ICTs, including the telecommunications sector as well as the coordination of TIC Timor [a change brought by the current IX Government], the agency mandated to implement the government's strategy for ICT technologies and manage technological infrastructure. TIC Timor is the main government body with influence to support open-source adoption.

The government adopted the National Policy for ICT (Política Nacional para as Tecnologias de Informação e Comunicações) for the period between 2017 and 2019 which was followed in 2023 by the release of Timor Digital 2032 a national ten year plan for digital and ICT development (Government of Timor-Leste 2023). This plan has the goal to holistically develop digital and ICTs in Timor-Leste with an emphasis on their application in areas that are critical and have the most significant impact on human and economic development such as government service delivery. Although the plan does not have any mention of open source uses there are some interesting points to consider.

For starters, one of its guiding strategic principles is “interoperability” stating “all governments should address the principle of Interoperability between government systems to ensure de-duplication of processes, required documents, and inputs from citizens and businesses.” This suggests a good fit for open-source solutions and a preparation for adaptability to progressively integrate different services under the same digital infrastructure.

Even if one of TIC Timor's plan goals is to enable a legislative framework for protecting privacy and personal data for the time being there is *"is no general and comprehensive legislation on the protection of personal data i.e. there is no national general law on the protection of privacy and data, cybercrime, cybersecurity, and other privacy-adjacent legislation"* (Cocco 2024).

The most resembling progress is Timor-Leste's new regime for e-commerce and electronic signatures going live in August 2024 which "introduces a new legal framework for electronic transactions, records, and electronic signatures, particularly in the context of e-commerce" (Paula 2024). Although it still does not cover data protection this new law designates TIC Timor accrediting authority for certifying entities for electronic signatures but most importantly it might push the Implementation of secure payment processing systems for protection of online transactions. This might lead to building digital infrastructure for payments opening chances for fintech innovations.

Moreover, a version of one of the proposals mentioned in Timor Digital 2032 as part of the enabling pillar of proximity and affordability seems to have been implemented, namely "Uma Digital" (Government of Timor-Leste 2023 p.17), a one-stop-shop to provide citizens in rural districts with government services. With the support of UNDP, the current IX Constitutional Government has recently concluded the launch of [Balkaun Uniko](#), a network to deliver public services to citizens combining e-design with local human interface.

This initiative can be **a good entry point as it provides a platform for integrating digital public goods** to offer government services, connect citizens with NGOs, development partners, and market. As this network has been recently created, potential for ensuring transparency, efficiency and user-centric design for public services is high. If the project is built on scalable technology stacks it will allow for growth and gradually incorporate new services as needed. UNICEF in particular can engage with this network by partnering with the government and UNDP in the design and implementation of digital infrastructure to establish a child-centric data ecosystem around services supporting children and adolescents. For example, by integrating services like birth registration, health (including vaccination) and/or education records as well social services. Again, because the project is at an early stage the potential to promote interoperability is high as there is no previous legacy system and would be a great complement to other projects like the Unique Identification System (IDU) in Timor-Leste.

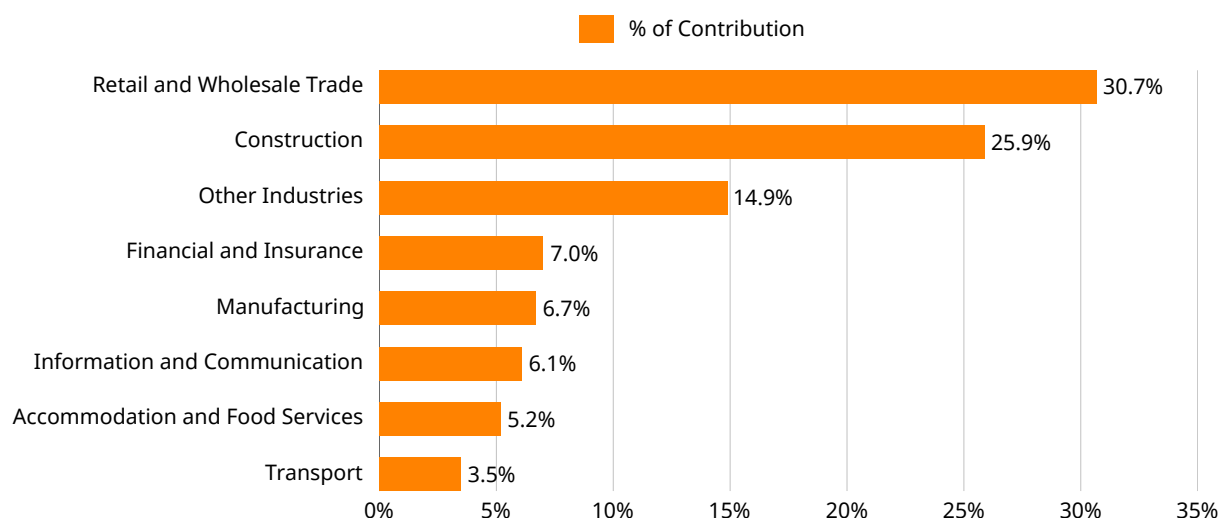
This transformative digital initiative co-led by UNICEF and UNDP to assess the country's readiness for a system that assigns a unique identifier to each citizen. Designed to uphold the right to legal identity and facilitate equitable access to services, the system aims to integrate minimal biographical details and biometric data for individuals over 13 years old. By streamlining identity verification and enabling secure access to public and private services, the IDU can foster social innovation, promoting financial inclusion, improving service delivery, and laying the groundwork for e-governance and a digital economy. At the moment, this project has been temporarily frozen by the new government.

Timor-Leste: A Nascent Ecosystem

Timor-Leste economy is notable by its dependency on oil & gas revenue and has greatly relied on government expenditure. In fact, the public sector has become the biggest employer in the formal sector. In that sense it's important to understand the non-petroleum business sector as well as its skills gaps.

If we consider the contribution of industries to Timor-Leste's economy, "retail and wholesale trade" was the first with nearly 31 per cent closely followed by construction retail with 25.9 per cent (Government of Timor-Leste 2023).

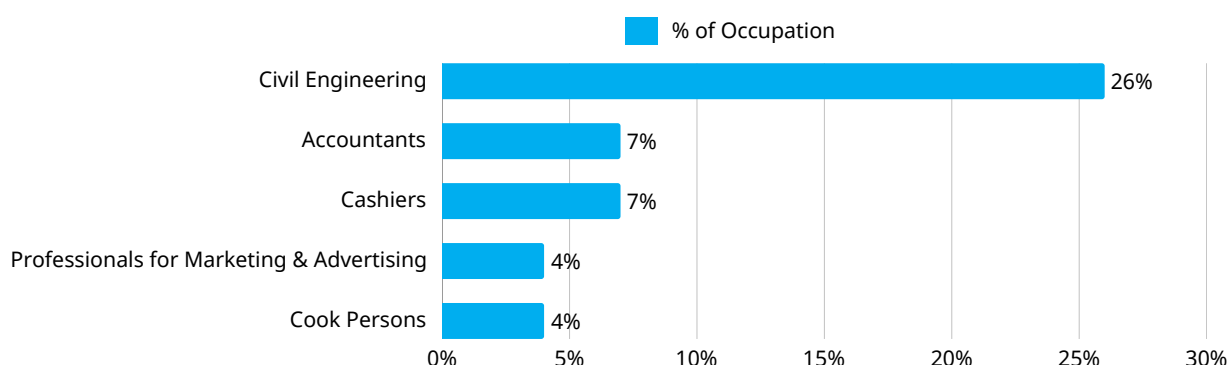
Percentage Contribution of Value Added by Industry to Total Timor-Leste in 2022



Source: Business Activity Survey 2022

On the other hand considering employment levels, 'Retail and Wholesale Trade' industry had the highest level of employment, accounting for 31 percent of all employed people (Government of Timor-Leste, et al. 2023, p.6). And when it comes to skills gaps, according to the government in 2022, the most in demand skills and hard to fill vacancies were civil engineering, accountants and cashiers (Government of Timor-Leste 2022).

Top 5 Occupation with hard to fill vacancies



Source: Timor-Leste Enterprise & Skills Survey 2022

So we can conclude that from the non-petroleum business sector, wholesale and construction industries are the two main contributors to the economy.

Although we don't have specific data about tech enterprises, the seemingly absence of "tech skills" on the demand side as seen above might be another sign of a yet more traditional economy and not fully embraced digital economy. Timor-Leste has three Universities offering computer science degrees - UNTL, DIT and IoB - with the latter currently preparing a masters degree as well. Although there isn't available data, during the mapping exercise that supports this report some anecdotal observations suggest that some of the graduates from these degrees end up working for the government, to a lesser extent in telecommunications companies or NGOs (a similar observation can be found in *"Timor-Leste Rapid Digital Agriculture Assessment"* (Digital Frontiers, p.5, 2022) but not all are able to find jobs.

Possibly, the domestic labor market might not prioritize tech jobs due to limited opportunities in tech-based industries, even though these skills are in high demand globally.

Ecosystem Density

According to Startup Genome's criteria (performance, funding, market reach, talent & experience, knowledge) in Timor-Leste's case we can see that the density level is low, suggesting a nascent development stage for its ecosystem.

This indicates that the innovation ecosystem might be in its early stages, lacking the necessary infrastructure, resources and support systems for startups and small businesses. We can see an analogous situation for innovators, in this context assuming a definition for innovator that includes a digital component (see tech definition below). Although in Timor-Leste there are some IT companies, tech companies seem to be reduced to two representatives.

What is the difference between a tech and IT company?

A tech company is a broad term for businesses involved in creating new technology products or services, such as software applications, hardware devices, and online platforms. Examples include companies like Apple, which makes iPhones and MacBooks, or Google, which offers search engines and online services.

On the other hand, an IT (Information Technology) company focuses on helping other businesses manage and use technology effectively. These companies provide services such as setting up and maintaining computer networks, offering technical support, and implementing cybersecurity measures.

Essentially, while tech companies are often innovators developing new technology for the market, IT companies are service providers that ensure businesses can efficiently operate using existing technology.

One is Similie, a for-profit social enterprise that provides sustainable technology solutions for under served and emerging markets. Similie has developed a suite of technologies that provide a locally influenced, end-to-end early warning system with timely and relevant risk information about floods, for the Timorese government. Similie is already invested by UNICEF Venture Fund as part of the climate change cohort.

Taking advantage of its in-house expertise in 2024 Similie has launched 3 training sessions between 2 to 4 days for Data Literacy and Visualisation Training, KoboToolbox Training and Remote Sensing Training.

The other company is Catalpa International, a not-for-profit development organization creating change through design thinking, adaptive management and digital technology. Timor-Leste has supported digital projects covering a wide range of areas such as education, health or social protection. Catalpa has delivered digital innovations across sectors (social protection, nutrition or education for example) of which we can highlight the following:

Liga Inan (Connecting Mothers): A digital health initiative developed to connect pregnant women with healthcare professionals via mobile technology. It provides essential information for safe pregnancies and childbirth, promoting deliveries in health facilities under skilled care.

Hamutuk (Together): A multi-sector nutrition program that brought together government and non-government organizations to combat stunting in children under two. The platform includes a mobile app and online system to improve coordination, data collection, and sharing of social and behavior change communication messages about nutrition, food security, and COVID-19. Hamutuk started as a pilot in the Manufahi region in 2016. Since 2020, it has pivoted to leverage its digital platform for strengthening Forum NGO Timor-Leste's (FONGTILs) multi-sector nutrition and food security response to COVID-19. It builds on existing efforts by the Prime Minister's Office (PMO) to strengthen FONGTIL's capacity and expand their role in increasing food security in the country.

Haroman: An initiative delivering learning to health workers, motivating them to up-skill and limit infectious diseases. It utilizes a digital learning platform that aggregates training content while contributing to disease monitoring, thereby improving national capacity to manage infectious diseases.

In a meeting with Catalpa, it was mentioned this company uses open-source technology such as Metabase and their desire to make available their own micro-learning product in the OS regime.

Based on the voluntary work of one of Catalpa's employees, the first machine translation services for the Tetum language was developed (see more detail below in the section Innovation Pockets outside of startups).

In such an early ecosystem, this is an important signal of the role that tech companies can take. Because of their innovative DNA, these companies are uniquely positioned within the current landscape to give back to the ecosystem resources beyond their services and products; things such as training, ecosystem building events or setting up an example are incredibly valuable to the collective good of the ecosystem.

In general, there is a growing but limited level of entrepreneurial and innovation activity that could benefit from additional foundational ecosystem components. We can conclude that the Timorese innovation ecosystem is in its nascent stage.

What characterizes a nascent ecosystem?

1. **Limited Infrastructure:** Basic physical and digital infrastructure may be lacking or underdeveloped.
2. **Low Entrepreneurial Activity:** Few startups and innovative projects are present, and entrepreneurial culture is just beginning to take root.
3. **Sparse Funding:** Limited access to venture capital, angel investors, and other funding sources.
4. **Minimal Support Services:** Few incubators, accelerators, mentorship programs, and business development services.
5. **Talent Shortages:** A lack of skilled workforce and professional networks, often with significant talent migrating to more established ecosystems.
6. **Regulatory Hurdles:** Regulatory and policy frameworks might be underdeveloped or unfriendly towards startups and innovation.
7. **Collaboration Gaps:** Weak or non-existent connections between key players such as universities, research institutions, and private companies.

Overall, a nascent ecosystem is in the early phases of forming the necessary components and networks to support sustained innovation and entrepreneurial growth. According to the Ecosystem Lifecycle Model (Startup Genome 2023), nascent ecosystems fall in the activation stage, characterized by *“limited startup experience and low startup output (<1,000 startups), where the main focus is to grow Startup Output (or the number of startups locally), early-stage funding (Seed and Series A rounds) and a more connected local community.”*

A report supported by the Australian Government also classified Timor-Leste as an “extremely nascent ecosystem” with a balanced score of 18/100 (Frontier Incubators 2019, p.39).

Innovation Pockets Outside Startups

As mentioned earlier in this report, it's important to faithfully capture the innovation landscape in Timor-Leste even if that means considering different types of innovation outside “tech” startups. This could mean a promising business model, community engagement and/or developing solutions to address social needs (digital or not).

Digital Health for Maternal Care: A program by the World Health Organization (WHO) utilizing digital tools to enhance maternal healthcare services, including mobile applications for health workers to monitor and support pregnant women, aiming to reduce maternal and neonatal mortality rates.

Eskola Ba Uma (School Goes Home): An initiative by the Ministry of Education, Youth and Sports, supported by UNICEF and Microsoft, providing distance learning programs through television, radio, and online platforms to ensure continuity of education during school closures in the pandemic.

Chatbot “Kolega”: A pilot launched by UNFPA Timor-Leste, simulating interaction via WhatsApp to provide youths with critical information needs on job opportunities, training, education, and technical 21st century skills. Launched in 2023 by the Ministry of Youth, Sports, Arts, and Culture (MOYSAC) in partnership with UNFPA, this chatbot serves as an accessible and user-friendly tool available in Tetum, allowing youth to seek answers to their questions tackling limited internet access and digital devices.

Cboard: Cboard is an open-source Augmentative and Alternative Communication (AAC) application designed to support children and adults with speech and language impairments by enabling non-verbal communication through customizable digital boards. Introduced in Timor-Leste as part of a four-month pilot in 2023, Cboard exemplifies social innovation by leveraging accessible technology to address communication barriers for vulnerable groups. With its interface and support materials translated into Tetum, the app empowers children with speech impairments to express themselves, fostering improved adaptability, competence, and self-esteem. The pilot, supported by UNICEF and Microsoft, combined practical usage with evidence-based evaluation through the Psychosocial Impact of Assistive Devices Scale (PIADS) methodology.

Chatbot “Rosa”: Rosa allows for reporting sexual harassment complaints perpetrated by civil servants in Timor-Leste through the chatbot. It utilizes artificial intelligence for communication and allows for individuals to report and access trusted information anonymously and safely. It is accessible via the Civil Service Commission’s website, Facebook Page, and Messenger application, ChatBot Rosa also offers information on available support services. It was developed in partnership with the support from UN Women Timor-Leste and designed by Juridica Sosial Konsul (JU’S). The Chatbot was developed considering the barriers to reporting and to support implementation of the Commission’s Guidelines for Addressing Sexual Harassment in the Public Administration, which were launched in December 2017, developed with support from UN Women.

FarmPro Fresh - Weekly Produce Boxes (Agriculture)

FarmPro is an SME agricultural company that works with farmers in Timor-Leste to supply quality fresh produce to supermarkets, restaurants and other high value markets. Offers a subscription model for weekly food boxes delivered from farm to home which denotes a structured approach to client engagement contrary to regular farmers in Timor-Leste.

Caltech Group (Upcycling)

Caltech is a resources company mainly focused in Oil & Gas and construction which has developed environmental services in order to provide recycling solutions to Timor-Leste as such services are extremely limited in the country. Caltech is part of a “**Plastics Upcycling Alliance**” with Mercy Corps

seeking to move Timor-Leste towards 'plastic neutral' status utilizing market-based solutions and creating a value chain for used plastic.

Kiosk Matenek (Hydroponics)

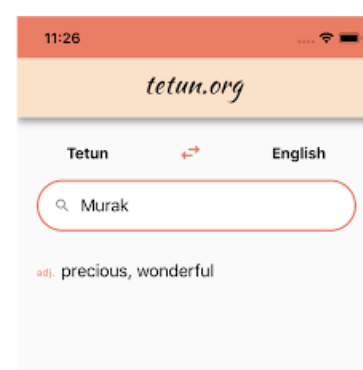
Is a Youth Hub where youth can learn and experiment the experiences of hydroponics, engaging with other youths. The hub also offers a basic English language course for young people, with a unique approach to payment: participants are required to bring plastic waste for recycling or disposal whenever they attend, thereby combining education with environmental responsibility (Ribeiro 2024). It is a UNDP Timor-Leste Accelerator Lab alumnus.

T-Pay, Mosan and Kartaun Bele (Fintech)

Two telecommunications companies offer e-wallet services in Timor-Leste, Telemor with MOSAN and Telkomcel with TPAY. Both operators have mobile applications, allowing customers to do many transactions independently, without an agent, including transfers from bank accounts to e-wallet accounts and transfers between users of the same operator. In 2018, World Vision Timor-Leste piloted Kartaun Bele with SECOOP (Secretary of State for Cooperatives) a digital cash platform to help rural households access financial services which did not expand beyond its pilot stage in 2018-2019.

Tetun.org (Machine Translation)

Tetun.org was the only free machine translation service for the Tetun language up until 2024 when Tetun was added to Google Translate options. The Android app, iOS app and website together have over 60,000 monthly active users and entirely set up a volunteer project by a Catalpa employee. Most users are Timorese students using it for educational purposes.



Source: Tetun.org

Foundation for the Development of Free Software (Open Source Community)

Previously known as Timor-Leste Open-Source Community (TOSC), the Foundation promotes the use of Free & Open-Source Software (FOSS) through training workshops targeted to university students, secondary education, and wider community. Being a volunteer-led organization, its resources are quite limited as its members eventually cannot support both the organization and their full-time jobs. Nonetheless, it no doubt represents a potential partner for educational initiatives and to tap into youth interested in this area.

redEsperança (Connectivity)

Rede Esperansa was established in 2022 as a community-based internet network initiative aimed at ensuring internet access as a human right, and helping Timor-Leste to cross the digital division and internet access in a timely, quality and timely manner. It will also translate open-source software and other content to Tetum and offers e-learning training supported by Moodle.

Youth Groups (Community Engagement)

The high number of youth groups in Timor-Leste can make it difficult to analyze all of them. Besides, they have different interventions and levels of available information. Still, as a collective stakeholder, youth groups often represent a first point of contact for entrepreneurship engagement. Kiosk Matenek mentioned above is a good example; both Ermera Ai-Kulat Mutin Orgániku (EAMO) youth-led organic mushroom business launched with just US\$150 in 2018 and Tilofe Timor-Leste Organic Fertilizer are examples in agriculture; the Timorese Youths Initiative For Development (TYIFD). A group of volunteers who are working to build strong entrepreneurship and leadership in the country organizing different networking events.

Use of DPGs in Timor-Leste

Based on the mapping exercise and associated research, there seems to be little awareness of DPG—their role, importance, and usage—in Timor-Leste. This is in line with the general ecosystem development stage.

It was also important to mention that based on the limited available information, UN Agencies seem to be the main adopter of using DPGs in part due to the alignment of their missions with the goals of DPGs and access to more resources to do so such as funding or dedicated technical. Of the 163 DPGs available in [DGPA's](#) registry we can confirm the usage of at least 7 of them covering different sectors.

DHIS2

DHIS2 (District Health Information System 2) is a free, open-source, fully customizable platform for collecting, analyzing, visualizing, and sharing aggregate and individual-data for district-level, national, regional, and international system and program management in health, education, and other domains.

In January 2023, the Ministry of Health (MoH) in Timor-Leste conducted Supplementary Immunization Activities (SIAs) to ensure improved public health and reduced incidences of vaccine-preventable diseases. The SIAs targeted priority antigens including Measles-Rubella (MR), Oral Polio (OPV), (PCV (Pneumococcal Conjugate Vaccines), Vitamin A supplements, deworming (Albendazole) tablets for children below 5 years, and COVID-19 vaccines for those above 12 years.

This campaign, which was supported by the WHO Timor-Leste country office and UNICEF, used the Timor-Leste Health Information System (TLHIS), the DHIS2-based national HMIS, for planning, implementation, and evaluation. Customization and development of the system was done with technical support from WHO and implementation was supported by the National Directorate of Statistics. In the planning phase of the exercise, the team used existing EPI data in DHIS2 for needs mapping, including identifying the target population and areas where vaccination coverage was low so that resources can be targeted.

Primero

An app that facilitates the secure collection, storage and sharing of data to improve child protection, incident monitoring and family reunification services by key players in the humanitarian sector. The software is particularly crucial to the work of social workers in emergency situations to support children displaced by conflict.

On March 24th, the Ministry of Social Solidarity and Inclusion (MSSI) of Timor-Leste, in collaboration with UNICEF launched Primero to help social service providers coordinate critical support to vulnerable children.

OpenStreetMap (OSM)

OpenStreetMap is an initiative to create and provide free geographic data, such as street maps, to anyone. The OpenStreetMap Foundation (OSMF) is dedicated to encouraging the growth, development, and distribution of free geospatial data and to providing geospatial data for anyone to use and share.

Since November 2023, Timor-Leste OpenStreetMap Community is leading the local launch with the objective of gathering efforts on mapping in Timor-Leste using open-source platforms like OpenStreetMap, uMap, QGIS, and others. "It also aims to involve all Timorese people in utilizing, maintaining, and updating geospatial data through OpenStreetMap".

KoBoToolbox

KoboToolbox is an open-source platform for the collection, management, and visualization of data. As the most widely used primary data collection tool in the non profit sector, it is the tool of choice for over 14,000 social impact organizations worldwide.

A versatile tool, Kobo has been used in different contexts in Timor-Leste:

- It has been used by Blue Ventures since 2023 to help coastal communities monitor fisheries with real-time data;
- It was used for research purposes with NZ Massey University in 2018 - Dili Waste Mapping Survey;
- It has been used by Timor-Leste's National Disaster Operations Center in the context of damage assessment caused by floods in 2021;
- It has been used by Similie which has made available training sessions for KoBoToolbox; It is still internally used by teams in UNICEF Timor-Leste.

ODK (Open Data Kit)

ODK allows for building powerful forms to collect, manage and use data in resource-constrained environments. In Timor-Leste ODK has been by different stakeholders such as:

- WFP to support the Ministry of Agriculture and Fisheries and the General Directorate of Statistics to conduct food price monitoring;
- World Fish for data collection;
- Blue Ventures for community mobile monitoring.

RapidPro

RapidPRO is an Open-Source software that enables health organizations-or any government or humanitarian group-to collect real-time data on vital metrics like infections, diseases, water safety, and children's malnutrition. Currently, it is used by UNICEF teams.

Moodle LMS

Moodle is the world's most custom is able and trusted Learning Management System that empowers educators to improve our world. According to Moodle's directory there are at least 4 private websites using Moodle and 1 public in Timor-Leste.

List of Social Innovations Per Sector

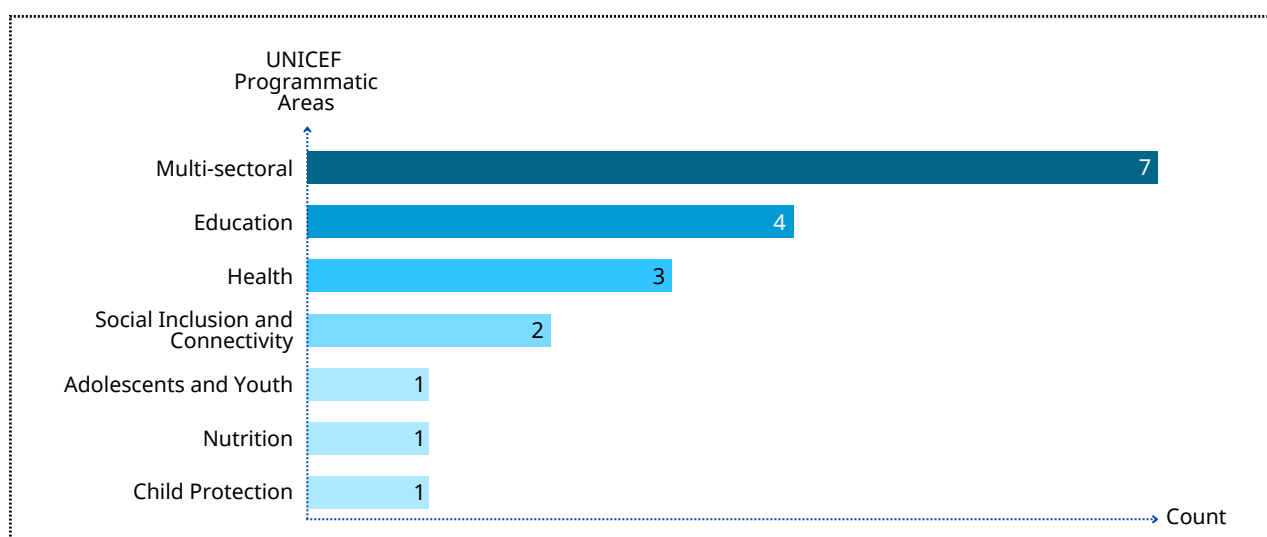
Below is a comprehensive table of social innovations in Timor-Leste, categorized by their type, sector, and alignment with UNICEF's programmatic areas. This overview offers a clear understanding of the diverse initiatives contributing to social development in the country. The innovations listed below all have verifiable information. It should be noted that in Catalpa International's case, a selection was made restricting the sample to only three relevant projects.

Name	Type of Innovation	Sector	UNICEF Programmatic Area
Balkaun Uniko	Digital Public Service	Government	Multi-sectoral
Cboard	Inclusive Technology	Disability Support	Education
Chatbot 'Kolega'	Chatbot	Youth Employment	Adolescent and Youth
Chatbot 'Rosa'	Chatbot	Government	N/A
DHIS2	Health Data Management	Health	Health
Eskola Ba Uma	Distance Learning	Education	Education

Name	Type of Innovation	Sector	UNICEF Programmatic Area
Hamutuk (Catalpa)	Digital Platform	Nutrition	Nutrition
Haroman (Catalpa)	Digital Platform	Health	Health
Kartaun Bele	Fintech	Financial Inclusion	Multi-sectoral
KoBoToolbox	Data Collection Tool	Data Collection	Multi-sectoral
Liga Inan (Catalpa)	Digital Health	Health	Health
Moodle LMS	Learning Management System	Education	Education
Mosan	Fintech	Financial Inclusion	Multi-sectoral
Open Data Kit (ODK)	Data Collection Tool	Data Collection	Multi-sectoral
OpenStreetMap	Geospatial Data Platform	Social Inclusion	Social Inclusion and Connectivity
Primero	Child Protection System	Child Protection	Child Protection
RapidPro	Messaging & Real-Time Data	Health, Education	Multi-sectoral
Similie	IoT for Climate Resilience	Climate Action	Climate and Environment
T-pay	Fintech	Financial Inclusion	Multi-sectoral
Tetun.org	Machine Translation	Education	Education
redEsperança	Community Internet Access	Social Inclusion	Social Inclusion and Connectivity
Unique Identification System	Digital Public Service	Government Social Inclusion	Child Protection



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Distribution of Social Innovations per UNICEF's programmatic areas

Based on the aggregate analysis of the table above, the data reveals that the majority of innovations are categorized under multi-sectoral initiatives, demonstrating a focus on solutions that span multiple domains such as health, education, and social protection. Education emerges as a significant sector, reflecting efforts to improve access to quality learning through digital platforms, learning management systems, and assistive technologies. Health-related innovations are also prominent, highlighting a strong commitment to addressing maternal care, child health, and data-driven health management systems. While social inclusion and connectivity play an essential role in bridging digital divides, innovations targeting adolescents and youth remain underrepresented, suggesting a potential area for further development. Overall, the distribution underscores a balanced yet evolving ecosystem with opportunities to enhance focus in underserved programmatic areas.



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Summary of Findings and Recommendations

This report has highlighted the intricate landscape of Timor-Leste's social innovation ecosystem, emphasizing the need for collaboration among diverse stakeholders to foster an environment conducive to impactful solutions as well as a wise use of scarce resources. Frontier technologies, social innovations and conscious entrepreneurs cannot simply stand on their own. They are consequences of an enabling ecosystem and the support of different actors.

While Timor-Leste's social innovation ecosystem is in a nascent stage, there are clear reasons for optimism, particularly for the country's youth. Although the ecosystem faces significant barriers such as limited digital infrastructure, low private sector involvement, and a reliance on government and UN agencies, these challenges also present opportunities for growth. The youth of Timor-Leste, who represent nearly half of the population, are well-positioned to drive this transformation.

The ecosystem's current stage allows for foundational elements—such as infrastructure development, regulatory improvements, and capacity building—to be shaped with youth at the center. Contrary to older ecosystems that need to deal with legacy technologies and systems, Timor-Leste is taking its first steps in digital transformation allowing building things right from scratch and projects like Balkaun Uniko exemplify such an opportunity. The mentioned fiber optic cable connection is set as well to bring huge improvements in terms of infrastructure and supporting legal framework for digital innovations and entrepreneurs can also be shaped from the beginning according to best practices.

Timor-Leste has a unique opportunity to leapfrog traditional development pathways by directly adopting frontier technologies, bypassing the limitations of legacy systems. The country can integrate cutting-edge solutions such as AI, blockchain, and Internet of Things (IoT) technologies to address its most pressing challenges. For example, blockchain can streamline social protection programs, ensuring transparency and efficiency, while IoT devices such as Similie's can enhance climate resilience through real-time monitoring of environmental risks. By embedding these technologies into its development strategies, Timor-Leste can accelerate progress toward sustainable development goals, empowering children and adolescents with access to innovative tools and opportunities that were previously unattainable. This approach positions the country as a model for frugal yet impactful technological adoption in the Global South.

As digital infrastructure expands and access to digital public goods (DPGs) increases, young innovators will have new tools to create solutions for their communities. Initiatives like incubators, accelerators, and government-backed projects offer the potential for youth to receive mentorship, skills training, and financial support, even if limited.



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Each stakeholder has a crucial role to play in nurturing this nascent ecosystem. The government must prioritize building digital infrastructure, implementing supportive policies, and fostering public-private partnerships. UNICEF and other international organizations can guide efforts to enhance digital literacy, support youth-centric innovations, and push for the adoption of DPGs. The private sector and NGOs need to collaborate on capacity-building efforts and explore innovative financing models for youth entrepreneurs.

A comprehensive table mapping key stakeholders, their relevant initiatives, and contributions to Timor-Leste's innovation ecosystem has been included in the annex section for reference, offering a detailed overview to inform strategic planning and collaboration.

Ultimately, the youth of Timor-Leste are not just beneficiaries—they are key stakeholders themselves. By engaging with these opportunities, they can become leaders in driving social innovation and shaping the future of their country. With the right support from all actors, they have the potential to turn Timor-Leste into a hub for social innovation, leading to sustainable development and long-term societal impact.

A Special Note on AI

To harness the potential of AI (Artificial Intelligence) in Timor-Leste, particularly for children and adolescents, solutions must address local challenges while ensuring inclusivity and avoiding the "AI divide (World Economic Forum 2023)." The World Economic Forum highlights disparities between the Global North and South in AI access, largely due to infrastructure, capacity, and resource gaps. Timor-Leste's nascent social innovation ecosystem faces these barriers but also offers unique opportunities to apply AI in a context-sensitive manner.

AI can be transformative in bridging language barriers, which are particularly relevant in Timor-Leste, a country with a diverse linguistic landscape and English is only spoken by 24% of the population. AI-powered language tools, such as translation and learning applications, can help children and adolescents access educational resources in their native languages. For instance, developing AI systems that support Tetun and local dialects could ensure equitable access to global educational content. Such tools can also facilitate better communication between communities and public service providers, enhancing social cohesion and the efficiency of health, education, and protection services.

Education is another critical area where AI can empower Timorese youth. With limited digital skills and infrastructure, implementing AI-based platforms like UNICEF's Learning Passport can offer personalized, adaptive learning experiences that accommodate diverse learning needs.



This platform could be enriched by integrating frugal AI innovations to ensure accessibility even in low-bandwidth settings, such as offline functionalities and text-to-speech features in local languages.

The risk of an AI divide must be mitigated through strategic investments and partnerships. Expanding digital infrastructure, such as affordable internet and reliable electricity, is foundational. Collaborative projects like UNICEF's Giga initiative, which aims to connect schools to the internet, can provide the backbone for AI-enhanced education and innovation initiatives. Capacity-building programs should also be prioritized, equipping teachers, local developers, and youth with skills to create and manage AI applications that address their unique challenges.

Finally, fostering a supportive innovation ecosystem is vital to sustain AI's benefits. Establishing decentralized innovation hubs with AI mentorship programs and financial incentives could nurture youth-led solutions tailored to Timorese realities. National policies should emphasize inclusive AI development, incorporating ethical frameworks to ensure equity, transparency, and accountability.

By aligning AI initiatives with Timor-Leste's specific needs and leveraging existing efforts in social innovation, the country can avoid the pitfalls of the AI divide and unlock AI's potential to support children and adolescents effectively. This requires a multi-stakeholder approach, combining government leadership, private sector innovation, and community engagement to ensure no child or adolescent is left behind.

Below is a summary of findings:

1. Current State of the Ecosystem

- The social innovation ecosystem in Timor-Leste is characterized by a high dependency on government and UN agencies, with limited involvement from the private sector and community stakeholders.
- Key players include various government ministries, UN agencies (particularly UNDP), educational institutions, and some NGOs.
- Significant barriers to ecosystem growth include limited digital infrastructure (one of the most expensive and slowest internet services in the world), limited access to resources like financial ones (no available access to risk capital or equity investments) and room for more collaboration.

2. Digital Public Goods (DPGs):

- DPGs are crucial in promoting accessibility and inclusion, especially in remote and underserved areas of Timor-Leste facing stronger isolation.
- Despite the potential benefits, the adoption and integration of DPGs face challenges due to poor digital infrastructure and limited government engagement in open-source initiatives.

3. Stakeholder Roles and Contributions:

- Government bodies and UN agencies play pivotal roles, often serving as central nodes in the ecosystem.
- There is a need for increased collaboration and stronger connections among different stakeholders, including the private sector, to foster a more balanced and sustainable ecosystem.

It is important to acknowledge once more the maturity stage of Timor-Leste's ecosystem—a nascent stage. In early-stage ecosystems, foundational elements such as basic infrastructure, funding mechanisms, and regulatory frameworks are being built. In that sense, general recommendations are provided and adjusted to this reality, focused on building these basic elements.



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Recommendations for the Timorese Government

Governments can play an important role in supporting the development of early-stage tech companies. But contrary to other areas of government, they cannot do it alone or directly. Critical actions need to be taken in ensuring that the private sector can invest in startups to assess the most promising sectors from a risk/reward standpoint, more collaboration among stakeholders takes place and overall foundations in infrastructure and literacy take place.

1. Enhancing Digital Infrastructure:

- Prioritize the development of digital infrastructure to ensure that all citizens have reliable access to the internet, enabling broader participation in the digital economy.

2. Promoting Financial Literacy and Access to Capital:

- Developing programs to enhance financial literacy among entrepreneurs, particularly focusing on digital financial services.
- Exploring opportunities to attract venture capital and other forms of investment to support emerging startups and innovative projects. For example, creating International Events Showcasing Timorese Talent and specifically targeting early stage or impact investors.

3. Strengthening Community and Network Engagement:

- Support grassroots movements and community-led initiatives by providing resources, training, and platforms for collaboration.
- Promote the development of community networks that can act as support systems for entrepreneurs and innovators assuring infrastructure to interested ESOs and/or volunteer organizations/NGOs without a physical place to operate and organize events.

4. Taking First Steps in Policy:

- Develop government policy and instruments that cater to startups and entrepreneurs, such as establishing a national plan to support Entrepreneurship and startups in particular, legislation and tax incentives and removing identified business hurdles.
- Establish cooperation agreements with Foreign Development Agencies for capacity building in the matter to ensure public workers are up skilled and prepared to address innovation and startup ecosystems as engines of development for countries.

5. Fostering an Open-Source Culture:

- Advocating for the adoption of open-source solutions within government agencies and public institutions to promote transparency and collaboration.
- Partnering with organizations like TIC Timor, The Foundation for the Development of Free Software and redEsperança to provide training and support for open-source projects.

Recommendations for ESOs, NGOs and Community Members

Fostering a vibrant and innovative ecosystem requires novel ways of working and collaboration such as using co-creation, hackathons or design thinking methods. These instruments also require different mindsets to be implemented. On the other hand, as seen from some of the findings in this report, innovative companies and community members have an advantage point or specific know-how to share. In that sense, bringing such tools of innovation forward requires increased communications efforts and dissemination in order to popularize them. NGOs and community members or groups can lead by contributing where they are strongest: advocacy and community building to push for a great supply of innovation resources. On the ESOs side, they leverage their existing position to take capacity building to the next level.

Enterprise Support Organizations (ESOs)

1. Expand Capacity-Building Programs for Entrepreneurs:

- Develop comprehensive training programs that go beyond the basics of business development. ESOs should provide specialized training in digital skills, financial literacy, business planning, marketing, and legal compliance, ensuring that entrepreneurs are equipped to navigate challenges at all stages of their business journey.



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2. Facilitate Access to Capital and Innovative Financing Mechanisms:

- Explore and promote innovative financing models like blended finance, crowdfunding, and equity-free grants, which can provide flexible financial solutions for early-stage enterprises even if for that they might resort to resources located outside of Timor-Leste.

3. Strengthen Ecosystem Connectivity:

- ESOs should actively promote collaboration among entrepreneurs, government bodies, international organizations, universities, and the private sector. This includes organizing networking events, innovation challenges, and hackathons that bring together diverse stakeholders to co-create solutions and foster a culture of entrepreneurship.
- ESOs can facilitate partnerships with regional and global networks, providing access to international markets, investors, and best practices for local enterprises.

4. Promote Digital Public Goods (DPG) Adoption and Open-Source Technologies:

- Introduce entrepreneurs to Digital Public Goods (DPGs) and open-source technologies to reduce dependency on proprietary software and external expertise. ESOs can offer workshops and training on how to use and adapt open-source platforms like KoBoToolbox, DHIS2, and Primero, which are already being deployed in Timor-Leste.
- ESOs should collaborate with global open-source communities to integrate local talent into these networks, fostering a culture of innovation and allowing Timorese entrepreneurs to contribute to global digital solutions.

5. Enhance Digital and Technological Skills:

- Offer training on emerging technologies, such as e-commerce, digital marketing, and data analysis, which can help entrepreneurs scale their businesses beyond local markets and increase their competitiveness.
- Promote digital entrepreneurship by supporting enterprises that are leveraging technology to create innovative solutions, ensuring that local businesses can participate in the global digital economy.

6. Support Regulatory Advocacy and Business-Friendly Policies:

- ESOs should engage in advocacy efforts aimed at creating a more favorable regulatory environment for startups and social enterprises. This includes advocating for policies that reduce bureaucratic hurdles, improve ease of doing business, and provide tax incentives or other benefits for small enterprises.

7. Establish Peer-Learning Platforms and Mentorship Networks:

- Create peer-learning groups where entrepreneurs can share experiences, collaborate, and support each other through common challenges. ESOs can facilitate these platforms, ensuring that knowledge is continuously exchanged within the ecosystem.
- Mentorship programs should connect local entrepreneurs with regional and international experts, enabling them to gain insights into best practices, innovation strategies, and market access.

8. Contribute to Ecosystem Density:

- Facilitate networking events and collaboration opportunities between private companies and other stakeholders, such as government agencies and development agencies or NGOs. Possibly, involving private sector members in entrepreneurial initiatives as mentors, juries, and sponsors of grants/awards for entrepreneurs.

Recommendations for UNICEF Timor-Leste

UNICEF's unique value proposition in improving Timor-Leste's innovation ecosystem lies in its ability to collaborate with various partners, including young problem-solvers, communities, public and private sectors, and other institutions. By leveraging these partnerships, UNICEF can identify and bring innovations that accelerate results for children and young people in Timor-Leste. With the demographic movement taking place the population dynamics will change as youth will be even more representative in the country. UNICEF Timor-Leste is strategically positioned to help not only help the ecosystem as whole but at the same time support the government in bringing solutions to children and adolescents' challenges and facilitating youth engagement.

Through its global presence and deep understanding of country contexts, UNICEF can source and test innovations in diverse circumstances, enabling the organization to scale up new solutions effectively in Timor-Leste. This experience and track record of success in innovating for over 70 years make UNICEF a trusted partner with a recognized brand in innovation, bringing valuable expertise to enhance Timor-Leste's innovation ecosystem.

Although every country's context is unique there is a strong possibility we can find solutions for local challenges from other countries with similar scenarios. UNICEF's innovation portfolio approach focuses our innovation efforts on the most challenging problems UNICEF is trying to solve for and with children and young people. From a total of 9 portfolios, each area contains innovative solutions (sourced from across UNICEF and beyond) that have potential to scale and significantly accelerate results for children. UNICEF Timor-Leste can tap into the most relevant portfolios and "bring" innovations to the country with a higher probability of success.

Innovation is not a "one size fits all" matter. For Timor-Leste, the suggested recommendations are mix of programmatic, ecosystem building and capacity building with the government:

1. Ongoing Mapping

- Maintain and update the stakeholder map regularly to reflect changes and new developments within the ecosystem.
- Encourage grassroots/community partners who might take over mapping ownership and convert it into an actual digital community product (simple as slack channel or LinkedIn group at this stage). This way it is possible to ensure sustainability and conduct periodic reviews to identify emerging trends, new stakeholders, and evolving needs.

2. Stakeholder Engagement

- Develop a stakeholder engagement plan to be included in the Social Innovation Strategy of CO. In particular, focused on the importance of developing shared programs with universities to make tangible academia's role in advancing DPGs.
- Create partnerships with established programs/players to co-create DPG/child-centric innovations initiatives such as hackathons, innovation challenges or accelerations programs.

3. Promoting Social Entrepreneurship

- Offer a foundational level educational offer such as UPSHIFT - youth skills development programme that combines workshops, mentorship, and seed funding to equip young people to develop entrepreneurial solutions to challenges they identify in their communities.
- Enhance collaboration with local universities and educational institutions to develop entrepreneurship programs that equip youth with 21st Century Skills and are critical to Timorese youth.
- Assist key stakeholders in developing specialized Innovation Hubs for Social Entrepreneurship and/or programs to raise Social Entrepreneurship's profile in Timor-Leste.

4. Advancing DPGs

- Partnering with Community Organizations such as FDSL to promote DPGs and implementing initiatives at the local level and ensuring community involvement and acceptance. Initiatives can range from workshops to educational events such as “DPGs goes to Campus” (an iteration of FDSL’s previous event).
- Pursuing more internal UN collaboration channels to look for entry points for DPGs with the government.

5. Supporting the Government create an Innovation Lab

- Aiding a key government player in setting up an innovation lab to kickstart innovation efforts in TL. Being created from scratch the lab can address challenges identified in this work such as offering reliable infrastructure, coaching/mentoring and capacity building in methodologies such as Human-Centered Design, Lean Startup, Agile or Open Innovation. This hub can be the departure point where other stakeholders like ESOs or volunteer groups have access to innovation methodologies through training of trainers type of workshops.
- Providing strategic guidance in building the lab’s governance, proposed partnerships and business model.

5.1. Providing capacity building to Timorese Government in taking the first steps to create an ecosystem for startups

- Aiding the government in “Fostering a Vibrant Ecosystem for Startups” according to ASEAN guidelines in regards to identifying policy priorities and actions for an end to end ecosystem, defining overarching objectives and developing a clear definition for startup.

6. Advocate for Infrastructure Investment

- Through collaboration with ITU-UNICEF Giga (global initiative to connect every school to the Internet by 2030), supporting the government in developing a plan that aligns with the Digital Timor 2032 agenda and focuses on concrete steps for school connectivity and digital learning.

7. Promote Advocacy and digital literacy

- Launch initiatives to improve digital literacy among youth (*for ex: podcasts*), to facilitate their engagement with digital public goods and help youth groups or youth parliament set DPGs as part of the agenda for the country. These literacy campaigns can be implemented by leveraging UNICEFs natural allies, the Ministry of Youth and Youth Groups.

8. Support DPG Integration

- Actively engage with the government to promote the use of DPGs, ensuring that solutions are tailored to the unique needs of Timorese children and adolescents.

By implementing these recommendations, the social innovation ecosystem in Timor-Leste can be strengthened, creating a more supportive environment for entrepreneurs and innovators where social innovation can flourish. The next steps to this report will be further developing the recommendations into UNICEF’s Country Office strategy for Social Innovations.



Appendix

Table with Key Stakeholders, Relevant Initiatives, and Contributions to Timor-Leste's Innovation Ecosystem

Core Area/Dimension	Subcategory	Key Stakeholders	Relevant Initiatives
Government	DPI (Digital Public Infrastructure Initiatives)	TIC Timor	Bankaun Uniko (related initiative)
Government	Public-Private Initiatives	MTCI, Ministry of Transport and Communications	N/A
Government	Policy	SEFOPE, NSA	Timor Digital 2032, E-commerce Regulation
Innovation Hubs (related)	SMME Training	SENTRU WYCF, MOVE NGO, UNDP Accelerator Lab, IADE	Stakeholders' training programs
Innovation Hubs (related)	Incubators	Oé-Cusse Business Incubator, MEDI	Oé-Cusse Business Innovation Challenges, MEDI Entrepreneurship Training
Private Sector	Impact Investing	N/A	N/A
Private Sector	Social Enterprises	Similie, Catalpa International	Similie's Flood Warning System, Jerasaun Foun, Haroman
Private Sector	Big Tech	N/A	N/A
Private Sector	Venture Capital	N/A	N/A
Academia	Research Collaborations	UNTL, DIT, IoB, Timorese Catholic University	N/A
Academia	Multidisciplinary Labs	N/A	N/A
Academia	Student Initiatives	N/A	N/A
NGOs and Donors	Grants	UNDP's YEES Project, USAID, Government, Foreign Embassies, MDF	Business Innovation Challenges, YSEALI grants
NGOs and Donors	Capacity Building Initiatives	MEDI NGO, UNDP Accelerator Lab, FDSL	MEDI's Entrepreneurship Fair, UNDP Innovation Challenges, FDSL trainings
UNICEF Country Initiatives and Programs	Key Programs	Primero, Cboard, Unique ID System (IDU)	Primero Child Protection Platform Aboard Assistive Communication App, IDU Project

Core Area/Dimension	Subcategory	Key Stakeholders	Relevant Initiatives
Basic Infrastructure	Stakeholders	Ministry of Transport and Communications, TIC Timor, Telecom Operators	Broadband Expansion, Fiber Optic Installation, Telecom Services
Policy and Regulation	Stakeholders	SEFOPE, NCA, TIC Timor	Interoperability in Government Systems, E-Signature Regulation
Access to Finance	Stakeholders	BNCTL, BNU, ANZ, Bank Mandiri, Kaebauk, Moris Rasik, Cus	Soft Loan Programs, Microfinance Outreach
R&D Environment + Culture	Stakeholders	FDSL (Culture)	N/A

Stakeholder Table with Comments from Field Research

Stakeholder Category	Comments
Government Includes all levels of governmental bodies including Ministries, state Secretaries, semi-autonomous entities such as Institutes, Government Agencies or employment centers.	<p>The Ministry for Economic Affairs, Tourism and the Environment leads many of the projects around entrepreneurship, work, and skills in TL. It is a Central node to the ecosystem. It is also noticeable how connected it is indicating a strong position within the ecosystem.</p> <p>Under this Ministry, a special mention to Tiba's National Centre for Employment and Vocational Training which has incorporated its own incubator for SMEs.</p> <p>The Ministry of Youth, Sports, Art, and Culture participates in some projects but not as leaders. It has a huge national reach dealing with youth groups. Being a long-time partner to UNICEF TL could be a possible stakeholder with an interest in creating a new portfolio in SI mostly for adolescents.</p> <p>TIC Timor is the government's agency for ICT systems. It is one the main stakeholders for incentivizing Open-Source usage in TL.</p> <p>Some government stakeholders have been included because of their potential for collaborations even though it has not yet been possible to meet with them, like the Secretary of Cooperatives; <i>(in this context, SoC might play an important role as an alternative role of funding for entrepreneurs).</i></p>
UN Agencies Includes relevant UN agencies and respective portfolios of initiatives and partnerships.	<p>UN Agencies take a pivotal role in the SI ecosystem as other areas in the country. As in the government landscape there is a dominant player in the UN — UNDP. Central node to the ecosystem.</p> <p>UNDP covers many of the entrepreneurial related initiatives in TL in particular following incubator or accelerator type of activities. It had partnered with the government on providing soft loans to entrepreneurs [suspended in the meantime] showing deliberate action to provide foundational resources to entrepreneurs beyond the regular programs.</p> <p>In that sense, it has high potential for collaborating with UNICEF, possibly by running "special editions" co-created with UNICEF in its already existing portfolio.</p>

Stakeholder Category	Comments
Universities Includes universities that have at least a curriculum of Entrepreneurship in the offer.	All the universities on the map are engaged with at least teaching entrepreneurship on their curriculum. It is worth noting that IoB - in partnership - has started an incubator in 2024 and that other universities are also trying to make that move. UNTL's case might include a broader concept like an Entrepreneurship Center. This seems to be an upcoming trend.
Telecommunications Includes the telecommunications providers in the country both as representatives of the private sector and infrastructure providers in a country with exceptionally low connectivity.	Telecommunications are selected within the private sector because of their size, pivotal role in facilitating connectivity and potential for innovation. Two of the providers have pioneered e-wallets in Timor-Leste, T-Pay and Mosan. Still, telecommunications in TL are not always reliable or affordable, preventing digital development at large well beyond the scope of entrepreneurship. Barrier to development of the Ecosystem.
Financial Institutions Includes the institutions able to provide financing to would-be entrepreneurs. In our case, banks, and microfinancing institutions.	Like telecommunications, these institutions provide a critical role to entrepreneurs, hence their inclusion. Entrepreneurs can access either loans or microfinancing. It is worth noting the absence of investors of any type and therefore venture capital as a resource for entrepreneurs is not available. Although Timor has a low-to-moderate level of digital and financial literacy with significant room for growth in the uptake of digital financial services, the lack of available capital is a barrier to its development.
Community/Network Includes organizations led by volunteers, grass root movements, formal or informal communities and networks, that come from society and are mostly led by community leaders specialized in specific areas of intervention.	The community network category includes grassroots movements, related interest-based communities, and very early projects/companies yet with the possibility of becoming role models or with notable recognition from others. It is worth noting that some members of this category are ALUMNI—Agora Food Studio or Kiosk Matenek—of active projects such as UNDP's business incubator. It is worth noting there seems to be little connection from this category to other parts of the ecosystem and any type of movement to promote entrepreneurship. A dedicated mention to The Foundation for the Development of FreeSoftware must be done for its potential as a partner for open-source push.
NGO/CSO Includes organizations with specific NGO status.	Although there are many NGOs operating in Timor-Leste, few are direct interventions in this ecosystem (at least at this stage). It is worth noting that MOVE NGO is completely dedicated to supporting entrepreneurs hence having a good partnership potential.
Tech Includes identified relevant companies with a technological component in the solutions they offer. This is different from IT companies which provide technological infrastructure like computers or maintenance services.	TL has some IT companies but appears to have very few "tech" companies (<i>understanding tech as companies who develop and build digital products/services</i>) or work around frontier technology. The first representative mapped, Simile, is already supported by UNICEF's Venture Fund. The other one, Catalpa International, a non-for-profit development organization delivering digitally enabled programs across the Asia Pacific region. Catalpa has been one of the few supporters of open-source technologies in Timor-Leste that was found while doing this mapping.

Stakeholder Category	Comments
Cooperation Agency Includes national organizations tasked with facilitating and coordinating cooperation among different entities, such as governments, non-governmental organizations (NGOs), businesses, or international bodies.	All Cooperation agencies support entrepreneurship in different capacities aligned with their countries and respective agencies. In that sense, they may provide resources to entrepreneurs such as funding or capacity building but mainly indirectly and within a whole project such as KOICA with YEES project.



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