MAPEO TIC BOLIVIA

2022 DIGITAL TECHNOLOGY ECOSYSTEM MAPPING IN BOLIVIA

FUNDA·PRÓ FUNDACIÓN PARA LA PRODUCCIÓN

FUNDACIÓN SOLYDES

FUNDACIÓN EMPRENDER FUTURO

BIM Asset Management

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2022 DIGITAL TECHNOLOGY ECOSYSTEM MAPPING IN BOLIVIA

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Bolivia, 2022

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This document is possible with the support of each and every one of those engaged.

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1. Prologues

FUNDA·PRÓ
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1.1 FUNDA-PRÓ

The time for Latin American startups has come to stay. Every single day, new startups and unicorns crop up with the Venture Capital Industry's impulse. The pandemic has been a game-changer allowing positive dynamics to be unleashed for all participants from the Information and Communication Technologies ecosystem. To take into account: there is a lot of talent and entrepreneurs who can deliver confidence to investors in Latin America.

In Bolivia, the development of an entrepreneurial-supportive ecosystem is at early stages yet. While much progress has been made, so far –there are positive signs, such as the fact that enterprises are becoming more solid–, there is still a great and exciting job ahead.

FUNDA-PRÓ believes that a key feature from this new industry is that most successful startups are created to address issues from their own countries. They seek to change and facilitate people's lives, they promote technological innovation, fight against poverty and economic growth in the region.

As it happened 30 years ago, FUNDA-PRÓ makes now a pioneer contribution aimed at shaping actions we carried out for a long time to assist in the development of an entrepreneurial ecosystem and, lately, of the entrepreneurial technological ecosystem.

With a country's sense and vision, the institution seeks to contribute in raising social awareness on the benefits of ICT and the promotion of Digital Transformation in financial institutions, among other actions. Today, along with our strategic allies, we are honored to have contributed with the publication of decision-making information on ecosystem stakeholders, through the 2022 ICT Mapping Report, published for the 4th consecutive year.

Promoting an ecosystem is a challenge that FUNDA-PRÓ buys into, once again, so Bolivia can build up more success stories in the future.

1.2 SOLYDES

Startups are the source of dynamism. Through them, the society's evolution is channeled towards a more modern, entrepreneurial and technological world. Likewise, they play an important role in current business ecosystem, not only as a fresh corporate structure, but also as the vehicle through which the Industrial Revolution 4.0 is being organized.

Currently, programs and impact investments from SOLYDES Foundation are fully sound with global economic trends and unsatisfied needs from a large majority of Bolivians.

Under the premise that Technological Innovation Industry can and should be an essential pillar for Bolivia's economic growth, since 2019 and through SOLYDES ACELERADORA and ESCALATEC S.A., the Foundation has been working in three major areas that constantly interact among each other: acceleration of startups, financial access and strengthening of ecosystem.

SOLYDES supports this Report with the aim of contributing to founders of Bolivian startups, so that they can find relevant information to scale up their innovations. It turns out into a useful tool for Venture Capital Investment Funds with interest in supporting our ecosystem. It is also a source of information for all those who want to start digging deeper into this industry.

1.3 EMPRENDER FUTURO

LThe disruption of communication channels, processes and digital assets in recent years brought in great advances and development, but also great challenges for the society. In the digital age, remote work –until then only a benefit in some industries– became a requirement for new talent in the digital economy.

On the other hand, digital transformation is being demanded in almost all industries and, when properly implemented, brings back great returns and generates a positive impact. However, this does not yet represent the common ground.

According to a McKinsey study (2016), 70% of digital transformation initiatives do not reach their objectives. While all business leaders are aware that technology is vital and relevant, many still wonder what is it they need to learn and how it can transform their business towards success in the digital age.

The Mapping of Digital Technology in Bolivia Report offers a broad view of what startups may offer, and which their role is in the digital technology ecosystem.

Likewise, it provides a national view on the efforts made by major institutions. This 4th version reflects the progress and advance in the last three years. Although much remains to be done, efforts have been aligned and made it possible to target larger shared goals.

Fundación Emprender Futuro is convinced that through programs and projects supporting adoption and creation of technology, including efforts such as the Report of ICT Mapping, there will be a positive impact that can transform and bring progress for people, businesses, institutions and the whole society.

BIM
Asset Management

1.4 BIM

After a 2021 driven by the desire to reactivate the world's economy –with a significant growth in the innovation and entrepreneurial segment–, in 2022, the effects of the pandemic are beginning to hammer productive sectors in the region. Only those ideas and concepts that truly had the ability to solve problems in an unprecedented situation like this one, continue growing stronger. Yet, in Latin America some ventures are even facing an exponential grow.

In Bolivia, the story is far from being different: startups that got over the pandemic are currently immersed into a national and even regional expansion process.

At the end of 2021, the Bolivian entrepreneurial ecosystem was perceived as a domestic phenomenon, with minor exceptions. Despite the existence of a handful of startups with already significant international exposure, the system's evolution was far from the regional markets' radar screen.

In 2022 the status changed, as new stakeholders joined the ecosystem and achieved key improvements and growth in different aspects of the sector.

Nevertheless, 2022 brings an important challenge for startups worldwide –challenge will continue towards 2023–: inflation rate, strengthening of the U.S. dollar and the continuous rise in interest rates in Latin and North America, will lead to slowdown Venture Capital investments. Given this situation, only startups that truly stand out will get access to resources and investments. For this to happen in Bolivia, ecosystem actors need to promote growth for enterprises and keep-up their support, so it levels what is being done in more developed scenarios.

There is a long way to go and the ecosystem must mature along. Looking ahead to 2023, it is expected for new players to step into and provide support for startups. Bolivian Investment Management (BIM), member of the Panamerican Group, focuses on making investments that seek to create a positive impact and contribute to the progress and growth of different economic sectors in the region.

After assessing and performing more than 250 investments in companies and institutions in 14 Latin American countries, BIM understands that growth in the sector requires a joint strengthening force driven by all actors with a common goal, which is the strengthening of Bolivian startups –heart of the ecosystem.

COOPERACIÓN ❯

1.5 ICCO

In Bolivia, youth from rural areas face big challenges to connect to the internet, benefit from to training opportunities, find quality jobs and launch digital-based businesses.

The pandemic has significantly worsened the socioeconomic conditions of young people and women in rural and periurban areas, especially as per the closure of schools, businesses and increased unemployment. There is great inequality between rural and urban youth, which has triggered migration from rural communities to urban centers in Bolivia.

In summary, the lack of digital skills, connectivity and access to digital tools; the insufficient articulation between rural and urban areas; and the lack of job opportunities and technology-based companies, exclude populations of rural and peri-urban areas from the economy and the digitalization processes in Bolivia.

ICCO Projects seek to increase socioeconomic opportunities in gastronomy, tourism and digital skills for rural and peri-urban population; They also pursue to reduce existing gender and connectivity gaps through a comprehensive model that closes gaps in gender, digital skills and connectivity; and promotes articulation between rural and urban areas.

ICCO supports the production of the Digital Technology Ecosystem Mapping Report in Bolivia under the aim of encouraging startups to see rural areas as important market niches, so regional economic and social development can be boosted there through technological innovations.

1.6 CAINCO

By knowing where we stand, we can better plan the best strategy to move towards where we want to be in the future. For this reason, there are efforts to learn on the status of the digital entrepreneurship ecosystem in Bolivia.

It is not about leaving aside traditional or social impact entrepreneurships, but to turn the development of ICT business models into a source of inspiration and –perhaps– a future driving force for the rest of the entrepreneurial activities.

The effort to build a solid ecosystem that promotes digital entrepreneurship is a contribution to close the digital gap between our country and other regional economies, and raise the level of innovation in different business areas.

The year 2022 should be marked as a milestone in the sum of collaborative efforts to build the ecosystem. This year, a number of joint activities were developed among several of the ecosystem's driving forces: competitions for business ideas, trainings, outreach events and DemoDays, among others. The organization of a Venture Capital and Investment Summit Latam –VCILAT 2022– should also be highlighted, as it brought together investment funds, entrepreneurs and businessmen from the region, with the aim of building an investment industry for early-stage ventures.

For the Santa Cruz Chamber of Industry, Commerce, Services and Tourism (CAINCO) participating in TIC is a demonstration of the ecosystem's collective construction. This initiative adds-on actions of our innovation agency Santa Cruz Innova and its business accelerator INNOVA UP; with support from the IDB Lab, both initiatives are seeking to boost the entrepreneurship and innovation ecosystem.

The information contained in this document reflects the ecosystem's evolution; it is also a planning tool for driving entities, and a mandatory consultation source for entrepreneurs and investors.

2. Introduction

"A good harvest requires good seed, fine fertilizer and constant irrigation. Yet, something curious happens with the Japanese bamboo: you plant the seed, you fertilize and take care of constantly watering it, and nothing happens; in fact, you might think that infertile seeds have been sown. But after a long waiting period, the bamboo plant grows up to more than 30 meters in a very short time. The bamboo was building up a complex root system to sustain the fast growth it soon will have."

– **Anonymous**

After four years of continuous **Digital Technology Ecosystem Mapping Reports,** upon the review of the baseline and assessment regarding progress and development within the Bolivian ICT ecosystem, the agreement is that it can host up to 200 startups.

Under the aim of continue supporting the particular progress, this new report identifies main challenges for the ecosystem, while looks forward to promote awareness on the creation and development of successful cases.

The underlying question can be clearly stated at this stage: Which conditions are lacking –or need to be strengthened among actors, organizations, society, local and international cooperation, in addition to the political system– to facilitate the development of ICT ecosystem in Bolivia?

To fully understand the challenges, it is helpful assessing the context and connecting dots.

An effective ecosystem is the one in which four aspects are already developed or in a process of continuous development:

- **Human resources development**

  If the country seeks to play any relevant role in the world's technological economy, education is a key challenge that Bolivia must address. There are financial resources for this purpose. However, any opportunity will be useless with no relevant training in the area: six out of 10 startups face difficulties at the time of selecting staff with accurate professional background.

  Relevant technical training requires an academic sector which is sound with the needs of the ICT labor market. Faraway from this, in Bolivia the analysis is performed almost intuitively.

  As per the transfer of knowledge, some stakeholders consider that Bolivian human resources lack international exposure. Thus, the absence of exchange programs or exposure to different realities prevents from learning on the potential for global scaling. In addition, within this process, knowledge of the English language turns out as something relevant.

- **Development of business networks and links between stakeholders**

  The ecosystem shows interesting figures in the development of business and contact networks: 89% of startups interact with their peers to exchange ideas and knowledge; 77% have somehow participated in guilds or networks of entrepreneurs. These efforts enhance connections and improve the effectiveness of the system as a whole.

  On the other hand, two out of three startups have contacted some type of investor and, in the same proportion, have had the opportunity to benefit from an acceleration program. This shows that the Bolivian ecosystem is generous and open to share knowledge through individuals and institutions. Both factors are key to moving the things forward.

However, there are still lagging areas: 38% of startups have not contacted any seed capital provider and only one out of three has participated in entrepreneurship contests; In addition, only half of the entrepreneurs have benefited from incubation programs.

One of the recurrent points in the compiled information is the lack of a sufficient number of incubators and labs to advise on the start of activities and help validate ideas. The lack of financing in early stages, either with seed capital or through angel investors, ads on the top of this situation.

The absence of incubators and seed funding is a bottle neck for development of startups. Therefore, the participation of local and departmental governments in search for solutions is extremely important.

- **Organizational development of startups**

  Supportive institutions acknowledge organizational weaknesses in startups: only a third of them have launched their activities with a business plan, and only eight out of 100 get to have an annual operational plan. The lack of enough suitable human resources adds on this.

- **Development of promotion tools as public policy**

  At this point, stakeholders agree that support from the Bolivian government is required through public and private entities developing similar activities than Startup Chile, CORFO, Pro-Perú and Pró-Colombia, established to channel public supporting funds to the sector.

  In addition, suitable laws are required for the creation of technology companies and investments in the area. To sum-up: Government offices need a better understanding of the ICT industry.

Creation of success stories

Good practices are great drivers for startups. There is a positive effect that promotion of success stories from peers can generate, especially from those who, despite facing similar limitations in the same context of opportunities, achieve success with ventures that scale up and generate social impact.

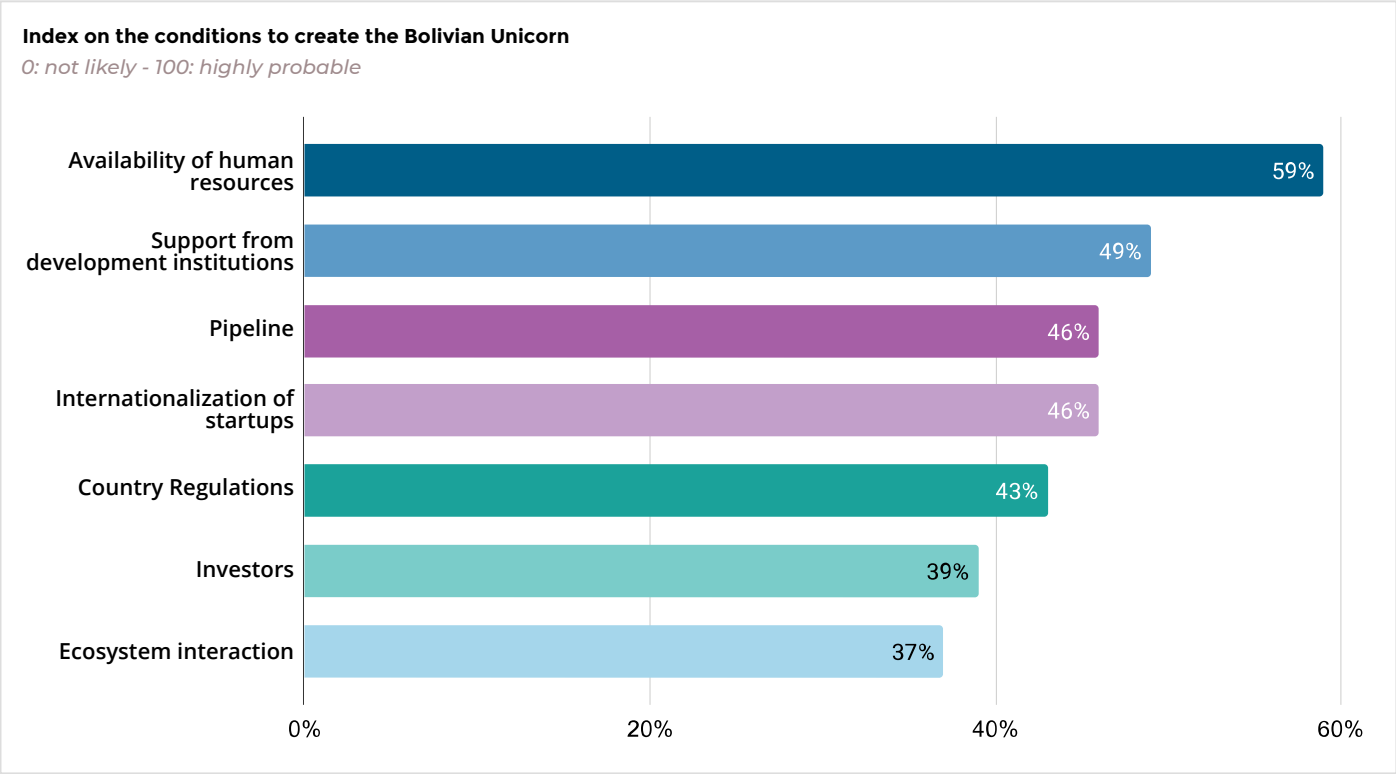
Success stories are mainly outcomes of efforts from startup founders, but they also depend on favorable conditions provided by a surrounding environment, that is, the ecosystem that shelters them.

In disaggregated terms, the Mapping exercise made it possible to measure a set of variables and obtain an indicator[1], shown in Graph No. 1, which suggests that we are halfway to building the nesting conditions for a Bolivian Unicorn[2] in a reasonable period of time.

1 Average of the values shown in the graph; the Bolivian ecosystem scores 45 out of 100

2 Term first mentioned by Aileen Lee, founder of the North American seed capital firm Cowboy Ventures, in 2013. It refers to technological companies reaching a value of $1 billion without requiring the stock market.

Graph 1: Index on the conditions to create the Bolivian Unicorn



Source: Prepared by authors

2022 ICT Mapping

Table: Index on the conditions to create the Bolivian Unicorn

Conditions to create the Bolivian Unicorn	
Availability of human resources	59%
Support from development institutions	49%
Pipeline	46%
Internationalization of startups	46%
Country Regulations	43%
Investors	39%
Ecosystem interaction	37%

This report is a new invitation to dig into the evolution of the ecosystem, learn about progress and challenges and, above all, join forces.

Along with trust, may perseverance and patience be the values that support the growth of Bolivian ecosystem; and may there be plentiful harvest with solid startups doing the good that society expects and needs!

3. Methodology

To enlighten the reader on the research approach for current version of the Mapping exercise, most relevant methodological aspects are presented in the following sections of this chapter.

3.1 Scope of the study

Starting from the initial geographical scope, defined by the three capital cities of La Paz, Santa Cruz and Cochabamba, the assessment was extended to other departments of Bolivia –all, but Pando–, thanks to links provided by institutions that support the ecosystem.

The analysis began with the review of information, sources, data and tools used in previous reports (2019, 2020 and 2021). Thus, it made possible to update the sampling framework (list of observation units), as well as the measurement tools.

The task sought to:

- Validate that measurement instruments respond to targets established in this year's proposed scope of the study.
- Establish relationships among variables.
- Define the minimum sample size according to involved interest groups.
- Review baseline indicators and their evolution over time (determination of expected values).

The analysis plan –developed for the research– was built upon a comprehensive appraisal of lessons learned from previous three Mapping exercises. This allowed the fine tunning of indicators and definitions.

Based on the new plan, database (sample framework) of mappings carried out in 2019, 2020 and 2021 was updated.

3.2 Stakeholders in the Bolivian Digital Technology Ecosystem

The target population for this Mapping exercise is the same as the one proposed in former three reports. Specifically:

- Already identified startups
- New startups to be identified
- Academia (Universities and Institutes)
- Government institutions in charge of direct support
- Incubators
- Accelerators
- Investors
- Private companies that invest in startups

Taking into account their roles, stakeholders are classified into the following groups:

Support entities: they provide specific support at different stages of the startup development – education services, training, advice, consulting, networking and others¬–. In addition, some of them also supply financial resources to encourage participation of entrepreneurs in competitions or training; this can be considered seed capital.

Articulators: they play a fundamental role by linking entrepreneurs with investors. These actors are mainly incubators and accelerators in charge of shaping up entrepreneurships and making them attractive for capitalists. For this purpose, articulators help entrepreneurs in validating their business ideas, outlining a precise target market. They also provide training in areas where weaknesses are identified, produce a viable prototype, obtain seed capital to begin operations and, finally, obtain investment capital to start businesses.

Investors: they are the holders of necessary means and resources to promote or turn ventures into a reality. Some of them become partners of the venture through the acquisition of equity in the startup; others provide soft loans.

Networks: they provide networking services, training and guidance among entrepreneurs. They also promote public policies to facilitate business and, if needed, defend interests of their members with officials or private entities.

Startups: they are the heart of the ecosystem and main focus of everything system stakeholders do.

3.3 Methodology of data collection

The survey used email and WhatsApp to distribute questionnaires. In addition, the platform is the one that controls consistency of information, intelligent introduction of data, and also generates a refined database. For each type of actor, an appropriate collection instrument was adapted and designed.

A total of 76 surveys to startups were conducted during the collection process, as well as 33 to other ecosystem institutions. To enrich all this, 12 in-depth interviews were carried out with stakeholders.

To finally validate findings and forecast the ecosystem's acceleration, current Mapping exercise included a discussion with startups.

3.4 Dialogue with ecosystem stakeholders

The data collection for the 4th version of the Mapping exercise included a participatory practice with startups that got through national or international investment rounds. To provide recommendations for the ecosystem's acceleration, this process sought to recover qualitative criteria from their experience.

The methodology was based on an adult teaching technique called Andragogy, which focuses on developing concepts and collecting data out of the people's own experience.

Primary information sources were reviewed to accumulate information and efficiently design a dialogue and workshop for 27 participants.

The workshop validated the status of Bolivian ICT ecosystem; it also allowed the exchange of views on participation and articulation of different components from within, and discussed lessons learned and needs that came in upon listening success stories or proposals from some participants.

The workshop achieved the following results:

- Definition of a desired future for the ICT ecosystem in Bolivia.
- Prospective of next steps based on a FLOR analysis –a Spanish abbreviation for a matrix on Strengths, Limitations, Opportunities and Risks–.
- Establishment of lines of duty, mapping dimensions and recommendations for future actions turned into strategic objectives for the ecosystem.

3.5 Processing of qualitative and quantitative information

The processing of quantitative information was carried out in two phases: analysis of results from current mapping exercise; and comparative analysis of results between current and previous mapping exercises. For each type of stakeholders, output tables and indicators were generated, along with specific variables.

One of the main tasks consisted in the identification of new startups (updating of sample frame) and confirmation of status for other institutions already included in the ecosystem.

For this purpose, the universe for the study was defined as startups and support institutions established between 2020 and the first semester of 2022. The assessment used the same sources of previous exercises.

For qualitative topics, the technique of in-depth interview was applied to group of experts from the ecosystem. Collected information was processed accordingly.

Qualitative information was handled using appropriate tools and indicators. Efforts were made to generate indicators that can still be followed-up in future reports in order to enrich analysis on evolution of the ICT ecosystem in Bolivia.

4. Bolivia’s framework

Based on systems theory, Bolivia's ICT Ecosystem is developing glued to an economic environment that –positively or negatively– determines its growth. To understand conditions faced by entrepreneurs from the technological solutions area, there is a need to use a reference framework[3].

According to the Index of Systemic Conditions for Dynamic Entrepreneurship (ICSEd-Prodem, as per its abbreviation in Spanish), culture –the predominant values and beliefs from a social group – is a condition for the development of an ICT ecosystem. While rentier entrepreneurs are collectively considered successful people, the spread of positive stories from a new generation of dynamic and committed businesspersons leans the youth towards general and technological entrepreneurship.

As per the same assessment, in Bolivia, the cultural dimension performs better if compared to more developed ecosystems. Another dimension with great performance is the enabling factor built by the market demand; this can be credited to the country´s economic and social stability, when compared to other nations in the region.

The ICT Ecosystem has challenges in the social capital field, which implies the capacity to generate interpersonal trust-based bonds. This factor is diminished as per a social polarization that blocks up the development of networks among people from different segments.

Similarly, public policies and programs seeking to promote entrepreneurship, as well as regulations working towards the same goal, are perceived as missing pieces by most stakeholders. However, question arises whether there was enough communication on this issue, as to draw positive attention from different levels of government.

Despite positive-weighted advances in the financing for entrepreneurship –such as the presence of venture capital institutions at national, local and regional levels–, there is still a long way ahead to reach up the level of say the microfinance industry, a continental model for efficiency. The objective of financing is to make economic resources available in terms and conditions that encourage entrepreneurs to start and continue their business adventure.

It is a paradox, or at least a contradiction, that Bolivia, one of the countries with peak entrepreneurial activity in Latin America –measured by the Early Stage Entrepreneurship Rate[4] –, lays low in the dimension of entrepreneurial human capital. Consistently, from the first ICSEd-Prodem measurement, until the most recent assessment, the country is among those with the weakest performance in the region. The explanation is simple: a significant portion of entrepreneurs lean towards subsistence; not towards opportunity.

Despite all the above, the ICT Ecosystem could be the exception that confirms the rule: according to several stakeholders, Bolivian startups possess high-end human talent.

The task ahead is to pursue raising the level of skills required by entrepreneurs, starting from technical aspects and placing special emphasis in the development of soft skills. In this regard, there are enterprises that address the challenge in a groundbreaking way: Elemental Bolivia and the Women 360° Program are examples that propose alternative solutions, far from assistentialism, to raise up the level of ICT-related human talent.

3 To prepare the referential framework in which the Entrepreneurial Ecosystem of Information and Communication Technologies of Bolivia is developed, the authors used conceptual structure of dimensions contained in the Index of Systemic Conditions for Dynamic Entrepreneurship (Kantis, Federico and Ibarra-García).

4 According to Global Entrepreneurship Monitor (GEM), latest available data: 2014, Entrepreneurship in Bolivia - GEM Global Entrepreneurship Monitor (gemconsortium.org))

Within the technological entrepreneurship ecosystem there are two dimensions with less progress in Bolivia: the scientific-technological platform and the business structure. The first one is related to the development of a tech structure that goes beyond research and focuses on achieving industrial integration; the last one, to the business network demanding services from entrepreneurships to address problems for different industries.

To summarize: while important challenges persist in several dimensions –entrepreneurial human capital, social capital, policies and regulations–, culture and the market demand get better performances, even though still far from optimal levels. On the top of this, the real challenge relies in the dimensions of financing, business structure and scientific-technological platform.

5. Ecosystem’s quantitave outcomes

5.1 Startup

The research made for 2022, based on preexisting lists, web reviews, interviews and other methods, is shown in Table N°1.

Table 1: Number of startups by year

Identified Startups in 2019	**152**
+ New identified Startups in 2020	67
- Inactive Startups in 2020	-59
Identified Startups in 2020	**160**
+ New identified Startups in 2021	50
- Inactive Startups in 2021	-55
Identified Startups in 2021	**155**
+ New identified Startups in 2022	106
- Inactive Startups in 2022	-76
Identified Startups in 2022	**185**

Source: Prepared by authors *2022 ICT Mapping*

The results are encouraging: not only there are more active startups in the 2022 ecosystem (185), but there is also a larger number of new startups, two-fold from past reports.

From the total number of active startups, 57% (106) have been identified in 2022 –previously, the new startups meant 42% (67) in 2020, and 32% (50) in 2021–.

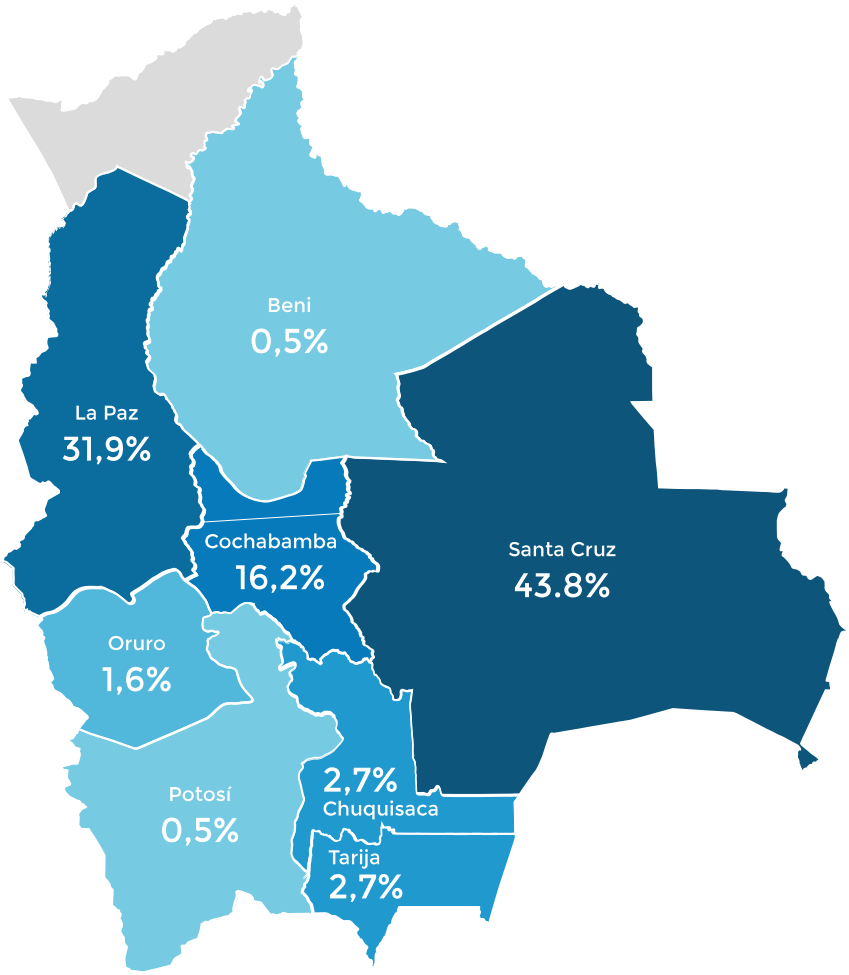
Therefore, there is an opportunity for the ecosystem to boost activities that have nurtured a positive dynamic towards the creation of new enterprises.

Another promising feature identified in 2022 is that eight out of nine capital cities in Bolivia get to have presence of startups. This represents an important qualitative leap with respect to previous years.

Although this economic activity tends to centralize actions in development hubs, as it happens in other countries of the region, in Bolivia the entrepreneurial activity is distributed along an axis of cities (Santa Cruz, La Paz and Cochabamba). This is a favorable feature, as more regions benefit from this industry.

Distribution of startups by regions is presented in Graph 2.

Graph 2: Distribution of startups by departments in Bolivia



Source: Prepared by authors

2022 ICT Mapping

Table: Distribution of startups by departments in Bolivia

	%	Number of Startups
Santa Cruz	43.8	81
La Paz	31.9	59
Cochabamba	16.2	30
Chuquisaca	2.7	5
Tarija	2.7	5
Oruro	1.6	3
Beni	0.5	1
Potosí	0.5	1
Total	**100**	**185**

5.2 Digital Technology Ecosystem in Bolivia - 2022

An assessment of active ecosystem stakeholders in 2022 was carried out as next step for the mapping exercise. Results are presented in Table 2.

It is worth mentioning that even though some institutions still exist, they lay in a period of inactivity on their support actions. Therefore, they have not been considered for this table.

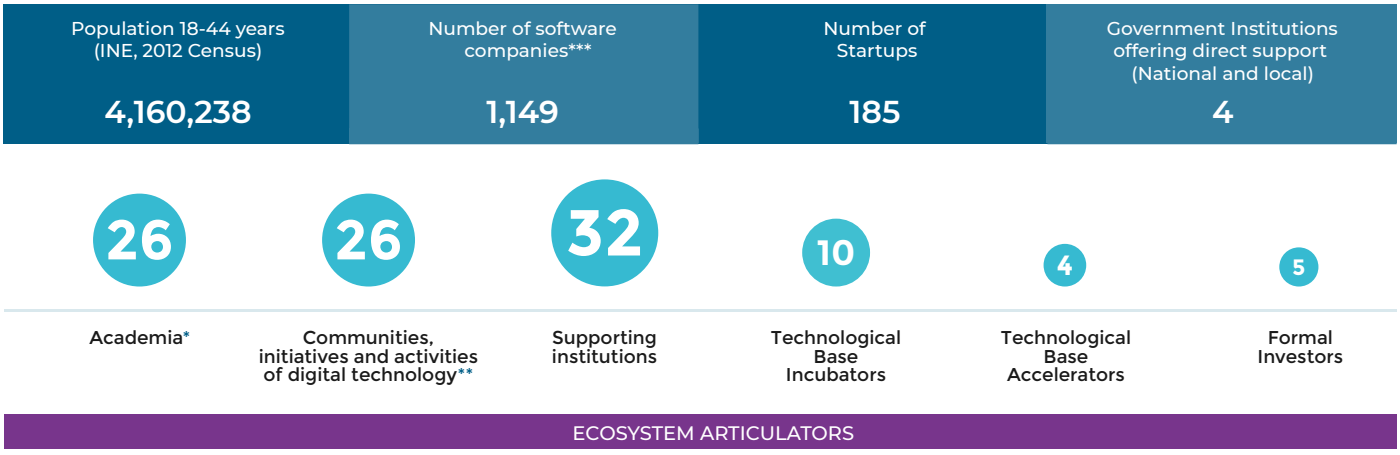
Table 2: Ecosystem stakeholders in 2022

Ecosystem stakeholders in 2022	
Number of startups	185
Government institutions providing direct support (national, local)	4
Academia*	26
Digital technology communities, initiatives and activities **	26
Supporting institutions	32
Incubators	10
Accelerators	4
Investor / Funding provider	5

* Universities, institutes and other training institutions are considered.

** Communities including their chapters by city were not counted.

Source: Prepared by authors



** Universities, institutes, and other training institutions were considered.*

*** Communities were not counted, neither their chapters by city.*

**** Number of software companies. Data from Fundempresa (2019).*

5.3 Ecosystem evolution

The evolution of ecosystem stakeholders is reflected in Table 3:

Table 3: Evolution of Ecosystem stakeholders

Ecosystem actors	2019	2020	2021	2022
Number of Startups	152	160	155	**185**
Government institutions providing direct support (national, local)	6	5	8	**4**
Academia	27	31	30	**26**
Digital technology communities, initiatives and activities*	51	19	26	**26**
Supporting institutions	15	57	40	**32**
Incubators	3	9	13	**10**
Accelerators	4	3	8	**4**
Investors	0	3	5	**5**

* In the 2019 ICT Mapping, communities were counted, including their chapters by city.

Source: Prepared by authors

The installed capacity for the ecosystem's structure, defined by the number of supporting actors, remains stable with relevant variation in some groups, especially in government institutions and accelerators.

As shown in the previous section, there is a growing trend in the number of startups and –which is more relevant– an evolution in qualitative aspects that opened doors to local and international investment rounds.

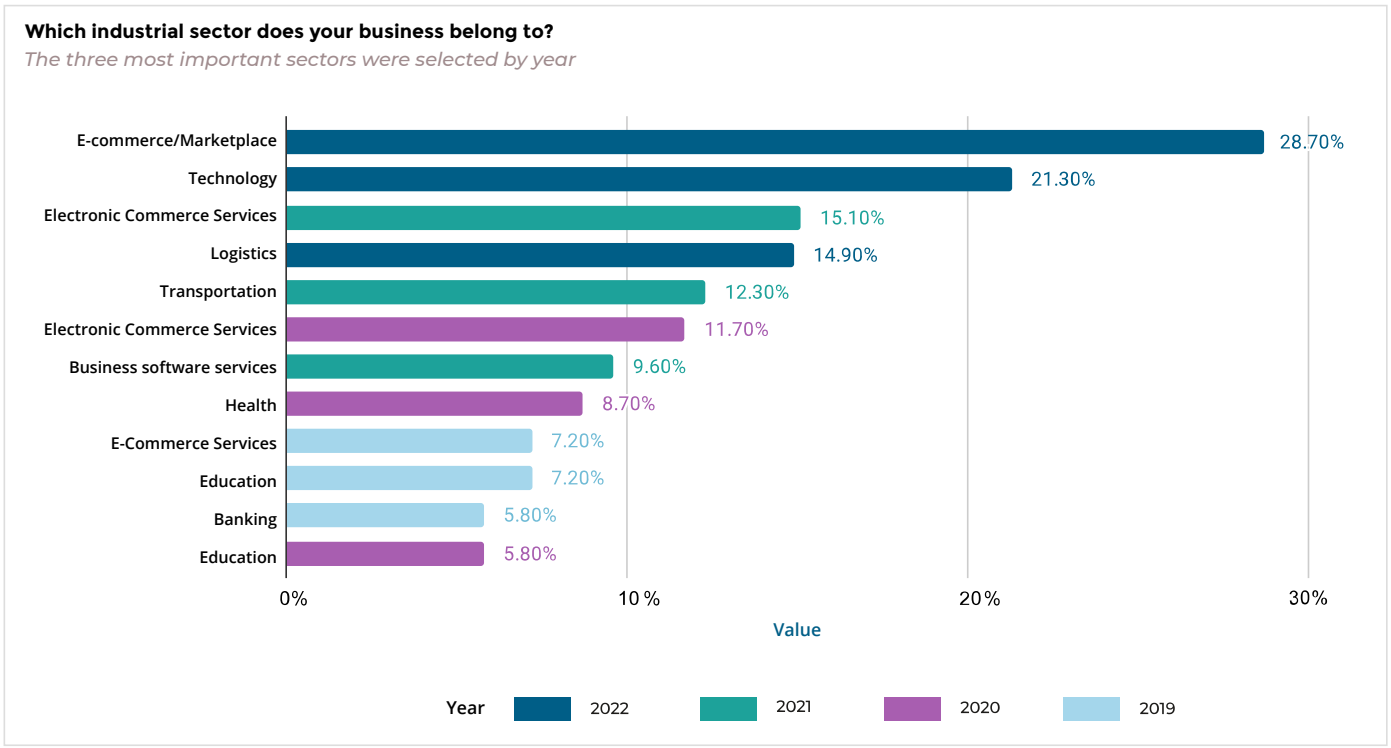
The foregoing is validated by data of institutional investors; they have remained constant and were enriched by regional actors who trust Bolivian startups.

There are still several aspects the ecosystem needs to improve on. However, it is now possible to present trends for some relevant variables:

ICT Ecosystem trends

Dominating trends for the ecosystem have not yet been identified. There have been important changes throughout the four years of Mapping assessments, as can be seen in Graph 3: one third of the startups have reinvented themselves each year in response to opportunities in domestic and global scenarios.

Graph 3: Vertical (sector/industry) to which the startup belongs



Source: Prepared by authors.

2022 ICT Mapping

Table: Vertical (sector/industria) a la que pertenece la startup

Concept	Year	Value
E-commerce/Marketplace	2022	28.70%
Technology	2022	21.30%
Electronic Commerce Services	2021	15.10%
Logistics	2022	14.90%
Transportation	2021	12.30%
Electronic Commerce Services	2020	11.70%
Business software services	2021	9.60%
Health	2020	8.70%
E-Commerce Services	2019	7.20%
Education	2019	7.20%
Banking	2019	5.80%
Education	2020	5.80%

The E-Commerce sector has been the constant, which corresponds to a fundamental feature of the Bolivian economy.

Another relevant aspect of the startups' nature throughout the four years of Maping exercise relies in the type of business model, as evidenced in Graph 4.

Graph 4: Startup's client profile (Business model)

What type of customer is your business model targeting?

Source: Prepared by authors

DTE Mapping 2022

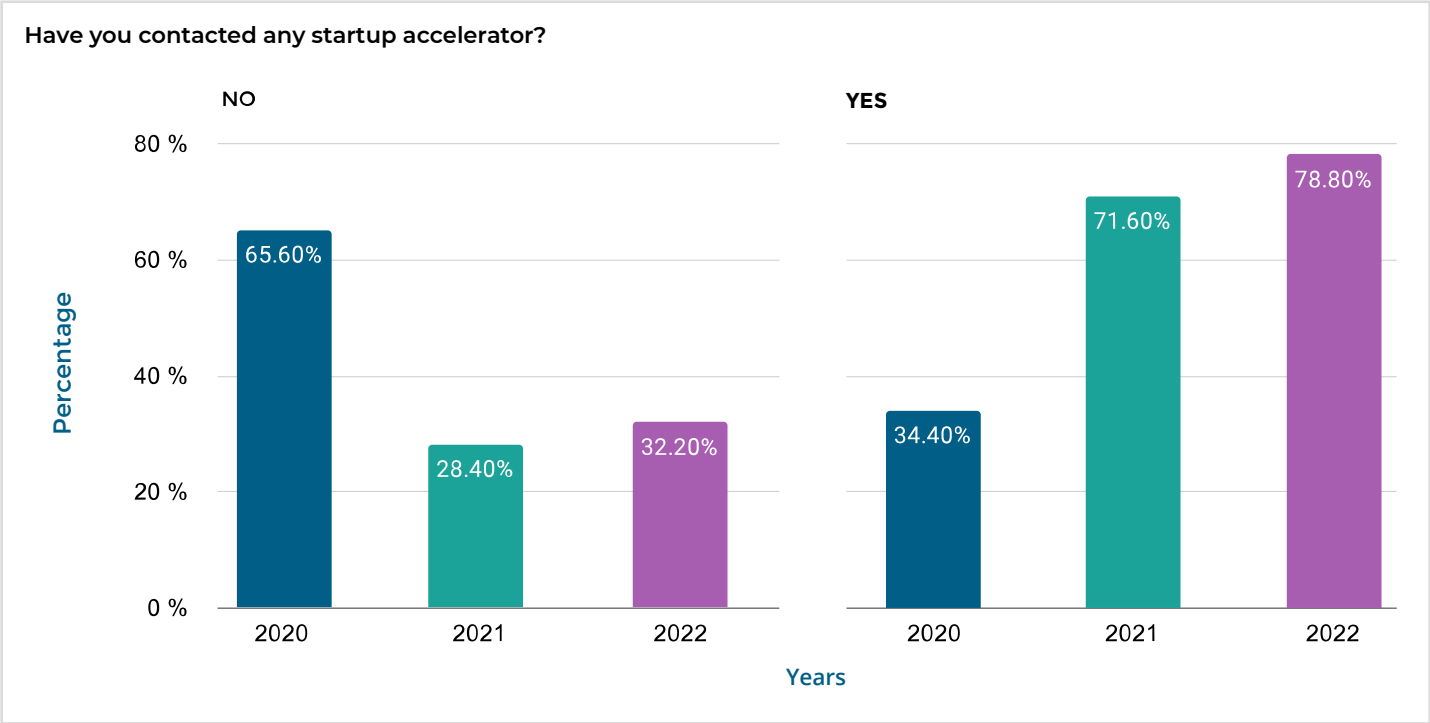
Table: Startup's client profile (Business model)

Concept	Year	Value
B2B	2019	47.2%
B2B	2020	38.3%
B2B	2021	42.9%
B2B	2022	43.4%
B2C	2019	36.1%
B2C	2020	27.7%
B2C	2021	44.5%
B2C	2022	53.9%
B2B2C	2019	11.1%
B2B2C	2020	29.8%
B2B2C	2021	0%
B2B2C	2022	0%
B2G	2019	5.6%
B2G	2020	4.3%
B2G	2021	12.6%
B2G	2022	2.6%

While startups directly oriented to final customers have considerably grown in the years of the pandemic, those aimed at providing services to other companies have had a stable behavior.

Decisions to professionalize ventures are revealed upon seeing the significant growth of startups that contacted accelerators; the ratio has increased significantly, as shown in Graph 5.

Graph 5: Startups that have contacted accelerators



Source: Prepared by authors

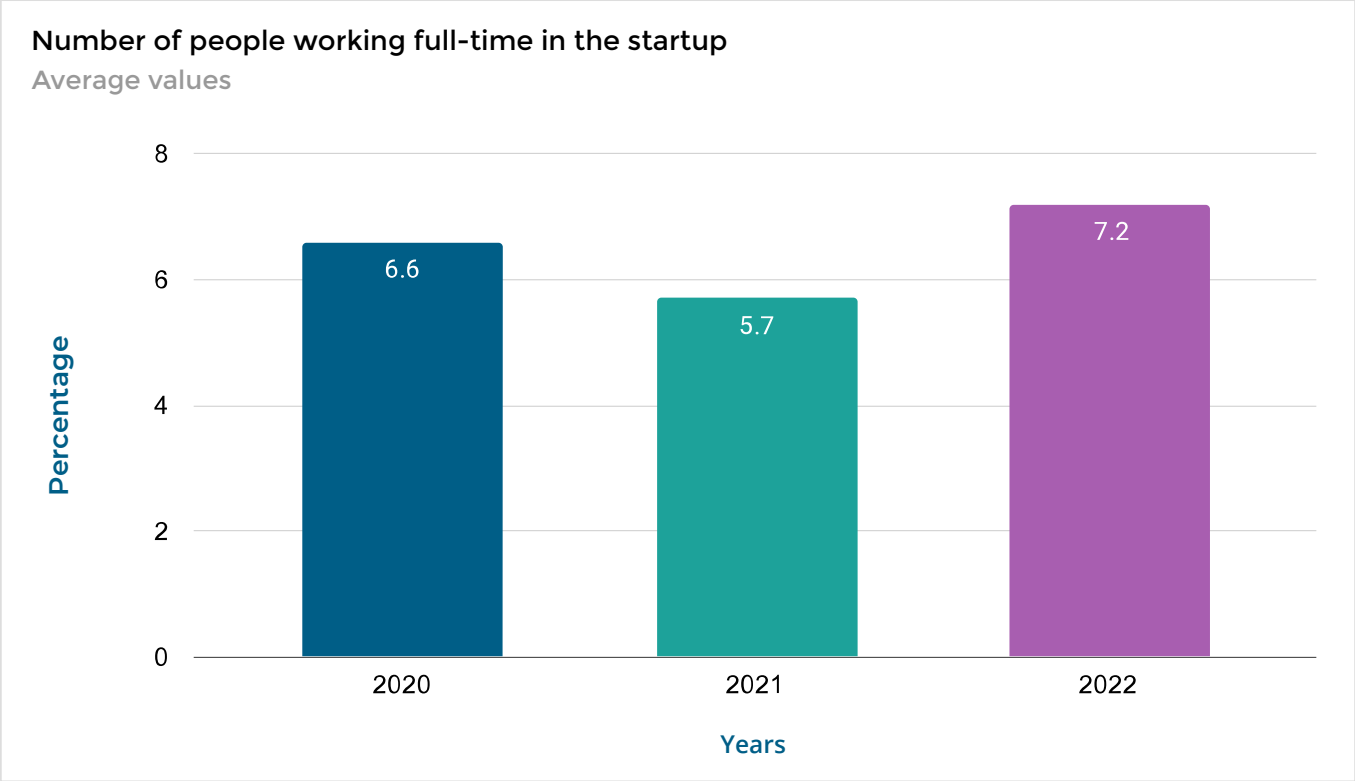
2022 ICT Mapping

Table: Startups that have contacted accelerators

Concept	Year	Value
No	2020	65.6%
No	2021	28.4%
No	2022	32.2%
Yes	2020	34.4%
Yes	2021	71.6%
Yes	2022	78.8%

As this industry is a high-quality employment generator –a topic that is highly relevant for Bolivia–, the evolution of the following indicator brings good news: the average team within the startups has grown, as can be seen in Graph 6.

Graph 6: Average number of full-time workers in the startups



Source: Prepared by authors

2022 ICT Mapping

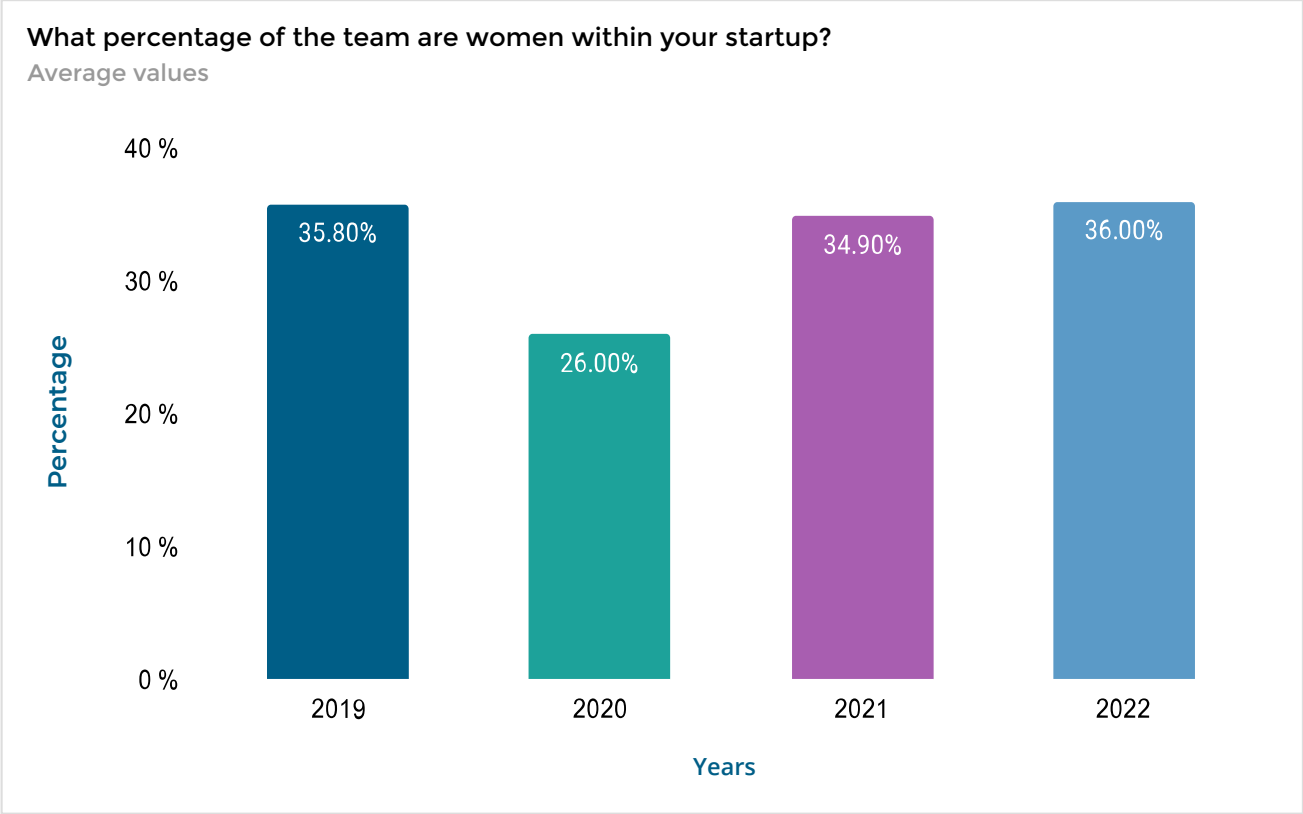
Table: Average number of full-time workers in the startups

Year	Value
2020	6,6
2021	5,7
2022	7,2

Although the trend is already good news, it is also a challenge for the provision of human talent in the quantity and quality the ecosystem demands.

Finally, gender equality is the pending issue. As shown in Graph 7, trends are not yet positive on the need to contribute to equal gender opportunities.

Graph 7: Percentage of women in the team



Source: Prepared by authors

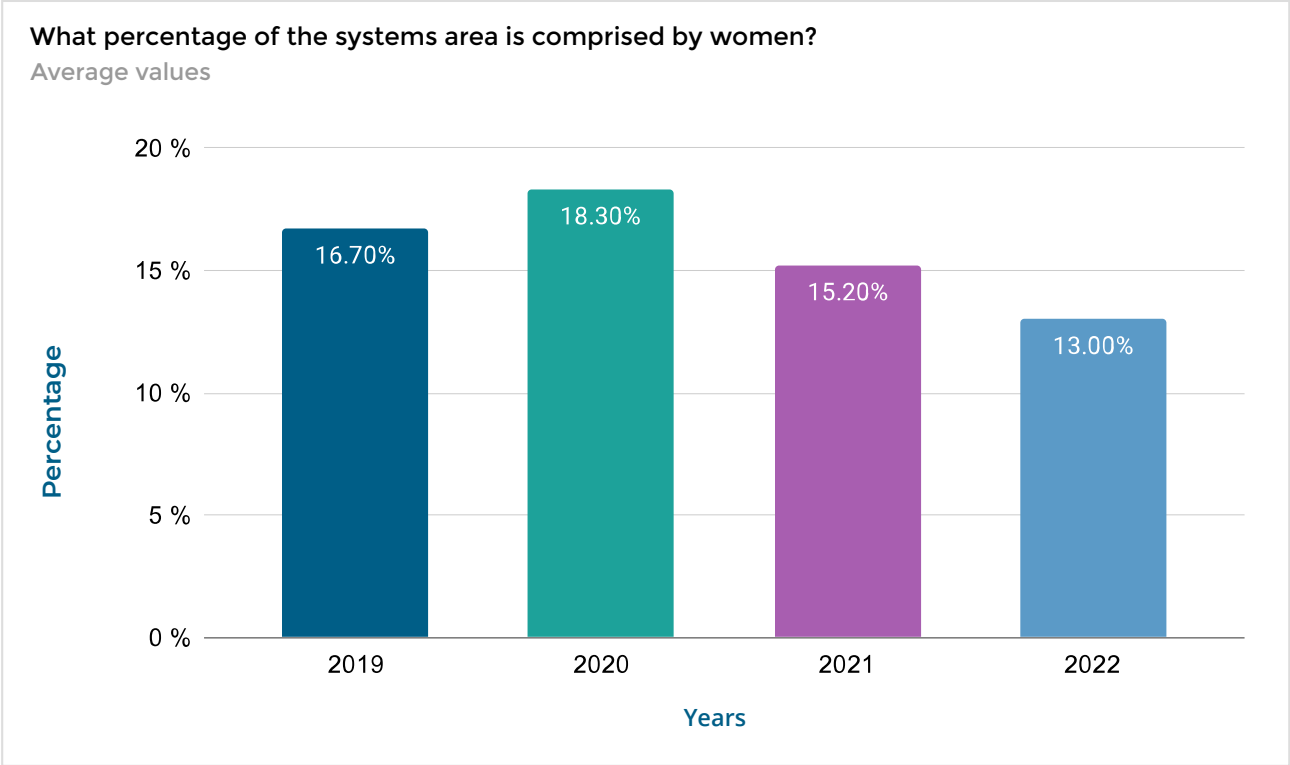
2022 ICT Mapping

Table: Percentage of women in the team

Year	Value
2019	35,8%
2020	26%
2021	34,9%
2022	36%

The percentage of women in the Tech team remains in around one third of the startup employees –this data is somehow encouraging when compared to the region's–. However, the gender gap increases when the technical team is assessed, as shown in Graph 8.

Graph 8: Percentage of women in the Tech team



Source: Prepared by authors

2022 ICT Mapping

Table: Percentage of women in the Tech team

Year	Value
2019	16,7%
2020	18,3%
2021	15,2%
2022	13%

6. Qualitative Ecosystem outcomes

6.1 Determining causes for growth and death of ICT Startups in Bolivia

"Startups are business structures aimed at achieving rapid growth based on innovation" (Graham, 1964). Unlike traditional companies, which base their business models in replicating existing and consolidated ideas, startups rely on research and development to obtain a unique and differentiated product or service.

Two basic features that separate waters between startups and most companies are: a particular financing structure and a life cycle of its own.

6.1.1 Startup growth stages

Current assessment considers the following startup growth stages:

Stage 1: CConcept/research. Startups are investigating their target audience and tuning up the relation between product and market; they are also looking at existing competitors and potential customers. They have a good idea of what their business plan and mission statement will be. They have formulated goals for their entrepreneurship development in the coming years.

Stage 2: Commitment. They have a prototype; they have also developed the production process for the product or service and have started to assemble a working team.

Stage 3: Traction/validation. They are in the first year of implementation. They have started promoting their product or service and already met their first customers. They are still making adjustments to the product or service.

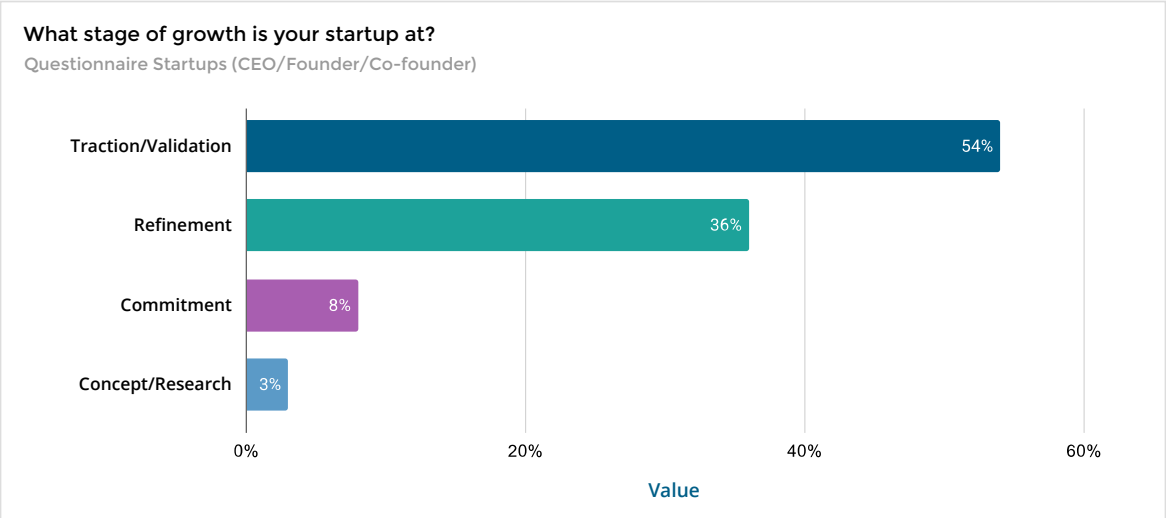
Stage 4: Refinement. It usually happens in the second year. They receive and request feedback from early clients and use it to continue improving their product or service. They are also refining their processes to become more efficient.

Stage 5: Escalation. They are in the stage of growing their customer base, their offerings, and their own businesses. They have begun serving the market the startup was intended for.

Stage 6: Establishment. They are no longer a new company, but an established one. Upon considerable growth in sales and in the company structure, the rhythm now slows down.

In Bolivia, as shown in Graph 9, 54% of startups are in the traction/validation stage, which is the most critical phase of their cycle. At this moment the company launches its business model to the market. This allows to assess the behavior of target segment and helps validating whether the product or service meets the needs of the target group.

Graph 9: Percentage of startups by growth stage



Source: Prepared by authors

2022 ICT Mapping

Table: Percentage of startups by growth stage

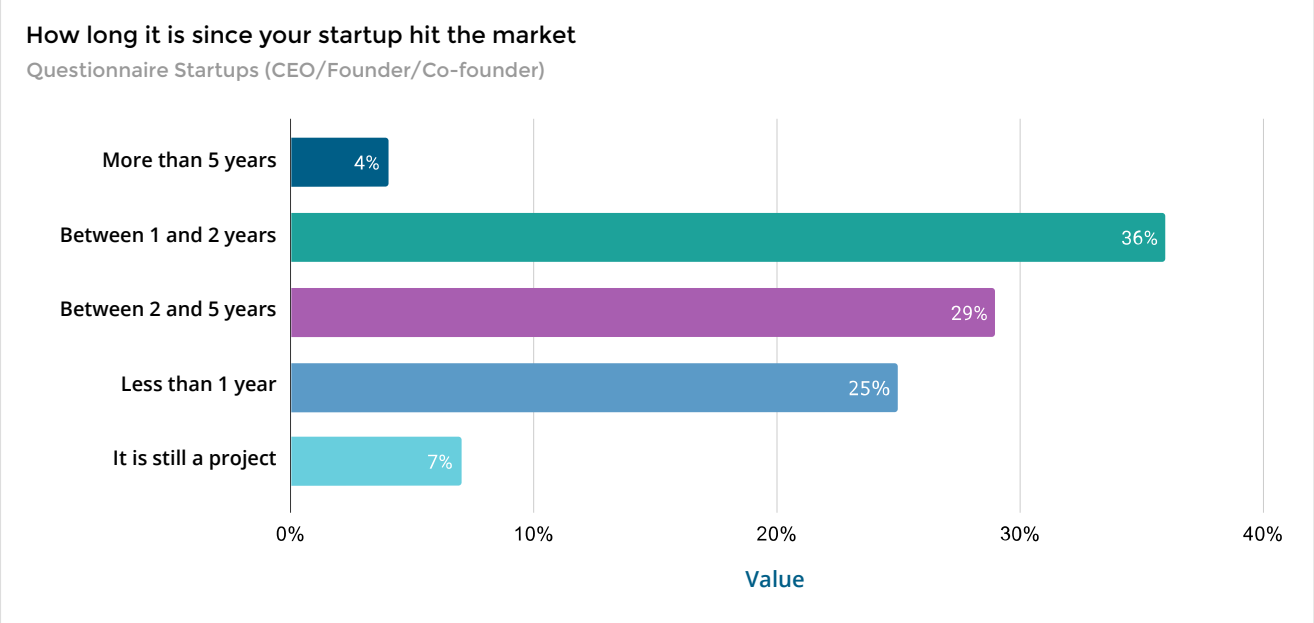
Stage of Growth	Value
Traction/Validation	54%
Refinement	36%
Commitment	8%
Concept/Research	3%

At this stage the startup will see if it has the ability to scale up. Some 36% of startups say they are in the refinement stage, 8% in the commitment stage, and only 3% in the concept/research stage.

In Graph 10, data shows that 36% of startups have been one and two years in the market. One out of three (29%) is in the range of two to five years, while only one out of 25 (4%) has been in the market for more than five years.

The data shows that survival rate for startups in the Bolivian ecosystem is low. In 72% of the cases, the startups were only ideas or projects for at least six months.

Graph 10: Years in the market for startups



Source: Prepared by authors

2022 ICT Mapping

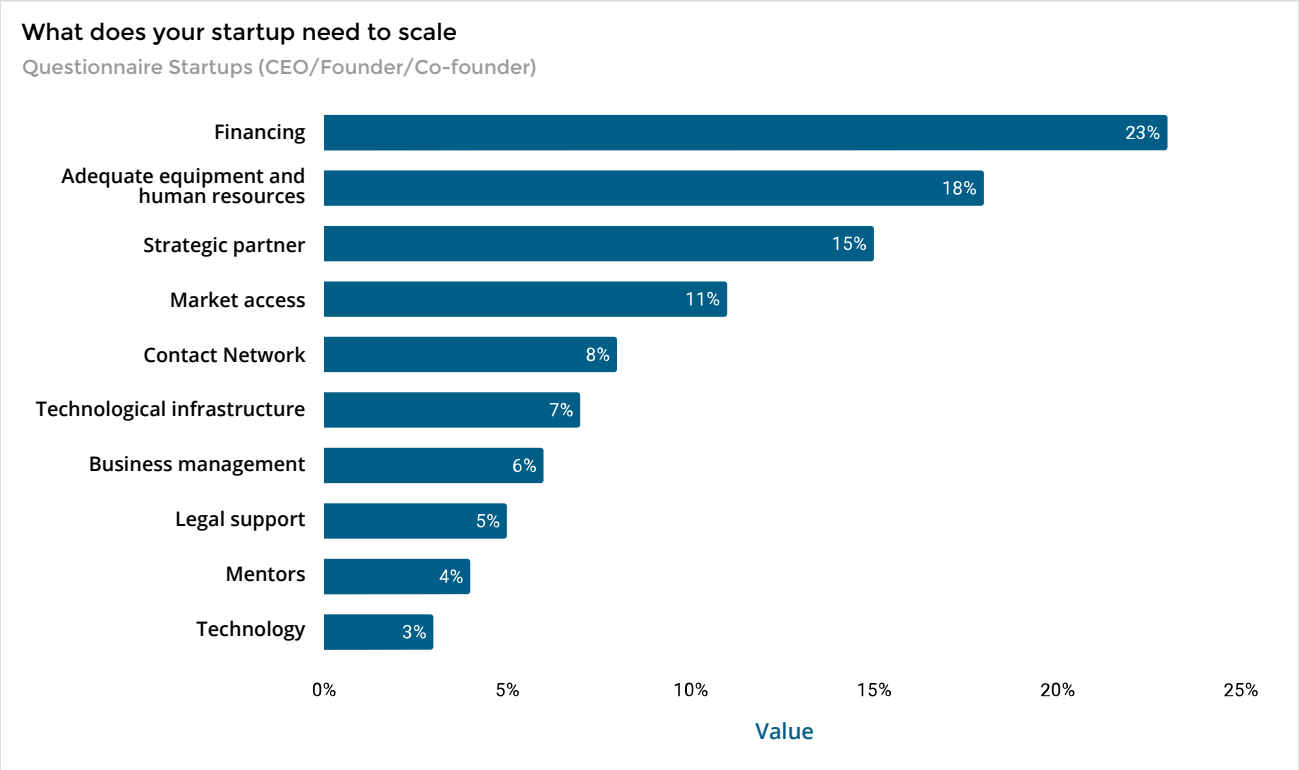
Table: Years in the market for startups

Concept	Value
More than 5 years	4%
Between 1 and 2 years	36%
Between 2 and 5 years	29%
Less than 1 year	25%
It is still a project	7%

6.1.2 Factors determining scalability for startups

According to the responses of surveyed people, funding is the main scale up requirement for startups. It is notable that 59% of startups only possess enough resources (liquidity) to operate the next 12 months, as Graph 11 reveals. Only one out of five startups (21%) has enough liquidity to continue operating indefinitely.

Graph 11: Support needed for startups to scale up



Source: Prepared by authors

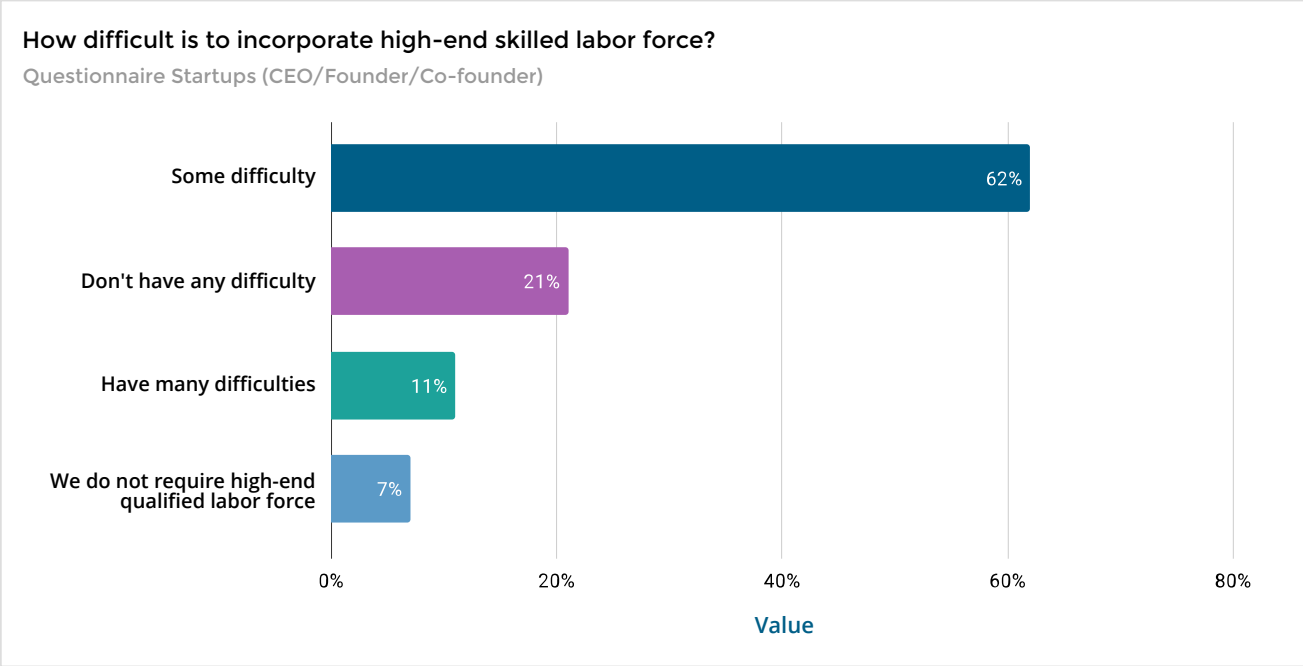
2022 ICT Mapping

Table: Support needed for startups to scale up

Concept	Value
Financing	23%
Adequate equipment and human resources	18%
Strategic partner	15%
Market access	11%
Contact Network	8%
Technological infrastructure	7%
Business management	6%
Legal support	5%
Mentors	4%
Technology	3%

Another important factor for the scaling of startups relies in the need for adequate equipment and human resources (18%). While 62% of interviewees expressed difficulties in recruiting qualified labor force, as shown in Graph 12 –seven out of 10 startups have difficulties finding labor hand with required profile.

Graph 12: Degree of difficulty to incorporate qualified labor hand to startups



Source: Prepared by authors

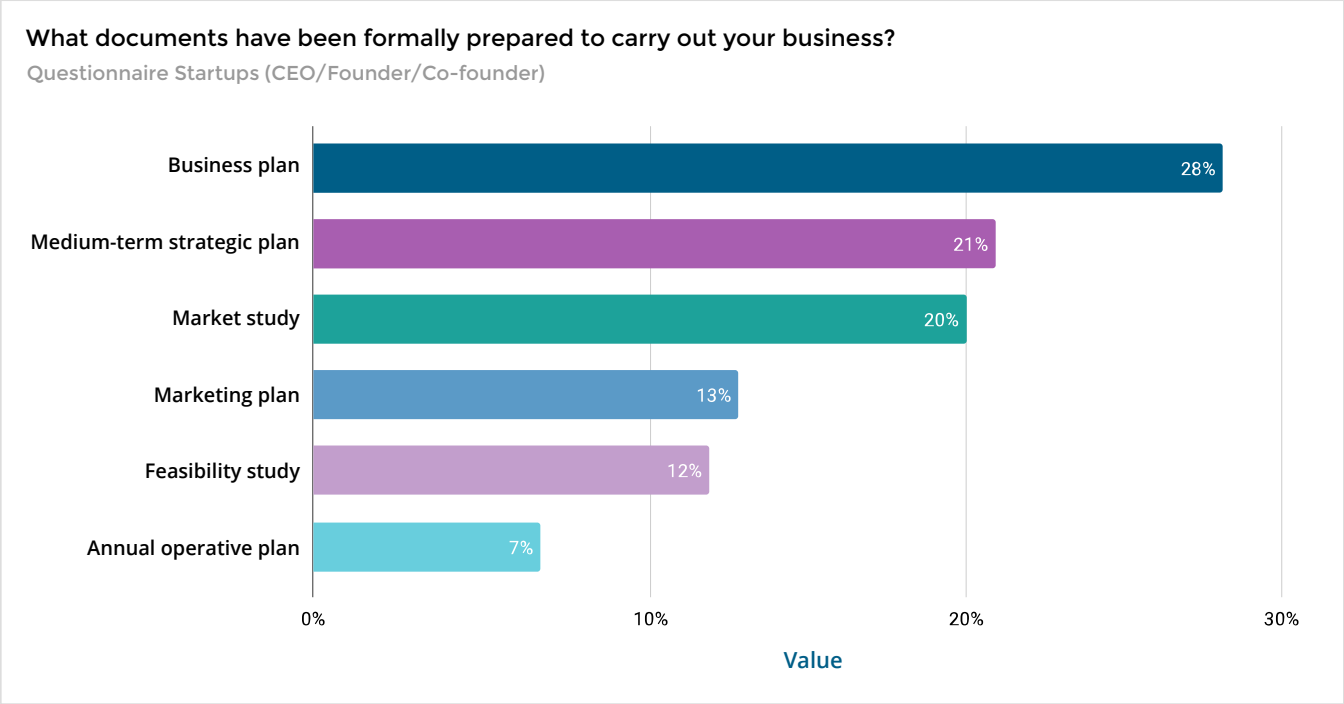
2022 ICT Mapping

Table: Degree of difficulty to incorporate qualified labor hand to startups

Concept	Value
Some difficulty	62%
Don't have any difficulty	21%
Have many difficulties	11%
We do not require high-end qualified labor force	7%

The level of systematization for intellectual capital from startups is also under analysis. Strategic documents developed by themselves were used as an indicator for this. As Graph 13 reveals, 28% of startups have developed a business plan, 21% have carried out medium-term strategic planning, while 20% performed market research. Feasibility studies, annual operating plans and marketing plans reach around 32% of mentions.

Graph 13: Startup management formalization



Source: Prepared by authors

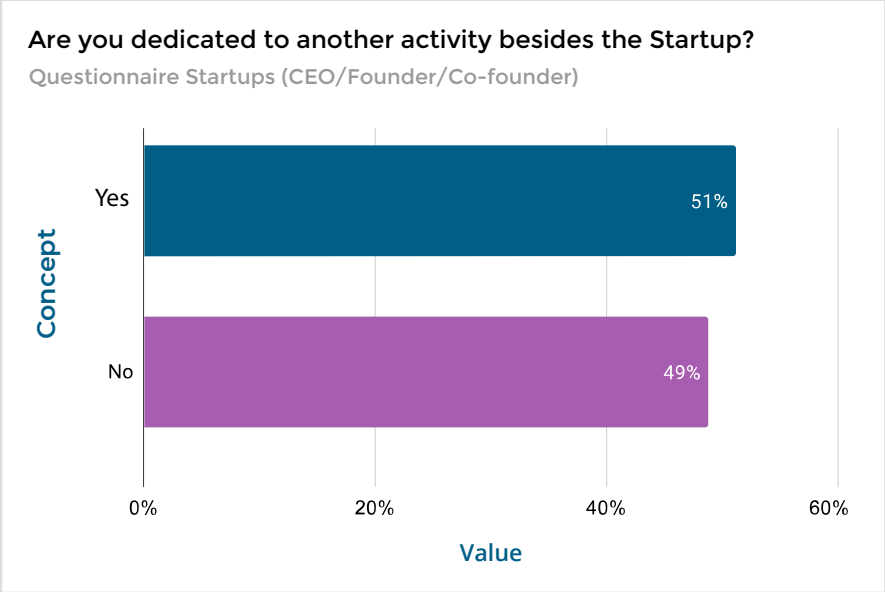
2022 ICT Mapping

Table: Startup management formalization

Concept	Value
Business plan	28%
Medium-term strategic plan	21%
Market study	20%
Marketing plan	13%
Feasibility study	12%
Annual operative plan	7%

It is striking that 51% of founders are dedicated to other activities in addition to those for their startups. Graph 14 also reveals that only 18.45% of startups get to have more than 10 full-time employees.

Graph 14: Level of dedication to other activities besides the startup



Source: Prepared by authors 2022 ICT Mapping

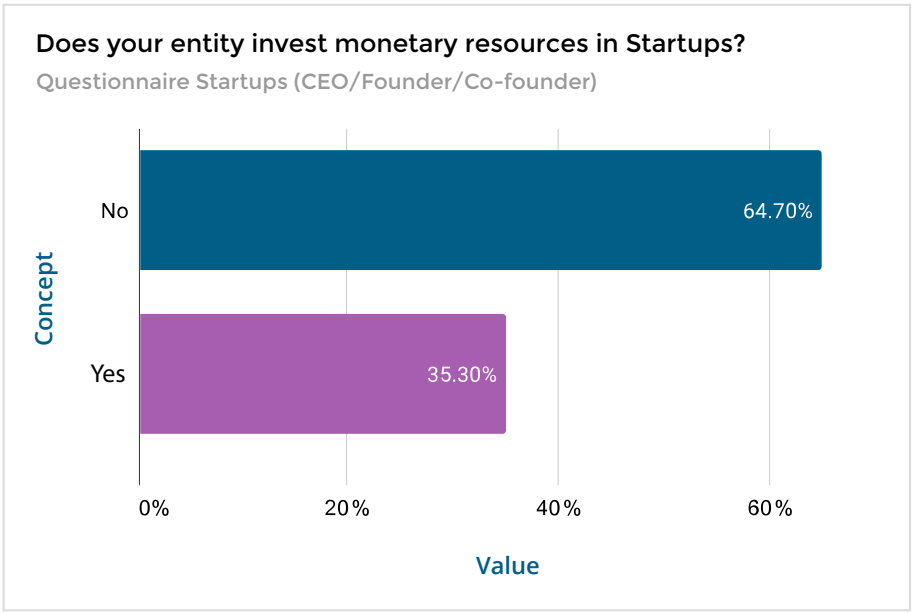
Table: Level of dedication to other activities besides the startup

Concept	Value
Yes	51%
No	49%

6.1.3 Financing, the main scalability factor

Financing is the main requirement the startups demand in order to scale up. According to interviews with ecosystem actors, 64.7% of the institutions do not invest monetary resources in startups, as shown in Graph 15.

Graph 15: Investment activity of startups supporting institutions



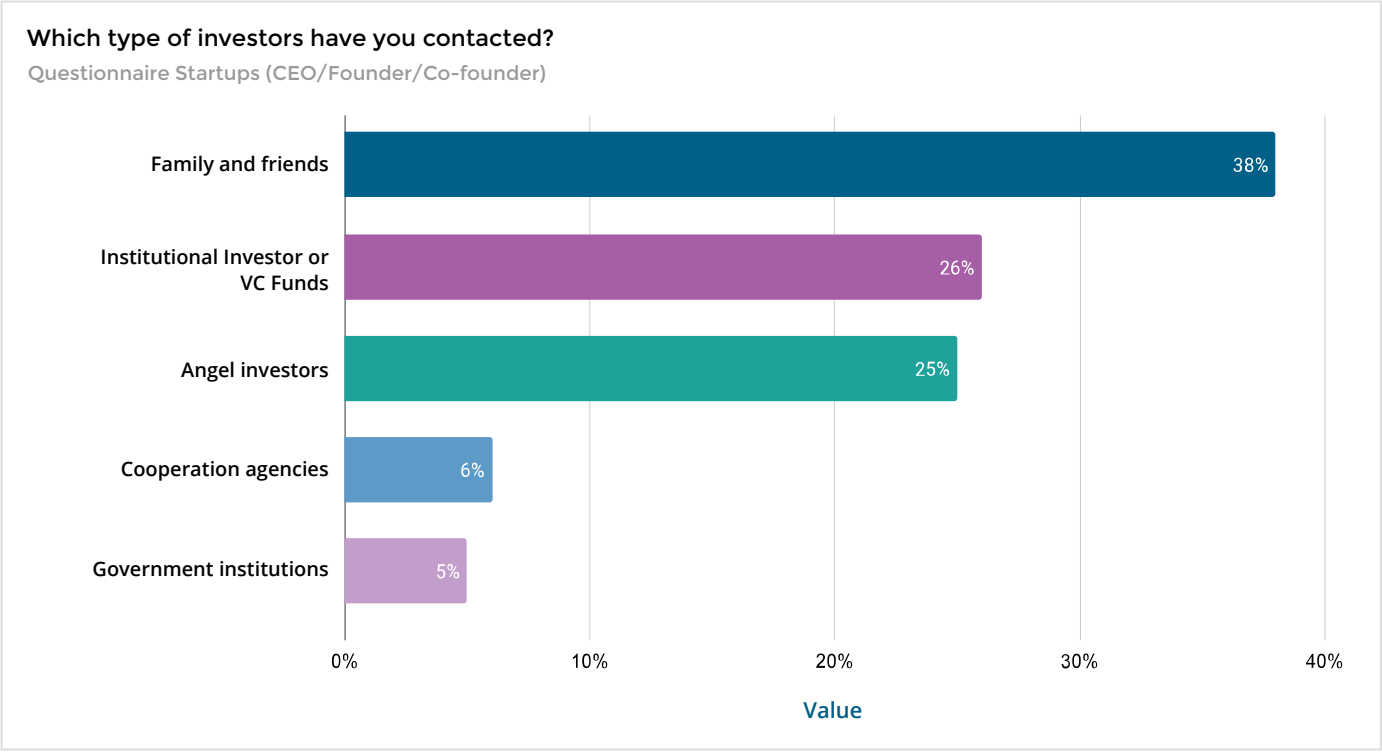
Source: Prepared by authors 2022 ICT Mapping

Table: Investment activity of startups supporting institutions

Concept	Value
No	64,7%
Yes	35,3%

According to interviewed startups, almost three out of 10 (28%) have contacted investors from their own city. Graph 16 shows that 62% have contacted seed capital providers; however, the contacted investor generally belongs to family circles and friends (38%).

Graph 16: Types of contacted investors



Source: Prepared by authors

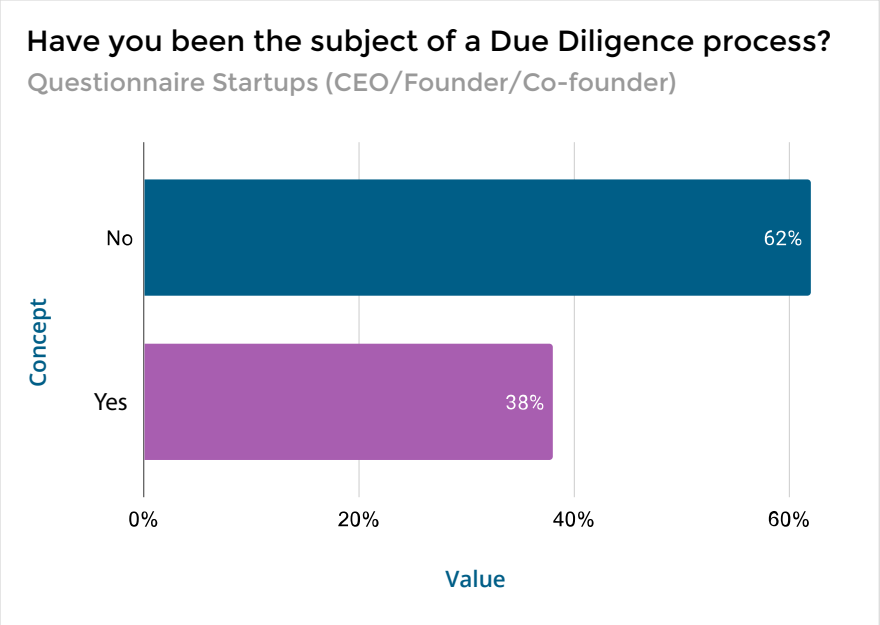
2022 ICT Mapping

Table> Types of contacted investors

Concept	Value
Family and friends	38%
Institutional Investor or VC Funds	26%
Angel investors	25%
Cooperation agencies	6%
Government institutions	5%

As Graph 17 shows, 62% of the startups have not been object of a Due Diligence process, which means they have not approached venture capital investment funds, the main fuel for startups' scalability in the ecosystem.

Graph 17: Startups that have experience with Due Diligence process



Source: Prepared by authors

2022 ICT Mapping

Table: Startups que han tenido experiencia de Due Diligence

Concept	Value
No	62%
Yes	38%

6.2 Regional Venture Capital Funds interested in Bolivia

Venture Capital Funds (VC) that landed in Bolivia, set their interest in the most mature startups and invested in different rounds, helping them to scale up, thus enhancing the ecosystem. The Latin American VC Funds that invested in Bolivian startups are:

- Startups Chile – "Tu Gerente"
- BID LAB – "ULTRA GRUPO"
- MAGMA PARTNERS, Duro Ventures, CIBERSONS, 99 STARTUPS – "DELTA X"
- BuenTrip Ventures, FJ LABS, Precursor Ventures, Class 5 Global, Newtopia, Goldtruck Holdings, iThink VC, Unpopular Ventures – "KOBAN"
- Pareto Holdings, Sovereign's Capital – "PasanaQ"

The investments reflect that quality of technological innovations carried out by Bolivian startups have potential to scale up into international markets.

In August 2022, the city of Santa Cruz de la Sierra hosted the Venture Capital & Investment Summit Latam - VCILAT. The event gathered more than 20 venture capital investors from various countries, including:

- Newtopia
- Cibersons Group
- Unpopular Ventures
- IThink VC
- EcoEnterprises Fund

- The Yield Lab LATAM
- Dalus Capital
- NXTP Ventures
- IMPAQTO
- Magma Partners
- Imagine Ventures
- Salkantay Ventures
- OurCrowd

Within the event, Bolivian startups had the chance to connect with investors exposing their business models.

Magma Partners, IThink VC, Imagine Ventures, Cibersons, Dalus Capital and Genesis Ventures were surveyed on their perceptions about Bolivian startups and the ecosystem. Some 83.3% of the investors rated the startups in a medium level, while remaining 16.7% placed them at a low level.

Among their main recommendations to enhance the level of Bolivian startups, it was suggested they should develop products not only to fulfill domestic needs, but to reach regional markets. This implies that Bolivian entrepreneurs should broaden visions and scale up their startups.

Investors also identify that the level of traction from startups is low, with limited access to financing in Bolivia, which makes it difficult for them to scale to other countries and attract interest from regional funds.

All the investors are interested in a second approach with startups they interviewed as potential targets for investments. They believe that, despite difficulties, there is potential to scale up in Latin America.

Investors' perception on Bolivian ecosystem is encouraging: despite its status as an emerging ecosystem, they consider there is a lot of talent and accelerated growth in the country. They also identify key institutions for assistance in this process, such as economic chambers and accelerators. They finally perceive an interest from business groups to step into the ecosystem.

6.3 Analysis of startups by verticals

Specialization of startups reveals the potential markets they are targeting. This situation has led to finding synergies between economic units, according to verticals they belong to, which allows sharing of information and seeking of solutions for challenges within their own environments. This is the case of the Fintech Chamber of Bolivia, created in the current period.

As Graph 18 reveals, the highest number of Bolivian startups are located in eCommerce/Marketplace, Technology (Software as a Service), Logistics, Fintech and Edtech. All of them represent 70% of startups nationwide.

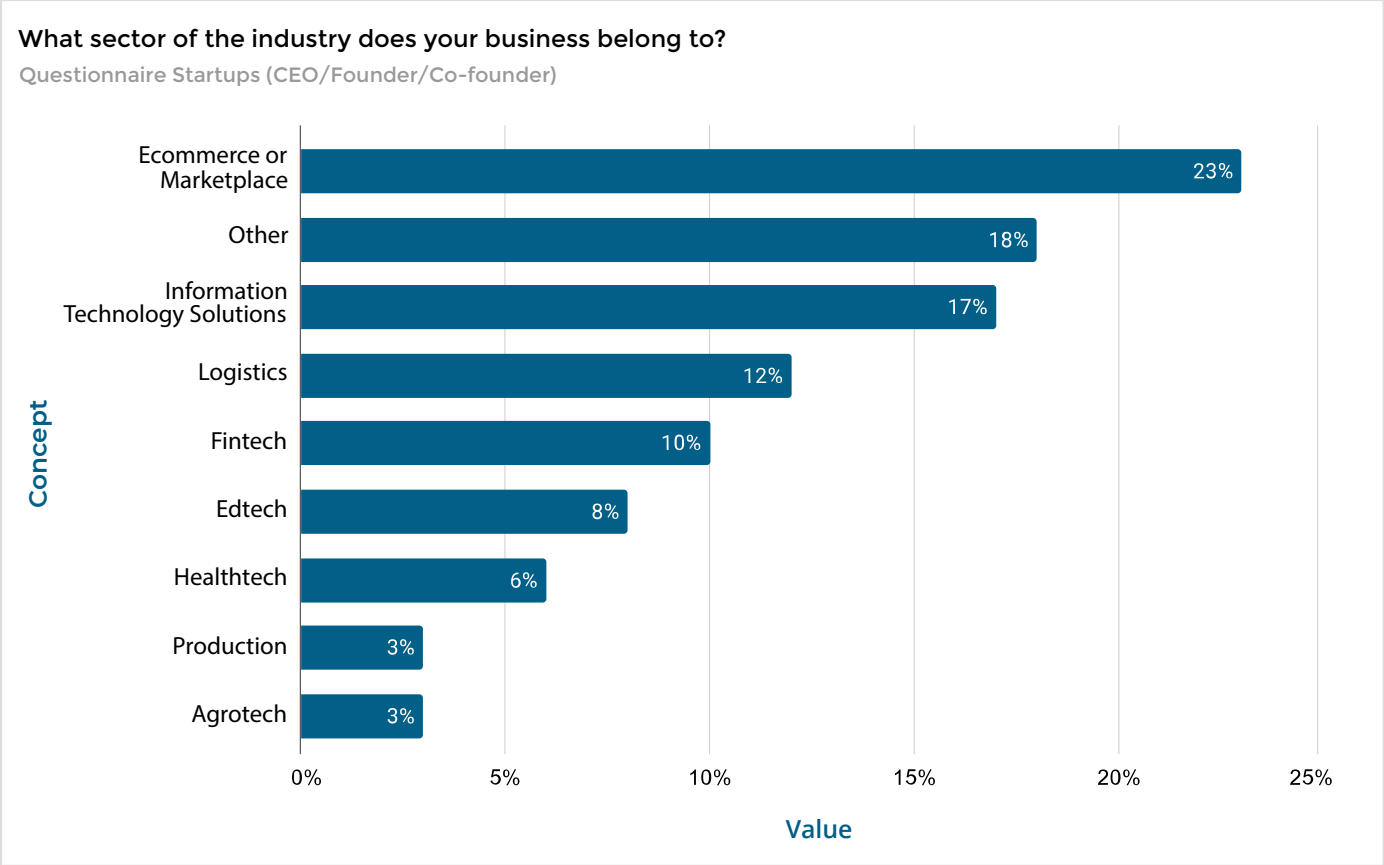
Startups with financing rounds belong to the eCommerce/Marketplace, Logistics and Fintech verticals. In the last two years there has been a growth in startups for the Logistics vertical –Yaigo by Yummi case–.

The low banking penetration rate is also an opportunity to generate solutions for the market fintech platforms (KOBAN, Ultra, Libélula, El Genio, among others). Thus, there is also an opportunity for startups generating impact on transformation and reduction of gas emissions –the MOBI and QUANTUM cases–, whose solutions are sold in Bolivia and also in countries abroad, such as Paraguay.

Beginning this year, there has also been presence of startups in the agricultural area, such as SOS Agro and Hola Tractor. Both initiatives supply solutions to a sector whose average share is 13% of the national GDP where it participates as the second key component.[5]

5 UDAPE, Agricultural Sector Assessments (2015)

Graph 18: Vertical (sector/industry) to which your business belongs



Source: Prepared by authors

2022 ICT Mapping

Table: Vertical (sector/industry) to which your business belongs

Concept	Value
Ecommerce or Marketplace	23%
Other	18%
Information Technology Solutions	17%
Logistics	12%
Fintech	10%
Edtech	8%
Healthtech	6%
Production	3%
Agrotech	3%

6.4 Technological startups in rural areas

This year, the Mapping exercise included questions on digital startups and their links with the rural world in order to understand causes, bottlenecks and other elements that inhibit startups to boost their activities in those areas.

Findings from surveys and interviews with actors of the digital ecosystem reveal interesting topics:

- Some 60% of startups said their main objective is not the contribution to the urban-rural connection; for some of them, this would be a secondary target.
- Startups whose activities are linked to rural areas represent 16% of the total, and their main business is closely related to the agricultural sector, specifically to services for small and large agricultural producers.
- Startups somehow linked to the rural area represent 16%.
- There are no technological initiatives for medical services, public transportation, or services for elderly in rural areas.
- Actors of the digital ecosystem identified some reasons for the absence of startups in rural areas, and made recommendations to address the issue:

Bottlenecks	Possible solutions
Digital business models do not necessarily address issues and needs in rural areas.	To arrive with training, connectivity and technology to rural areas
Bolivia is an emerging country in the use of technology; there are no public policies that encourage the arrival of entrepreneurship and innovation in rural areas.	To change the mentality of youth, so students can start careers linked to technology.
There is no fixed broadband, and Internet browsing is basically done through mobile phones.	To generate awareness and socialization processes on the benefits of technology linked to entrepreneurship.
Municipal governments do not allocate resources for technology and connectivity to reach rural areas.	Political will of authorities that promote technological innovation in rural areas.
Startups aim to become unicorns, so they focus more on urban areas and countries abroad.	To identify institutions that articulate actors who understand rural topics, with startups or people who handle technology with expertise.
Youth from rural areas migrate to urban centers, especially those people who could promote technological innovation in their regions.	To allocate financial resources (seed capital) to encourage enterprises and startups in rural areas.
An urban-rural cultural gap generates mistrust in rural populations on how to use technology.	To generate spaces aimed at building trust among all actors in the ecosystem.

7. Social capital from the ICT Ecosystem

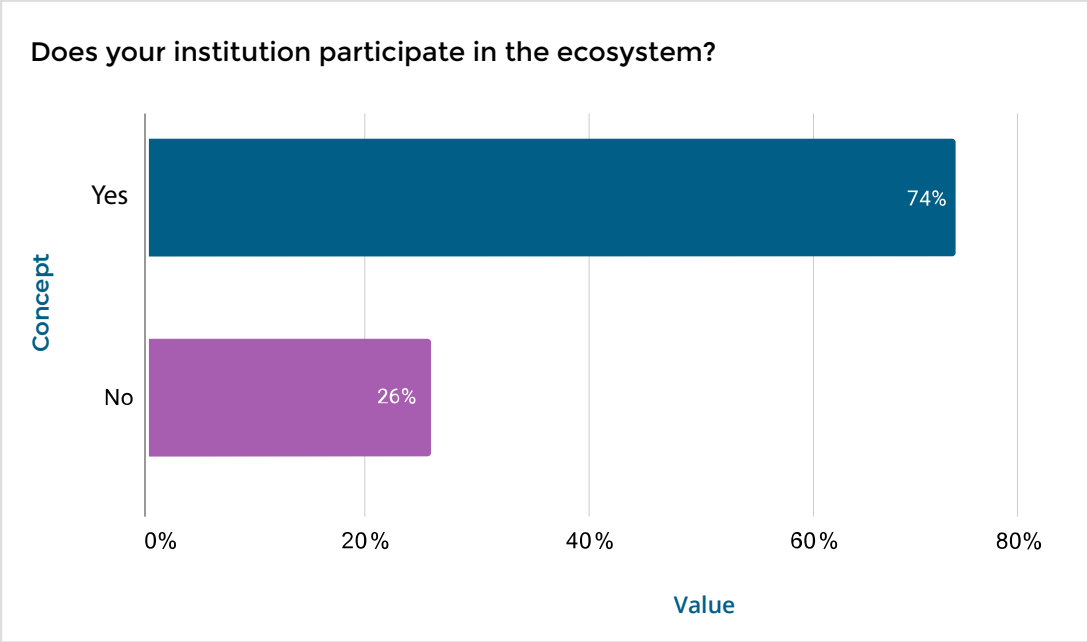
The ecosystem's social capital is a glue allowing harmonious and dynamic development of the entrepreneurial process. Startup initiatives flow through it, so it is important to measure status and magnitude every year.

To quantify the social capital from ICT ecosystem, and to conduct improvement actions, current report uses two qualitative dimensions: the first one is the measurement of a sense of belonging to the ecosystem; the second one, the perception on the level of trust among actors.

7.1 Measurement of the Social Capital Index – Sense of belonging

The Bolivian ICT ecosystem reveals an important level on sense of belonging: some 74% of consulted people and institutions consider themselves part of the ecosystem, as shown in Graph 19.

Graph 19: Sense of belonging to the ecosystem



Source: Prepared by authors. 2022 ICT Mapping

Table: Sense of belonging to the ecosystem

Concept	Value
Yes	74%
No	26%

Although current self-identification with the ecosystem is lower than that of 202 (79%) the margins of variation remain reasonable.

The reduction in the sense of belonging is somehow explained by a high rate of renovation in startups and the fact that new comers do not feel they fit there yet.

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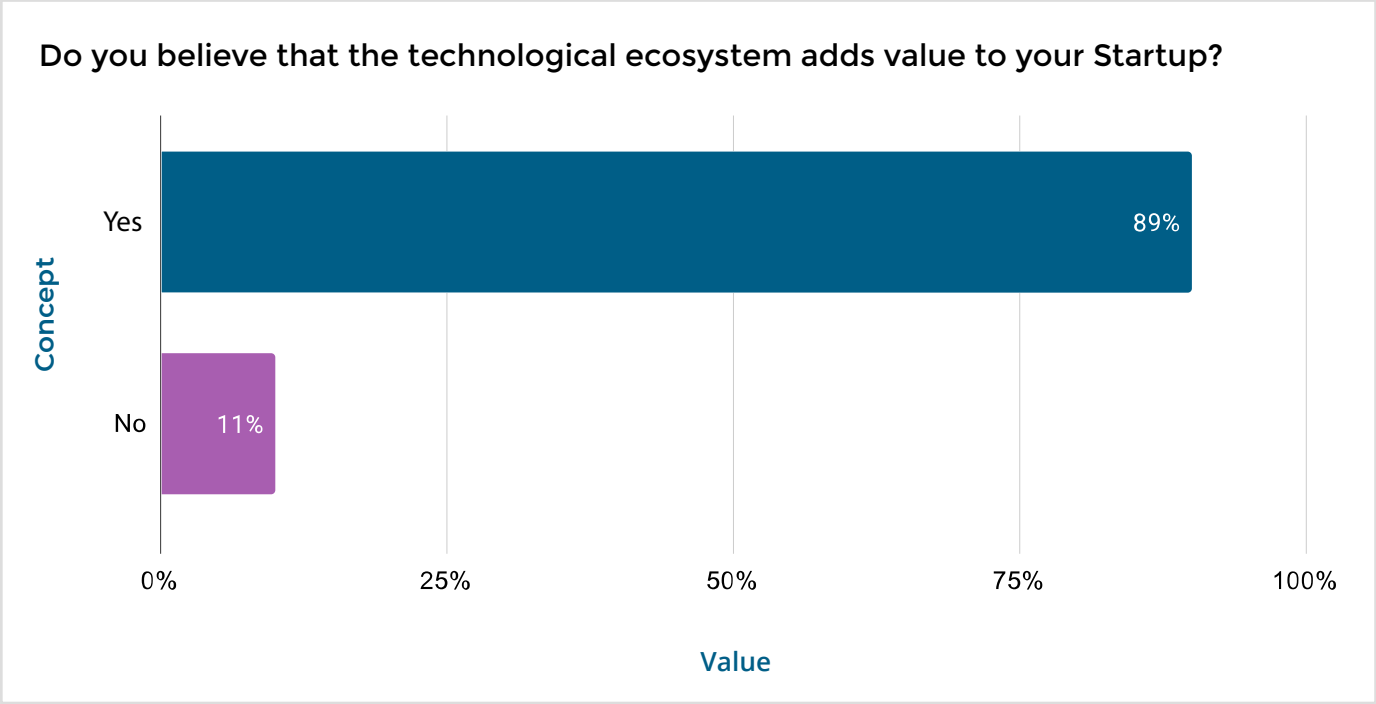
Graph 20: Perception of value added from ecosystem to Startups



Source: Prepared by authors. 2022 ICT Mapping

Table: Perception of value added from ecosystem to Startups

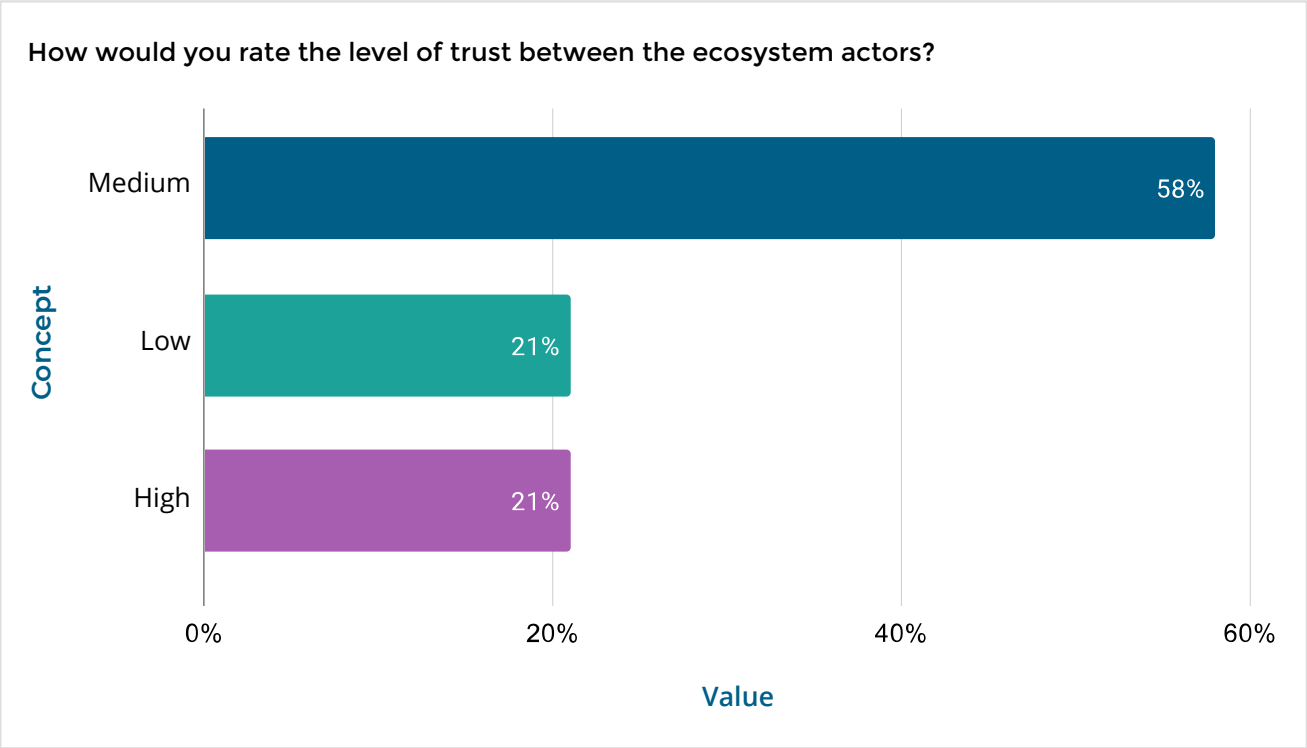
Concept	Value
Yes	89%
No	11%

About 90% of the interviewees –people already identified with the ecosystem– consider that it adds value to their startups, which is a positive sign as per the effectiveness of the ecosystem's actions.

7.2 Measurement of the Social Capital Index - Trust

Despite the praises given to social capital, 58% of the actors think that other stakeholders in the ecosystem are only moderately reliable (Graph 21).

Graph 21: Level of trust between the ecosystem actors



Source: Prepared by authors. 2022 ICT Mapping

Table: Level of trust between the ecosystem actors

Concept	Value
Medium	58%
Low	21%
High	21%

A change in the scales of perception was performed this year in order to improve the measurement of this dimension. Even though it can lead to inaccurate comparisons with 2021 data, it is clear that results show a decrease in the proportion of people and institutions proclaiming high levels of trust. This should draw the attention from actors and produce a deeper analysis. Trust is a key factor in an ecosystem in which compliance with agreements is mostly based on confidence, not on coercive measures

Although the ecosystem gets to have high levels of participation –which can generate a great capacity for joint action–, a perception of medium trust puts under evidence that coordination mechanisms do not possess enough muscle yet for mobilization towards transformative results.

8. Regional reference framework of financing for startups (Latin America)

8.1 2021 General Summary

Last year marked a turning point in the Venture Capital industry in Latin America. At the end of 2021, it is estimated that there was an investment of USD 15.3 billions in more than 770 operations throughout the region; that means 3.34 times the amount of 2019[6].

What generated the abrupt growth momentum for Latin American startups? The answer to this has two main components:

1. The pandemic and the quarantines implemented in Latin America in 2020 prompted the need to innovate in all industries and sectors. As a reference, in 2020 more than 40 million people were introduced to digital financial and banking system in response to the specific needs at that time.
2. The rapid growth in the market caught the attention of investors centered on exponential growth, such as Tiger Global, D1, DST and Coatue. In addition, investors focused on early stage startups also began a process of capital injection in the region. This is the case of Andreessen Horowitz, Accel and Benchmark, combined with SoftBank, that launched early stage investments with a mechanism that initially committed $3 billion in the region[7].

However, the bulk of resources invested in Latin America was allocated to **late stage & tech growth** –almost 70% of the volume invested, despite the fact that only 13% of the operations were carried out for this sector–.

8.2 A disagregated look at 2021

Regarding performance by sector, Fintechs preserve their status of the most benefited for venture capital operations throughout 2021 –34% of the total–.

This is not news, as financial system's digitization in the post-pandemic period has been critical and essential for economic reactivation in Latin America.

As for the countries with the largest number of startups, Brazil and Mexico remain at the top. This means they are also the countries with highest number of unicorns and recovery of investments with profit/exits in 2021. Creditas, Kavak, Loft and MadeiraMadeira constitute representative samples of this situation.

8.3 Looking towards 2022

Despite being the region with the world's fastest growth in Venture Capital investments, a slowdown was perceived in the last quarter of 2021 in both, the volume of operations and the amounts invested. The trend was a constant through the first semester of 2022.

Overall, in 2021 the region reached an investment boom in Venture Capital. Although the performance in 2022 is better than that of 2020, it remains crystal clear that volumes like those in 2021 won't be reached again.

The Late Stage, where operations dropped down almost 80% compared to the second quarter of 2021, is the most hammered sector. Although large operations were conducted here for amounts beyond USD200 millions, the market is no longer registering new unicorns as fast as in the past.

In addition, some of the unicorns have been negatively affected and forced to reduce operational costs.

6 https://www.bloomberg.com/news/articles/2022-01-24/startup-funding-triples-to-record-15-billion-in-latin-america

7 https://lavca.org/industry-data/lavcas-2021-review-of-tech-investment-in-latin-america/

This is not the case for Early Stage investments, nor for Seed & Angel. In the Early Stage sector, the volume of operations shows a 35% drop compared to the second quarter of 2021, while businesses within Seed & Angel have remained at last year's level.

The slowdown perceived in the first half of the year has an explanation that is not necessarily negative for the Venture Capital industry. Everything points to the global macroeconomic situation: Latin America is a region which depends from other countries on economic movement. Thus, the war in Ukraine, the economic slowdown due to high inflation rates and especially the substantial increase in interest rates, have impacted over the region's industry.

The worldwide rise in interest rates makes investments in Venture Capital less attractive, especially those in late stages, where high valuations have become counterproductive to obtain new resources and even to find an exit from ongoing business.

9. Success stories

A sustained growth has been seen in the Bolivian ecosystem and it seems important to highlight the startups with the most relevant scores:

9.1 Yaigo

YAIGO by Yummy

yaigoapp.com

Marketplace

Founders

- **Ariel Valverde**
- **Erick Valverde**
- **Saúl Paniagua**
- **Max Jungermann**

Startup Information

- **Startup:** Yaigo by Yummy
- **Year of creation:** 2016
- **Vertical:** Logística, Ecommerce
- **Funding Rounds:** "A" Series Round (USD 65MM) with Yummy

Services

Marketplace | Ecommerce | Logistics

> "Let's make the things happen... It was a phrase that me and the whole team embraced from day one, when we had the vision of being a benchmark in the region; it was clear we could turn into this if we focused and worked hard for it
>
> – Yaigo CEO

National Presence	Bolivia
International Presence	Bolivia, Perú, Venezuela, Panama
Business model	B2C, B2B
Scaling model	Bootstrapping
Number of employees	700 personas
Acknowledgments	"Maya" award for Best Technological Development; Innovatic award.
Contact person	Ariel Valverde
E-mail	ariel@yaigoapp.com

2017 – App development
To create our own technology

2018 – App development
Market test

2019 – Launching of the Bolivia Platform
Expansion to nine departments

2020 – International expansion, raising of the USD 1MM round
We reached four countries, learning a lot about new markets and opportunities in Latin America.

2021 – Growth that surpassed half a million thousand App downloads in the Play store. Surpass USD 1.5MM of GMV, "Maya" award and exit with Yummy.
We achieved the greatest success of a startup in Bolivia; we are now in the group of startups accelerated by YC.

2022 – Raising of a USD 65MM "A" Series
Raising capital to continue strengthening activities in current markets and expanding in verticals such as ride sharing and Q commerce.

Lessons Learned

- Market launching plan permanently under review.
- Relationship with peers in the region
- Look after your Unit economics
- Think big

9.2 DeltaX

www.DeltaX.la

Digital cargo transport platform for the Andean region

Startup Information

- **Startup:** DeltaX
- **Year of Creation:** 2019
- **Vertical:** Transportation and Logistics
- **Number of Employees:** 34

Service

Digital cargo transportation platform for the Andean region

> "We have two priorities: keep focus on users of our platform and on a regional vision of growth."
>
> – DeltaX CEO

National Geographic Coverage	Bolivia
International Geographic Coverage	Andean Region
Founding Rounds	Seed
Business model	Marketplace
Contact person	Luís Fernando Ortiz
Email	lfortiz@deltax.la

November 2019
Finalist in **Y Combinator**

February 2020
Launching of **App DeltaX**

Diciembre 2021
Raising of **USD 1MM** from VC

March 2022
Entered the **Harvard** alumni startup accelerator

May 2022
Entered **Endeavor Perú**

2019 2020 2021 2022

9.3 Koban

KOBAN

www.koban.com.bo

Digital financial services platform with the mission to empower financial lives of millions of people in Latin America and reduce complexities in financial services through technology, design, data science and customer focus.

Team

- **Julio Moreno -** CEO
- **Gustavo Añez -** CRO
- **Vijay Pratap -** CTO
- **Diego Foianini -** CFO

Startup Information

- **Startup:** Koban
- **Year of Creation:** 2021
- **Vertical:** Fintech – Banctital
- **Employees:** 30

- **Contact person**
  Julio Moreno
- **Email:**
  julio@koban.com.bo

Services

- Digital onboarding
- Online/offline payments
- Payment card
- P2P transfers
- ACH transfers
- QR
- Payment of Services
- Recharges
- Loans

"I am not what has happened to me; I am what I decide to be

– Carl Jung

National Coverage	Bolivia
International Coverage	Eventual launches in Paraguay, Ecuador and Peru
Funding Rounds	Pre-Seed Round (USD 2.3MM) Largest Round in Bolivia
Business model	Koban is a platform for digital financial services through an app and a free Mastercard that works in a very easy and accessible way, so it seeks to be the main financial service center for its customers. We are the platform where they carry out their daily transactions, make payments of all kinds, save sustainably, access loans, insurance and investment products.
Scaling Model	Components and functionalities from our exponential and organic growth products; access to the platform in a very simple way through our 100% digital and cost-free onboarding
Acknowledgments	We raised the largest round in Bolivia to date, with international funds.

Lessons learned

Lesson 1

You can't look to create innovation and generate impact without taking risks.

Lesson 2

A talented team is at the heart of every success

10. Recommendations to accelerate the ICT ecosystem

In this version of the Mapping exercise, a participatory discussion process was arranged with startups that participated in national and international investment rounds. The aim was to identify conditions that the ecosystem must get to have to accelerate growth. With this aim, best regional practices and recommendations have been collected, based on the experience of those who are final subject of the ecosystem. The most relevant points are listed below:

10.1 The ecosystem that startups expect

An ecosystem that supports technology-based entrepreneurship should have the following features:

> *To be visible in the region, with capacity to create a dynamic, scalable and sustainable entrepreneurial activity, developed under values of collaborative work, trust among actors and in their own talents. It must bring together all stakeholders to generate synergies for positive impact in the country and the region.*

Greater prominence is expected from the following actors:

- Startups
- Funders, especially investors who can lead investment rounds
- Government
- Academia

Based on the aforementioned, strategic objectives are proposed to achieve a more collaborative ecosystem that:

- Has the ability to integrate all actors,
- Educates all stakeholder, so they reach similar knowledge and possess equal codes to properly communicate and develop.
- Strengthens already existing talents in Bolivia.
- Promotes good practices and own values.
- Generates incentives to increase the number of startups and extend their life.
- Raises standards so the ecosystem keeps up with those of the region.
- Promotes state policies aimed at supporting its growth and investment.
- Lays the groundwork for the presence of a Bolivian Unicorn in the future.

10.2 Lessons learned to improve the ecosystem

These are the most important lessons learned by startups, systematized through the participatory process:

- The ecosystem actors must be more active in decisions and empower an ecosystem that prioritizes entrepreneurs and academia.
- It is important that all actors participate with similar background information and knowledge on the purpose and functioning of the ecosystem.

- There is a need for a professionalized ecosystem in which values and teamwork prevail, as opposed to ego.
- Funding is important; despite the fact that there are fresh resources in the market, limitations of the ecosystem are clearly observed by detecting gaps due to the lack of real understanding from funding providers, investors and other actors. It is important to generate and transmit a knowledge that allows all parties to understand each other and activate investments.
- Startups are objective actors in the ecosystem, not just statistics. Therefore, they must be involved in spaces the ecosystem creates for reflection and decision.
- It is important to see what ecosystems from other countries in the region are doing. This is the case with the focusing on talent, training of entrepreneurs and international articulation initiatives.
- Without state policies it is very difficult to grow as an ecosystem. Therefore, the participation of the Government is a must.

10.3 Findings from the assessment – The supporting institutions' point of view

The Bolivian entrepreneurial ecosystem has resources and tools available for entrepreneurs, but a gap is detected: the lack of real knowledge among stakeholders. It is important to generate and transmit knowledge, allowing all parties to understand each other and activate investments.

The dissemination of work conducted by incubators, accelerators and investment funds in Bolivia must be performed in a larger scale, so more entrepreneurs learn and take advantage of benefits these institutions can provide to their enterprises in different stages.

The surveyed organizations assure that most recurrent weaknesses for partner startups fall in the areas of business management (15%), financing (15%), adequate equipment and human resources (14%), network of contacts (12%) and adequate technology (10%), as shown in Graph 22.

Graph 22: Most frequent weaknesses from startups

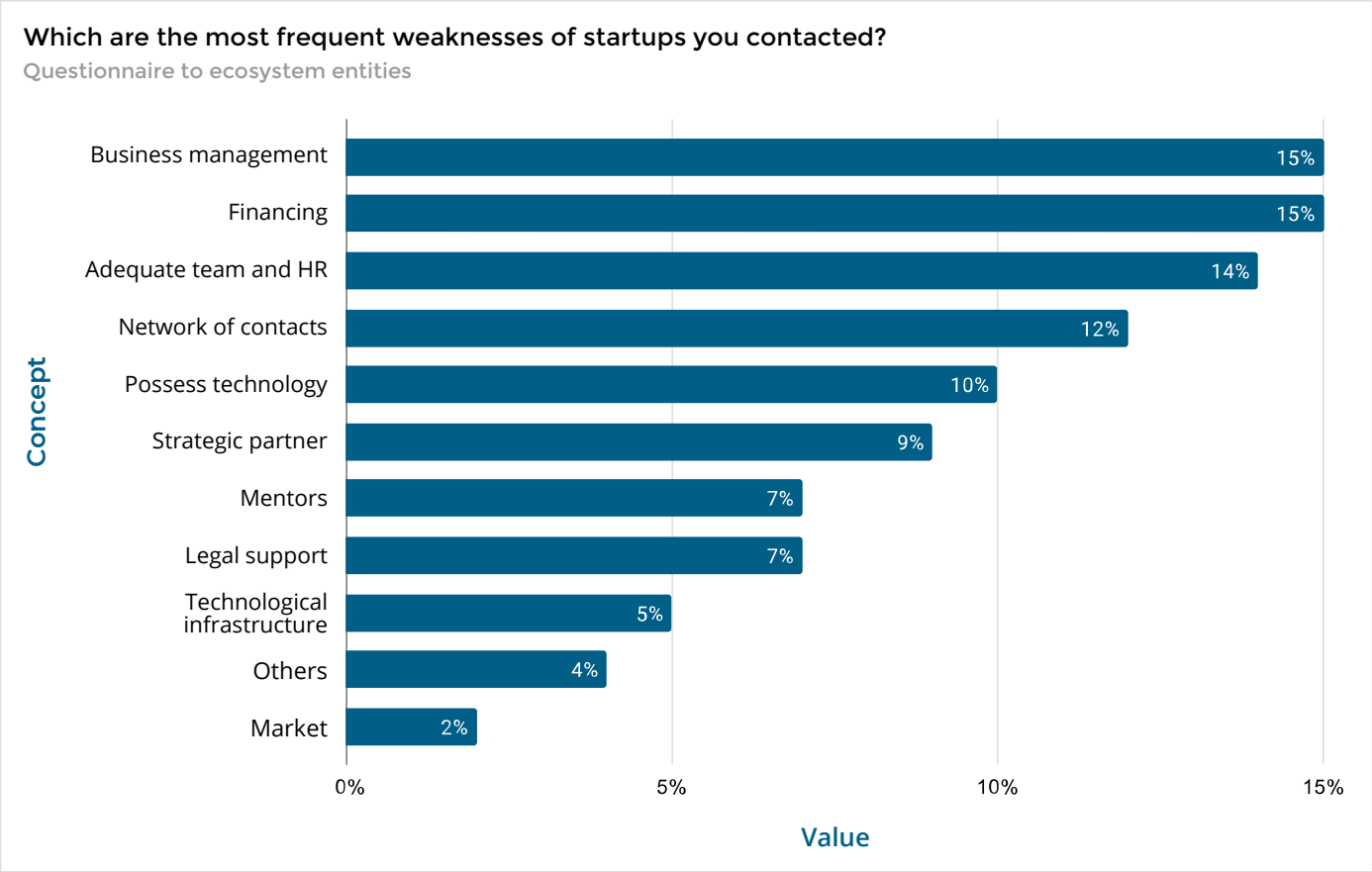
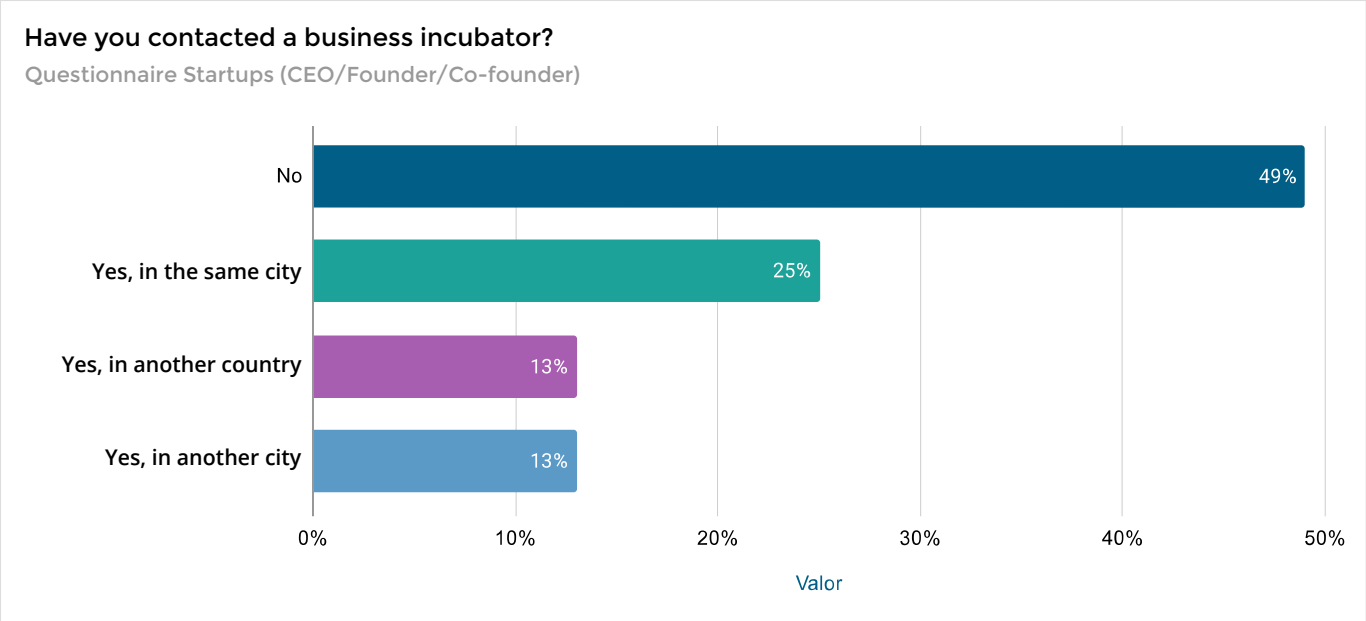


Table: Most frequent weaknesses from startups

Concept	Value
Business management	15%
Financing	15%
Adequate team and HR	14%
Network of contacts	12%
Possess technology	10%
Strategic partner	9%
Mentors	7%
Legal support	7%
Technological infrastructure	5%
Others	4%
Market	2%

Although there was an interesting evolution in terms of work with incubators, to date half of the entrepreneurs have not contacted any of them. This suggests that the positioning and knowledge of the activities conducted by incubators and accelerators are not known by startups (Graph 23).

Graph 23: Contact with incubators



Source: Prepared by authors

2022 ICT Mapping

Table: Contact with incubators

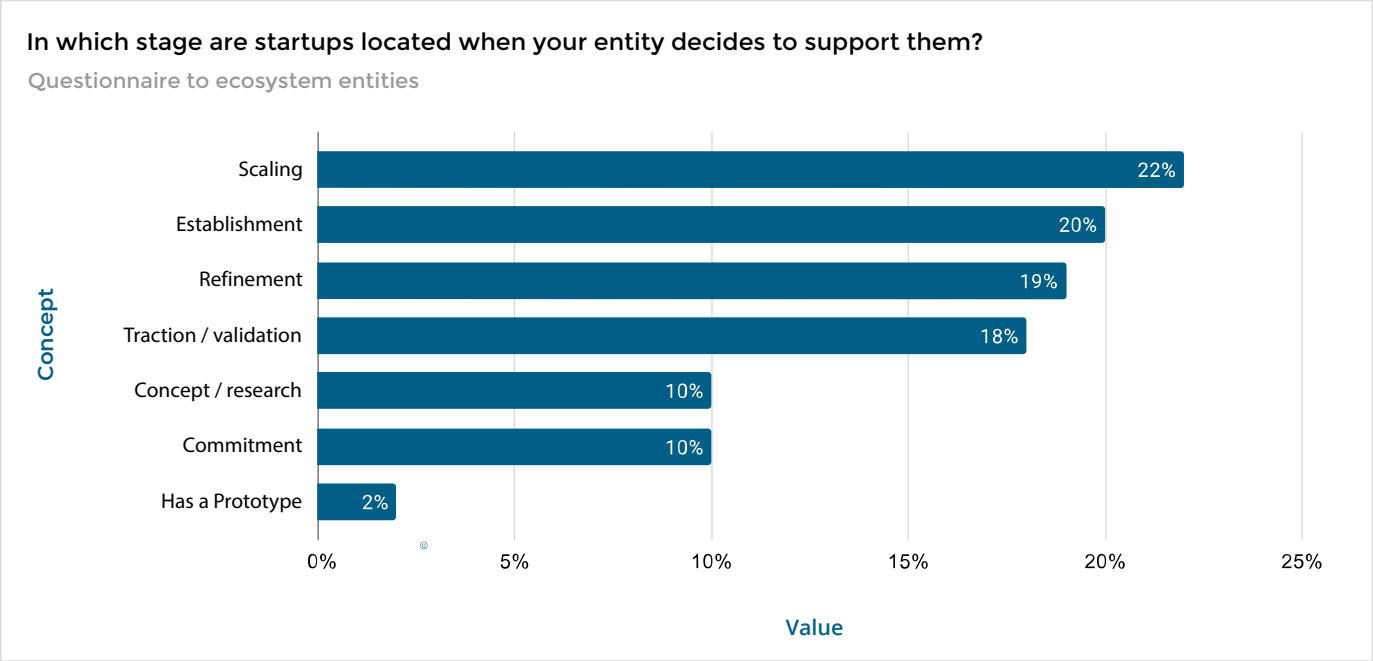
Concept	Value
No	49%
Yes, in the same city	25%
Yes, in another country	13%
Yes, in another city	13%

In the case of the entities within the ecosystem, they mostly support startups located in scaling (22%) and establishing (20%) stages.

Despite the fact that initial stages are crucial in the life cycle of startups, very few entities (2%) offer support during this phase. This is observed in Graph 24.

The first phases that a startup goes through are decisive in determining the direction that the business idea will take; entrepreneurs need specialized and timely guidance to help them avoid major mistakes in business development.

Graph 24: Startup state of development at the moment they receive support



Source: Prepared by authors

2022 ICT Mapping

Table: Startup state of development at the moment they receive support

Concept	Value
Scaling	22%
Establishment	20%
Refinement	19%
Traction / validation	18%
Concept / research	10%
Commitment	10%
Has a Prototype	2%

10.4 Ecosystem analysis of Strengths, Limitations, Opportunities and Risks

To identify objectives and strategic plans, there is a need to conduct an evaluation of the ecosystem. For this, the report uses a FLOR methodology, which performs internal and external assessments.

The internal analysis establishes the Strengths that can be used to achieve the desired future for the ecosystem. These are powerful instruments to reach goals and dreams. However, Limitations that would prevent that future from being achieved must also be identified. These variables are important, as strategies can be activated to eliminate or manage them.

In the external analysis, variables not under control of the ecosystem are identified, especially those that could generate positive or negative impacts in the performance. Those that lead to a positive impact are

called Opportunities; the opposite ones are Risks, for which the ecosystem should be prepared. In both cases it is key to identify them, especially to include mechanisms and strategies to take advantage of opportunities and manage risks.

Strengths	Limitations
• High level human talent. • Entrepreneurial Inclination; heart and commitment exist. • There are leaders. • There is a network of institutions. • There are natural and cultural resources, wealth and diversity. • Location of the country (at the heart of South America) • It is in a stage of construction of an ecosystem; virgin ecosystem. • High capacity to adapt to solutions from other ecosystems. • Ability to build an adequate frame of articulation.	• Bad practices of entrepreneurs, lack of values in the ecosystem. • Size of the market. • Access to capital market. • Inadequate legislation. • Lack of knowledge on entrepreneurship. • Lack of government support at all levels (national, departmental and municipal). • Lack of trust from startups and OSF. • Scarce knowledge of English. • Lack of self-recognition and identity.
Opportunities	**Risks**
• 40% of the population participates in entrepreneurial activities. • Latin America has a lot of work opportunities • Existence of regional investment instruments. • Access to financing abroad, attractive to investors. • There are good conditions for the creation of Funds. • There are many lessons learned in older ecosystems in the region that are useful to build a new ecosystem with better performance. • There are local market opportunities. • Low level of local competition, which allows low costs for ventures and carry out concept proofs - Legislation allows to start operations.	• Regionalist thinking in Bolivia. • Global crisis (political and economic). • Country risk. • Change in the game rules, by government decision or by matters in other countries. • Predatory investment conditions. • Low intellectual protection framework. • Judicial system. • Juncture: exchange rate.

In summary, the FLOR analysis is arranged in three possible combinations: Opportunities-Strengths, Opportunities-Limitations and Risks-Limitations.

The combination of the Opportunities with the Strengths will allow achieving the desired success as an ecosystem:

> *There is entrepreneurial potential with proven capacity and low entrepreneurial costs (Strengths). If scalable models can be built at a regional level, it will be feasible to obtain resources from international financiers to strengthen it (Opportunities).*

The combination of Opportunities and Limitations paves the way to a defeat due to the inability to take advantage of favorable identified conditions:

> *The lack of support for startups in early stages, through promotion vehicles; the low level of knowledge and the reduced sources of local financing prevent their escalation (Limitations) for them to access sources of international financiers that may boost their initiatives (Opportunities).*

Finally, the combination of Limitations and Risks causes the defeat that, in the case of an ecosystem, would be the inability to grow and facilitate growth of startups:

> *If instability and insecurity, as well as a local-oriented vision (Risks) are combined with little support for startups in early stages (Limitation), they can prevent the birth of a critical mass of startups that would create a new high-end industry with value added for Bolivia.*

11. Conclusions

As a conclusion of the 2022 ICT Mapping Report, and based on the information collected by the study in the surveys, and the ideas provided by ecosystem actors, some lines are proposed to trigger reflection and complementation with reader's individual analysis:

- The number of startups identified in the 2022 has grown compared to past years, approaching two hundred (185). The report highlights the facts that the number of new institutions almost doubles the data registered in previous years, and that Startups have been found in all the departments of Bolivia. Furthermore, the most mature startups have achieved international investment rounds, showing that there is not only a quantity evolution, but also a quality growth.
- Startups have sought help by participating in acceleration processes in greater proportion than in past years. Their quantitative and qualitative growth has generated a greater demand for human talent; thus, better-quality employment has been created, which opens new possibilities, especially for youth – although the proportion of men and women is still unequal, a situation that needs to be addressed.
- Venture capital in Latin America has had an extraordinary boost, which reveals a high human potential in the region. Although there has been a slowdown in investments –due to global happenings–, financing for startups in early stages continues to be an opportunity for Bolivian startups –as per to their size and scope– to seek international financing rounds.
- Among the collected data from surveys to founders, a particular fact stands out: to make the initiatives sustainable, more than half of entrepreneurs need to continue working on activities other than those of their businesses. This reveals that the local financing structure is still in an initial state of mind; investors need to understand that the funding model requires ensuring that a startup founder should be solely focused on exponentially scaling its venture.
- The absence of adequate local financing creates a disconnection with international funds that –under different conditions– would take the lead in supporting Bolivian startups with large potential. Thus, the opportunity for national initiatives to accompany the regional scaling is current being left behind.
- Challenges are marked by the possibility of supporting technological enterprises in their initial stages and providing solutions to issues that exceed Bolivia's geographical limits and require startups to jump over regional markets. This involves strengthening of soft skills for entrepreneurs, knowledge of the English language and also aspects related to the management and financing of their entrepreneurships.
- The connection of startups with services in rural areas is pending. Although there are several limiting factors in Bolivia, the vision of the founders should also be to propose solutions to rural needs and take advantage of opportunities outside the cities also in other countries of the region.
- There is an opportunity in the government sector, where Govtech-oriented startups can promote the improvement of public management and increase capacities for the implementation of policies.

In summary, startups and the ecosystem as a whole have made advances and are currently building foundations that are expected to be solid enough, so they may support an exponential leap in the following years.

The expectation of internal and external actors is present as is the hope that public policies from different levels of government will also accompany this creative push.

As for now, there is something that we must continue working on: training and specialization of all actors in the ecosystem. It is an essential requirement for raising awareness, and to unleash the full potential of a talent-based ecosystem, ready to turn into a fundamental industry to achieve development, generate prosperity and create value for the Bolivian society as a whole.

MAPEO TIC BOLIVIA

2022

DIGITAL TECHNOLOGY ECOSYSTEM MAPPING IN BOLIVIA

FUNDA-PRÓ FUNDACIÓN PARA LA PRODUCCIÓN

FUNDACIÓN SOLYDES

FUNDACIÓN EMPRENDER FUTURO

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