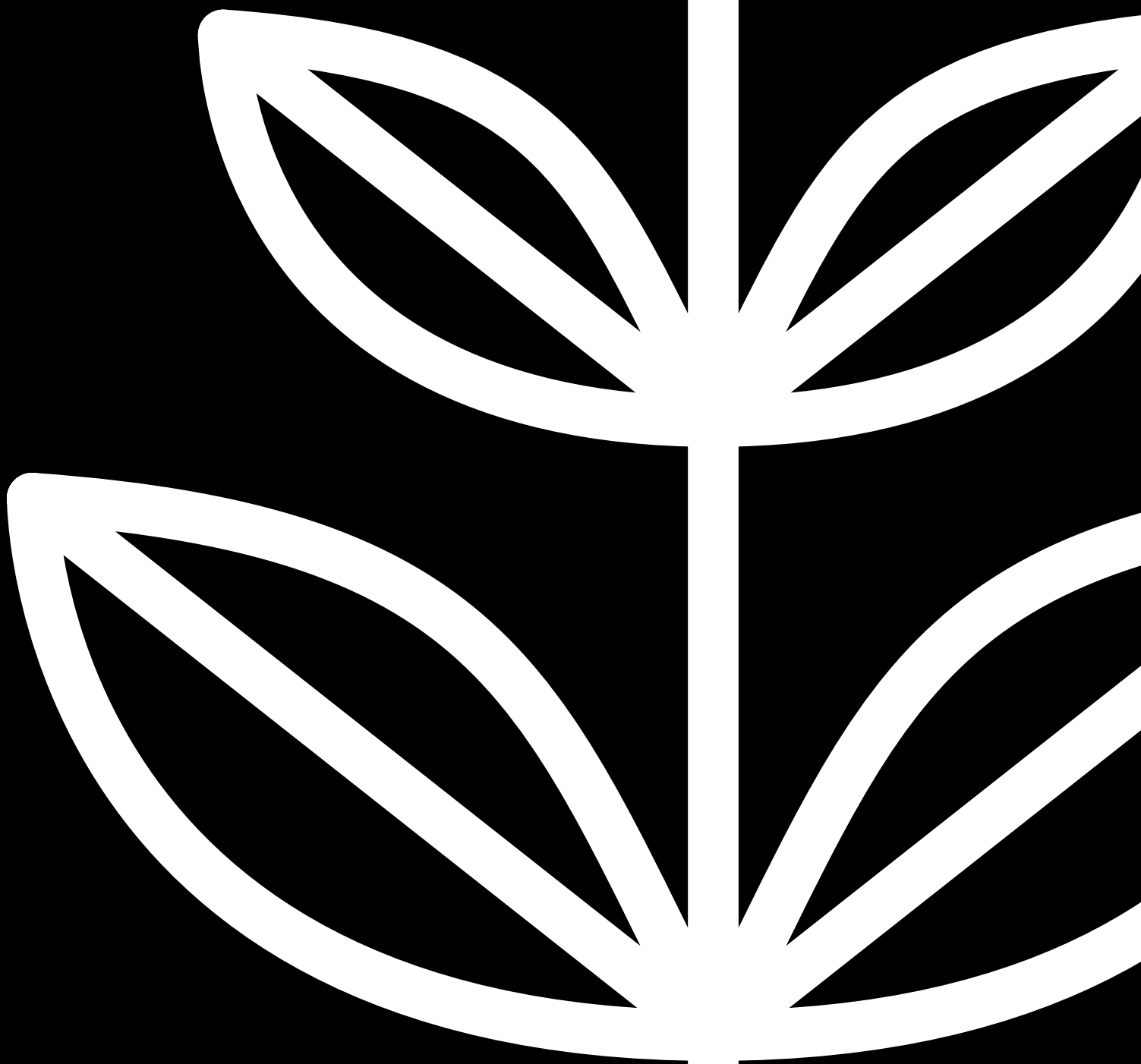
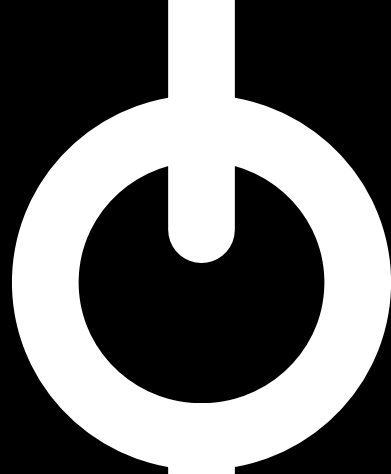


# AG- TECH

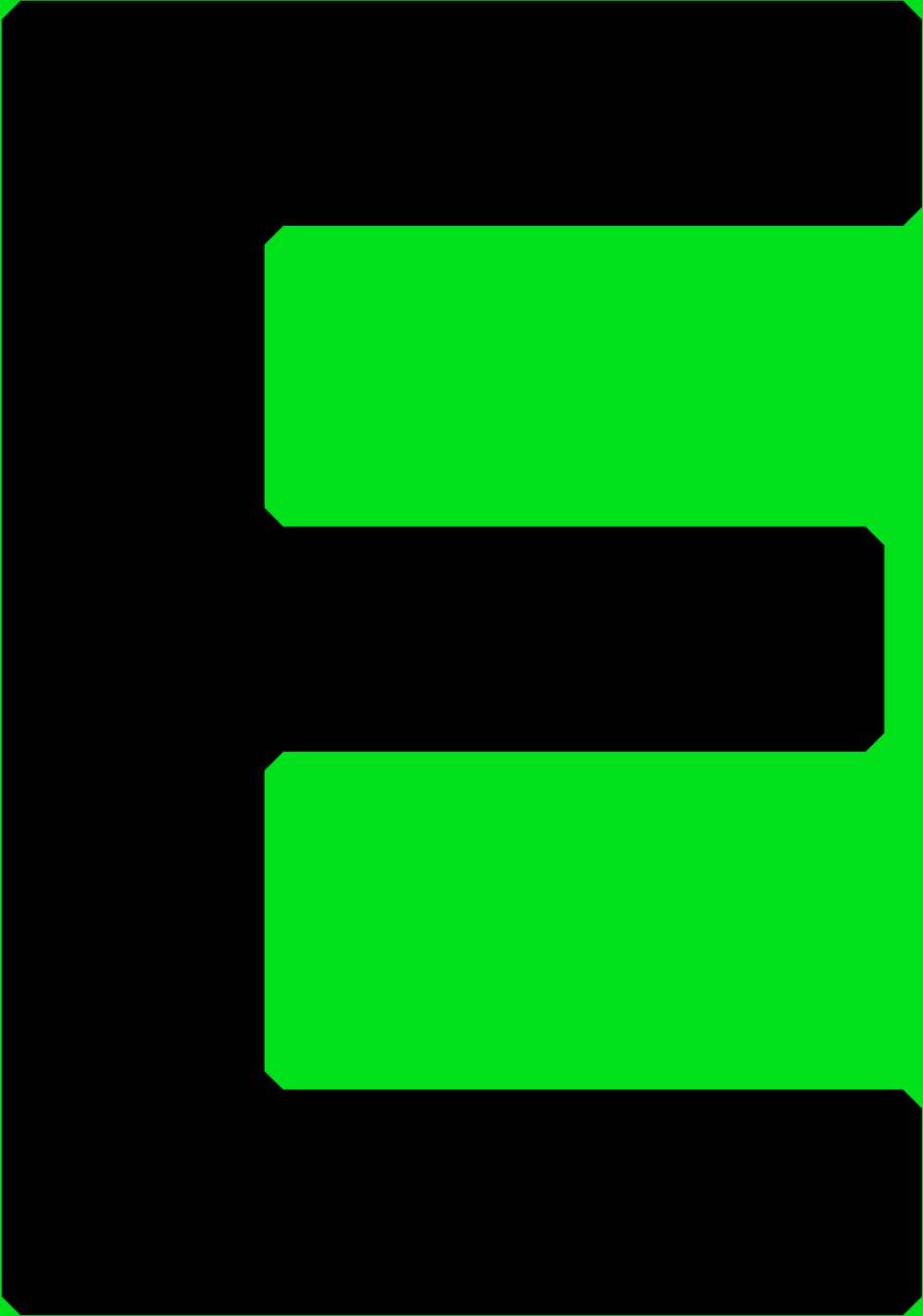


Agtech Innovation Map in  
Latin America and the Caribbean



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## The Agtech innovation wave in Latin America and the Caribbean

Today, agtech, an array of technological innovations seeking to find solutions to the problems and challenges faced by the agriculture and food industry, is established as a relevant area for start-ups with the potential to not only create innovations, but to also generate transformative changes in the way of producing food with a positive impact on environmental, social and economic aspects.

In recent years, Latin America and the Caribbean have witnessed an increase in Agtech's technological innovation throughout the agriculture and food sector, an ongoing phenomenon that continues to expand in the region and across different productive sectors.

This study has identified nine areas of technological innovation with great potential to increase the productivity, sustainability and resilience to climate change of the agricultural sector in the region. These are aligned with the main processes and activities of the broader value-added chain of agriculture and food, following an order of primary and secondary production, processing and logistics and, finally, distribution and consumption.

### START-UPS

# +450

Latin America and the Caribbean

**Today, there are more than 450 start-ups in Latin America and the Caribbean, focused on technological innovation throughout all nine sectors identified, and more than half of these start-ups have been created in the past four years.**

Start-ups are heavily concentrated in Brazil, a country that accounts for 51% of all the start-ups surveyed. The second most important country is Argentina, with 23% of the regional total. Both countries are leading this innovation wave, supported by a large-scale local market, as well as by the existence of entrepreneurial ecosystems that have favoured the emergence of start-ups.

This innovation wave is sustained on global technological convergence, but also on fundamental factors linked to the environment, consumer demand, public policies and the dynamics of agricultural producers, all of which drive innovation to develop more sustainable and efficient agriculture.

It is in this context that Agtech innovations find fertile ground for development and expansion in the region, with the growing support provided by incubators, accelerators and venture capital funds that continue to emerge in the region. At present, there are more than 20 investment vehicles available throughout the region that contribute to fund entrepreneurs' activities and provide them with the resources and networks to build their businesses.

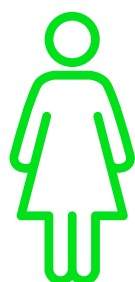


This momentum also leads to a start-up regionalization and internationalization process (with some of them leaving for other regions) and to a growing number of start-ups coming from other regions.

Currently, 55% of the mapped start-ups offer technological innovation solutions to the broader sector of agriculture and food. The remaining 45% is oriented to specific verticals. Vertical specialization is a sign of the emerging maturity in the Agtech innovation process, where entrepreneurs are more precisely identifying sector-specific needs and developing suitable solutions.

In terms of the technologies used by Agtech start-ups, there is an array of digital solutions -widely used across virtually every sector of our society- that have been the main tool for entrepreneurs in the region. There is a clear prevalence in the use of remote sensors, geolocation and mobile technology, while those technologies linked to artificial intelligence, Big Data, Blockchain and robotics are still in earlier stages of development.

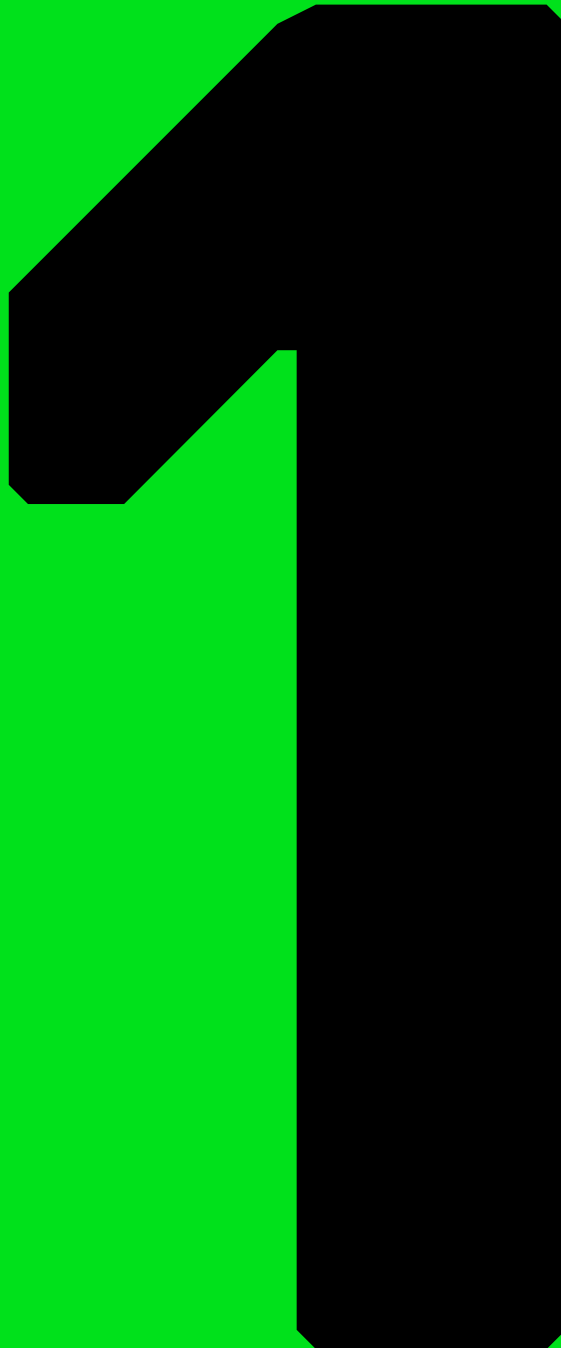
While Agtech innovation offers solutions to generate transformative changes with a positive impact on environmental, social and economic aspects, anecdotal information gathered from different entrepreneurs reveals that there is still a long way to go to effectively reach small producers or the most vulnerable ones.



**Only 11% of entrepreneurial teams include female co-founders. However, one of the positive impacts that Agtech innovation can have on the region is the empowerment of women, so that they can become more active contributors to the sector.**

The role of the corporate sector in Latin America and the Caribbean is limited, particularly when compared to the development fostered by corporations in other major Agtech regions in the world.

**Context,  
objectives and  
methodology**



With the aim of promoting Agtech innovation dialogue, in 2017, the IDB Group, with the active participation of the IDB Lab, carried out a first exploration of this sector that resulted in

Ever since, the IDB Lab has continued to work to establish networks of Agtech innovators, professionals and leading organizations, as well as exploring new technological solutions and opportunities.

This study is part of this endeavour, the purpose of which is to gain further knowledge about what is happening in the Agtech entrepreneurial world in Latin America and the Caribbean.



# Objectives

The aim of this study is to illustrate the recent evolution of the sector, gain deeper knowledge about new technologies and their application, and identify future challenges, so that the sector can further develop, thus generating an impact on the region, while providing answers to the following questions:

1 \_\_\_\_\_

Evolution

How has the Agtech sector evolved in the region when compared to the survey conducted in 2017?

2 \_\_\_\_\_

Innovation

What kind of innovations make up the Agtech ecosystem in Latin America and the Caribbean?

3 \_\_\_\_\_

Technologies

What are the technologies most commonly used at present?

4 \_\_\_\_\_

Gender

What role do women play in the Agtech ecosystem?

5 \_\_\_\_\_

Role of the corporate sector

What is the role of the corporate sector in the region?

## Methodology

The information on Agtech start-ups gathered for this study has been obtained from an identification process using multiple sources of public information, considering initiatives that are being actively developed on a full-time basis, and which have main products or services that fall within the nine categories defined for the Agtech universe, with a primary regional focus on Latin America and the Caribbean.

Start-ups were selected by mapping the Agtech initiatives in the region, mainly through contact with industry actors, monitoring business incubators and accelerators' activities, as well as through research in media and sector publications.



**The growing spectrum  
of Agtech innovation  
in the region**






Agtech, an array of technological innovations that seek to find solutions to the problems and challenges faced by the agriculture and food industry, is established as a relevant area of initiatives with the potential to not only create innovations, but to also generate transformative changes in the way of producing food with a positive impact on environmental, social and economic aspects.

This study has identified nine areas of technological innovation with the greatest potential to trigger the agriculture sector productivity in the region, which are detailed below:

**Fig. 01**

Main Agtech innovation areas and sectors in Latin America and the Caribbean.

Sector	Sub-Sector
<div>New production systems</div> <div></div>	<div><ul style="list-style-type: none"><li>• Innovations in water and soil conservation</li><li>• Technologies for aquaculture and hydroponics</li><li>• Urban and indoor farms</li></ul></div>
<div>Task mechanization and automation</div> <div></div>	<div><ul style="list-style-type: none"><li>• Task-oriented technology, robotization and stand-alone machinery</li><li>• Smart irrigation systems</li><li>• Livestock and dairy technological solutions</li><li>• Innovative materials and applications</li></ul></div>
<div>Crop and animal protection &amp; genetics</div> <div></div>	<div><ul style="list-style-type: none"><li>• Seed genetics (biotechnology)</li><li>• Fertilizers</li><li>• Bioproducts (biostimulants, biopesticides, biofertilizers)</li><li>• Livestock and fish genetics</li><li>• Animal nutrition and health</li><li>• Other solutions for seeds and animals</li></ul></div>

## Big Data & precision agriculture



- Soil analysis and environmental assessment
- Drones & satellite images
- Remote sensors and georeferenced monitoring
- Integrated hardware & software solutions (IoT)
- Data analysis & technology support for decision-making

## Management software and information and education services to farmers



- Business management software
- Climate and market information
- Logistics and transportation information
- Education, training and services to the rural community

## Innovative platforms for buying and selling, outsourcing services, and funding



- Markets for supplies, services and products
- Outsourcing, machinery and tool-sharing
- New funding & investment channels and tools
- Risk management services

## Food processing, logistics and distribution technologies



- Logistics & storage solutions for agriculture and food
- Smart packaging
- Smart contracts and digital certification
- Food safety and traceability

## Innovative food products and services



- Sustainable proteins
- Functional foods and beverages
- New ingredients and flavors
- Farm-to-consumer marketing
- Marketplaces and online food stores
- Food processing technologies

## Bioenergies and biomaterials



- Biofuels
- Biomaterials
- Waste mitigation and treatment
- Other renewable energies
- Industrial processes and materials



# Overview: recent evolution in the sector

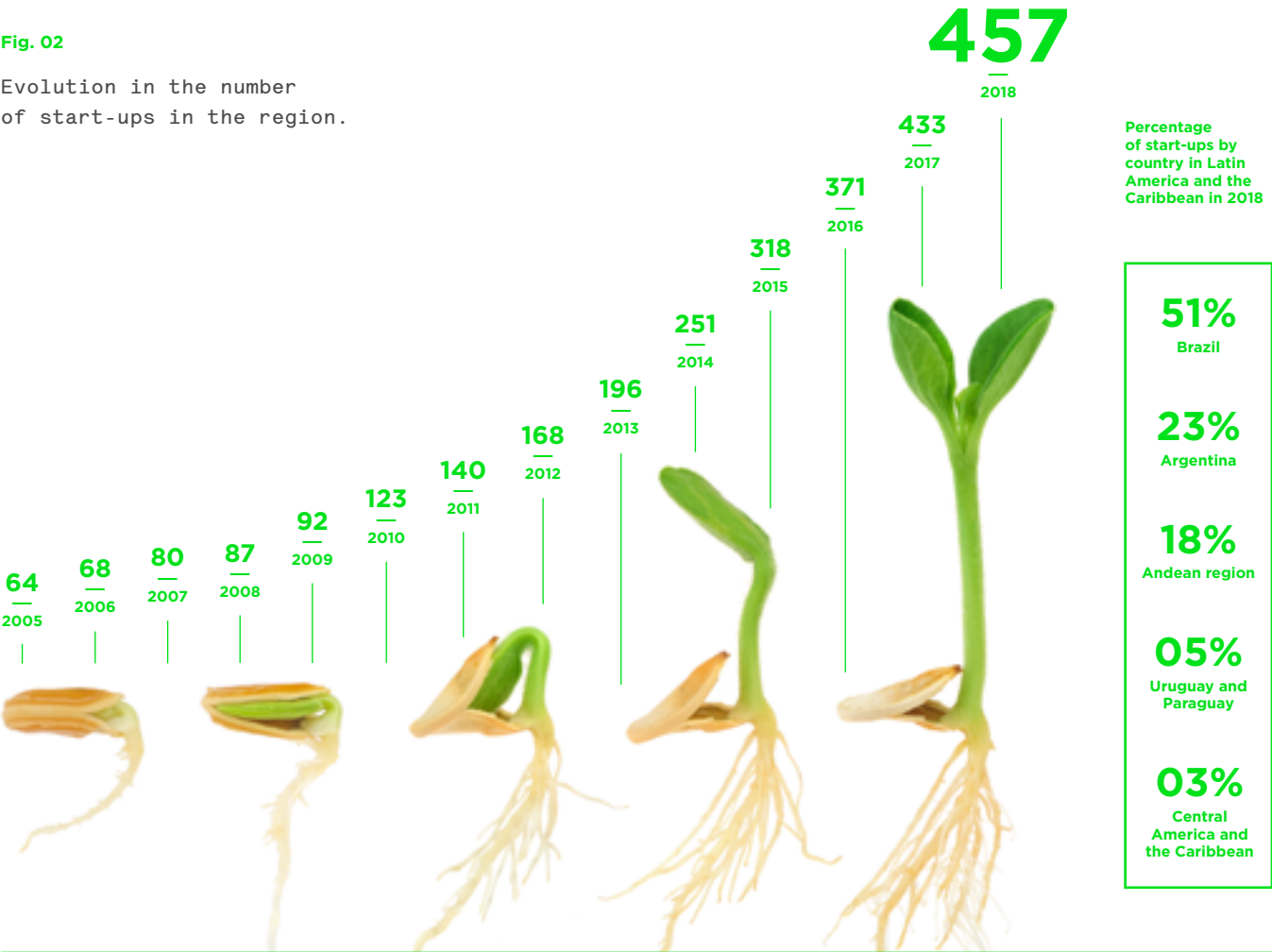
More than half of the start-ups have been created in the past four years.

Today, there are more than 450 start-ups in Latin America and the Caribbean focused on technological innovation throughout the nine sectors identified.

Although the number of years in activity is not a factor in the start-up selection process, the evolution in the number of start-ups mapped illustrates the emergence of innovation in the region: more than half were created in the past four years.

Fig. 02

Evolution in the number of start-ups in the region.



## ○ CURRENT ECOSYSTEM GROWTH

In comparison with the analysis carried out at the beginning of 2017, which initially 157 start-ups were identified, the current ecosystem growth is explained by:

- The subsequent creation of 86 start-ups between 2017 and 2018.
- 214 start-ups -mainly in Brazil and, to a lesser extent, in Argentina, Uruguay, Colombia and Peru- have been added to the entrepreneurial ecosystem map.

## Growth is still concentrated, though in the process of geographical diversification

**Argentina and Brazil account for 74% of the total Agtech start-ups in the region.**

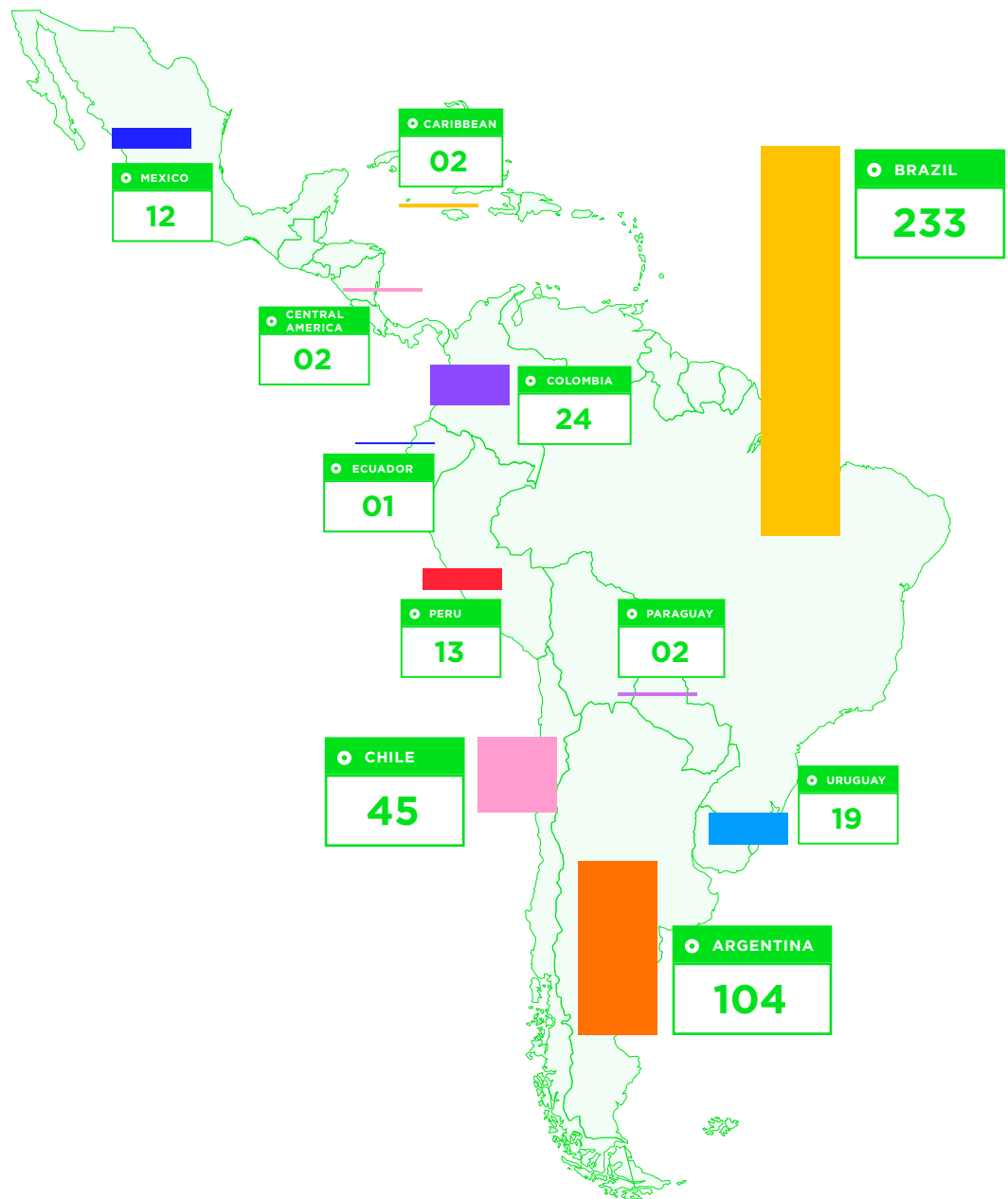
The growth in the different countries considered is proof of the expansion of Agtech innovation in the region.

However, significant concentration can be seen in Brazil, a country that accounts for 51% of all the start-ups surveyed. Argentina ranks second in importance, with 23% of the regional total.

Chile, Colombia, Uruguay, Peru and Mexico follow in order of importance.

**Fig. 03**

Main innovation hubs in the region



Brazil and Argentina concentrate almost 75% of start-ups.  
Both countries are leading this innovation wave, sustained by:



**1. Large-scale local market.**



**2. Ecosystems favourable to technology-based start-ups.**



**3. Critical mass of professionals working mainly with extensive agriculture.**



**4. Tendency to greater specialization, oriented towards more verticals.**

The key to underpin the expected growth in other countries is the knowledge acquired in the leading markets of the region, which can further be applied to other countries: entrepreneurs gain understanding of the sector needs and local technology development, as well as knowledge for developing the entrepreneurial ecosystem, involving both public and private actors.

## The innovation ecosystem in Agtech continues to expand, favouring the regional expansion of entrepreneurs

The sustained growth in both quality and quantity of Agtech start-ups in the region responds to several factors that are driving this innovation wave.



**Technological convergence:** Globally, this provides a growing set of more affordable technologies with shorter development times, and its influence and applicability impacts initiatives in the world of agriculture and food.



**Environment:** The effects of global warming and climate change, together with the degradation of natural resources which are essential for agriculture -soils and water- and the loss of biodiversity are critical factors to promote technologies that favour agronomic practices with a more sustainable and efficient use of resources.



**Consumers:** The growth of consumption, together with an increased awareness of healthy diets and the sustainability of food production are further key factors that pressure for sustained and sustainable growth of agriculture and food, which allows to achieve both food security and a healthy diet for the population.



**Public policies and regulatory framework:** Climate change mitigation, natural resources and environmental protection, as well as food safety, will be factors of increasing weight in public policies. Public demands on the agricultural and food production sector are already becoming visible, which can determine a greater use of new solutions such as biological products, animal and food traceability, and greater focus on reducing waste and food losses across the chain.



**Producers:** Agricultural producers - small, medium and large - must act and make decisions in a context driven by the increased pressure generated by the environment, the higher expectations and demands of consumers, and increased supervision by public bodies. Besides from these factors, there are pressures on business margins and a growing understanding that technology can effectively be their ally.

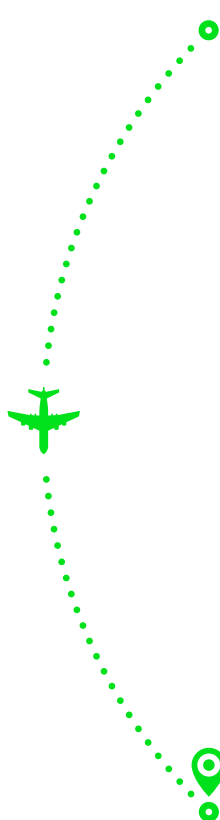
In this context, Agtech innovations in the region find fertile soil to develop and expand, with the growing support of incubators, accelerators and venture capital funds that continue to emerge in the region.

Today there are more than twenty investment vehicles available throughout the region that contribute to finance entrepreneurs and provide them with resources and networks for their businesses.

## Regionalization, expansion and presence from other regions

Given the current momentum, there is an increasing number of start-ups that are going regional and are expanding to other regions, whereas start-ups from other latitudes are also setting foot in the region.

The following factors can be identified behind these trends:



**Regionalization:** Most innovations in the region are effectively scalable and are not limited to the geography or market of a specific country. Thus, today there are already dozens of Agtech start-ups that are spreading their wings from their home countries throughout the region.

**Internationalization:** As a supplementary or alternative step to regionalization, there are already several Agtech start-ups that have set foot in other regions, notably in North America, which is the quintessential Agtech market, although in Europe as well. Start-ups such as the Brazilian company Solinfect or the Chilean company Polynatural have recently chosen to grow in the United States and Europe, respectively, seeking to compete on a global basis.

**And also from abroad:** The innovation flow is not only outbound, but more and more enterprises from Europe, Israel and North America are arriving in Latin America to expand their activities. The region proves attractive because of its scale and competitiveness, which allows to think of a greater inclination to technology adoption. And it is reasonable to assume that, in the future, locally developed technologies will coexist with solutions that have come from abroad. Among the companies that have arrived, the cases of North American companies such as Ascus Biosciences, Farmers Edge and Produce Pay are worth mentioning, as well as the European companies Agroptima, e-farm, EC2C, Gamaya and Metos, and the Israeli company Taranis.

The internationalization of Agtech innovation in the region has also attracted interest from venture capital funds, as well as from sector corporations with interest in the region.

The resources that these funds and corporations contribute with -capital, technical know-how and commercial distribution, among others- are essential to boost innovation as entrepreneurs face significant challenges.

Possibly, one of the most significant challenges is, on one hand, to be able to balance the time necessary for developing solutions and the time to market, given the adoption curve, while, on the other hand, also having the funds needed to operate and grow. Sometimes, start-ups find themselves competing for the funds available in the region.

The issue of timing in the sector is an important aspect to be taken into account, since the cycles for technology adoption and use are often linked to biological processes and agronomic calendars that contrast with the more dynamic and accelerated cycles of other industries.

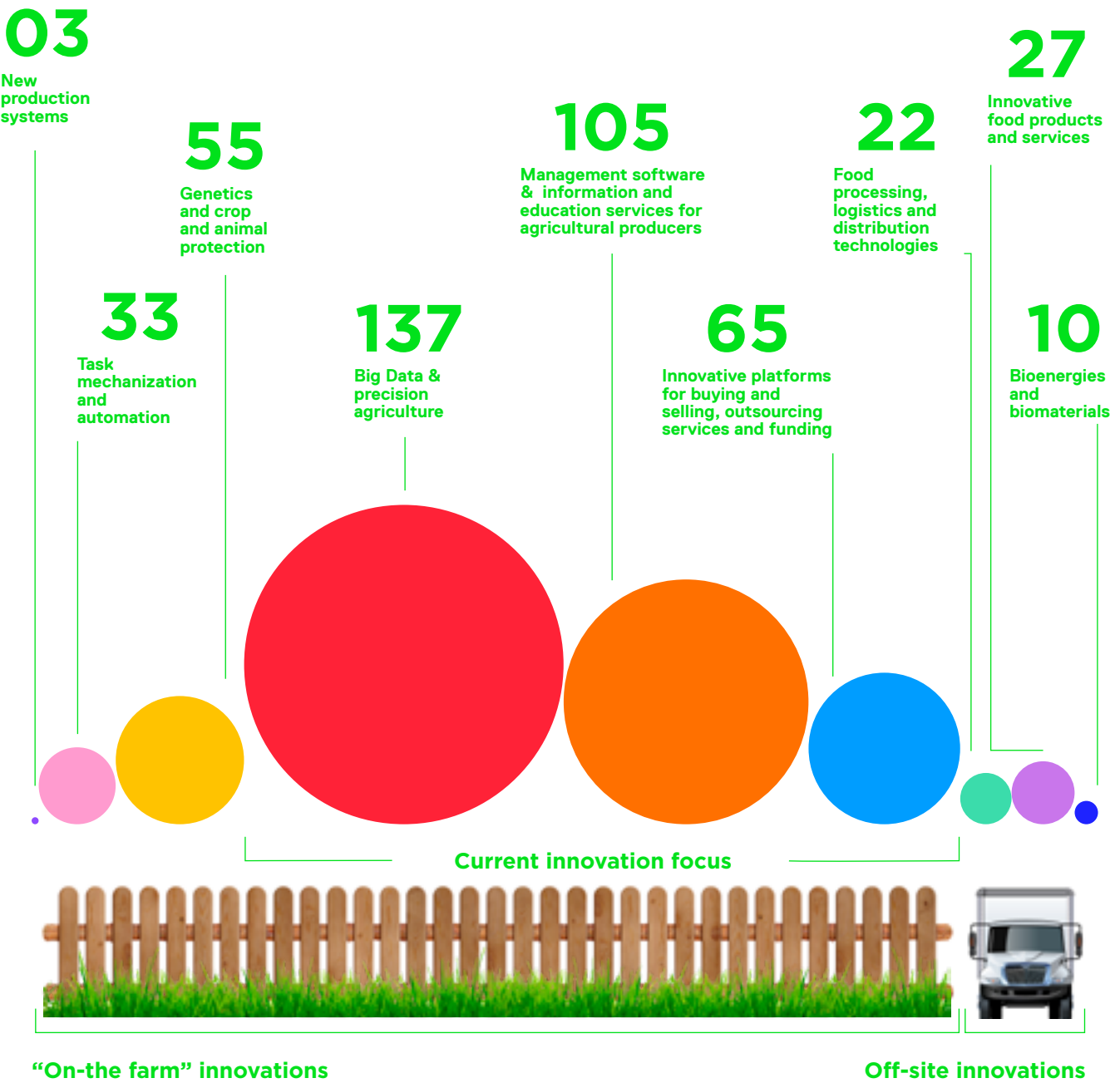
# Analysis: Agtech by area of technological innovation

Fig. 04

Distribution of start-ups by technological innovation area.

The nine areas of technological innovation mapped in this study are aligned with the main processes and activities of the broader value-added chain of agriculture and food, following an order of primary and secondary production, processing and logistics, and, finally, distribution and consumption.

The following chart illustrates the universe of start-ups mapped by area of technological innovation.



**Digital-based innovation represents 67% of all Agtech start-ups in the region.**



The focus of innovation has been on activities performed inside the farm (87% of the total), and particularly in the area of digitalization of rural work: field work, administrative work and commercial work, which reaches 67% of the total start-ups. This is followed by innovation in crops and animals, with more emphasis on the biotechnology world.

What does this concentration of innovations mean? There are several factors that help explain the concentration evidenced so far:



- On one hand, the three areas with the greatest digital base -precision agriculture, management systems and commercial platforms- replicate or are mostly based on existing technology. The origins of precision agriculture can be traced back to the late 1990s, whereas the development of software and management tools for agriculture began in the early 2000s. In the same way, the concept of “marketplace” was born around the same time.
- Meanwhile, technological convergence has allowed to overcome access barriers in these sectors, for example, by reducing the cost of sensor disposal and data capture, and in general, the lower cost of systems development. Additionally, the increased availability of technology, including cell phones and mobile networks, has allowed these innovations to reach a growing number of agricultural producers.

Besides from the concentration in the digital area -which is also evident in other regions of the world- global innovation trends in Agtech aim at further growth in other innovation areas in the future:

## Nuevos sistemas de producción



- Mainly: new technologies for fish farming, both in open waters and in ground systems aimed at optimizing the use of water and food, and reducing the use of antibiotics.
- On the other hand, the development of protected agriculture systems is gaining momentum -greenhouses, urban and vertical farms, where technology optimizes production with an efficient use of energy, water and ground resources, while allowing for lower use of pest and disease control products, seeking to reduce the impact of transportation between production sites and consumer markets.

## Task mechanization and Automation



- The development of stand-alone machinery continues to grow, including robotic systems for specific basic tasks that are traditionally done manually, such as harvesting certain fruits.
- Further development of smart irrigation systems is also expected for optimizing irrigation and water and energy consumption. This is a key field for many production areas in Latin America and the Caribbean, in view of the effects of climate change.
- Finally, more technology adapted to livestock and dairy production systems is anticipated, always with the priority of improving productivity and optimizing the use of different resources.

## Food processing, logistics and distribution technologies



- In particular, strong growth in traceability technologies is expected, allowing to improve supply chain safety from production to consumers. There is a strong digital component that is already being developed in the region which is also expected to incorporate solutions such as Blockchain technology.
- Additionally, there are also different innovations in food packaging and conservation which are key for the post-harvest conservation of many products in the region.

## Innovative food products and services



- The development of alternatives to animal protein is one of the areas of growing interest from investors around the world, given the increasing consumer preference for healthier and sustainable food. Here, the region faces a challenge, as a traditional producer of these proteins, but also a great opportunity.
- In this area there are also new technologies for food and beverage processing, and for the development of new ingredients.

## Bioenergies and biomaterials



- While global biofuel production -mainly bioethanol and biodiesel- has moderated its growth, there is still room for innovation in this sector, particularly in the development of new applications for biomass generated by the agriculture and food industry. The biogas sector will witness more growth.
- Around the world there is growing interest to reduce food losses and waste, seeking to give these resources new value and putting them to new uses.



## Analysis: Agtech innovations in food and agriculture verticals

One of the main trends evidenced in this study is the specialization by verticals of Agtech innovation in the world, and particularly, in the region.

While in the early stages of Agtech innovation, most start-ups developed “one-size-fits-all” solutions or broad-spectrum solutions for producers mainly from the agriculture sector, we have lately witnessed a vertical specialization process within our industry.

Vertical specialization is a sign of the emerging maturity in the Agtech innovation process, and also reflects the following factors:

- Entrepreneurs are identifying sector-specific needs more accurately and are also developing solutions on a case-by-case basis.
- The greater availability and adoption of technology, and its lower cost, allow for new developments aimed at more specific or niche topics.
- There is obviously greater competition among Agtech start-ups, and entrepreneurs are exploring new, less exploited areas.

The verticalization or specialization of Agtech innovation also raises new issues worth exploring. In particular, the reality of each productive sector is different in many ways, such as the degree of educational attainment and technology access of producers, the productive structure, profitability and regulations, among others.

In order for Agtech innovation to reach all sectors, a better understanding of these factors will be necessary, as well as the development of specific incentives.



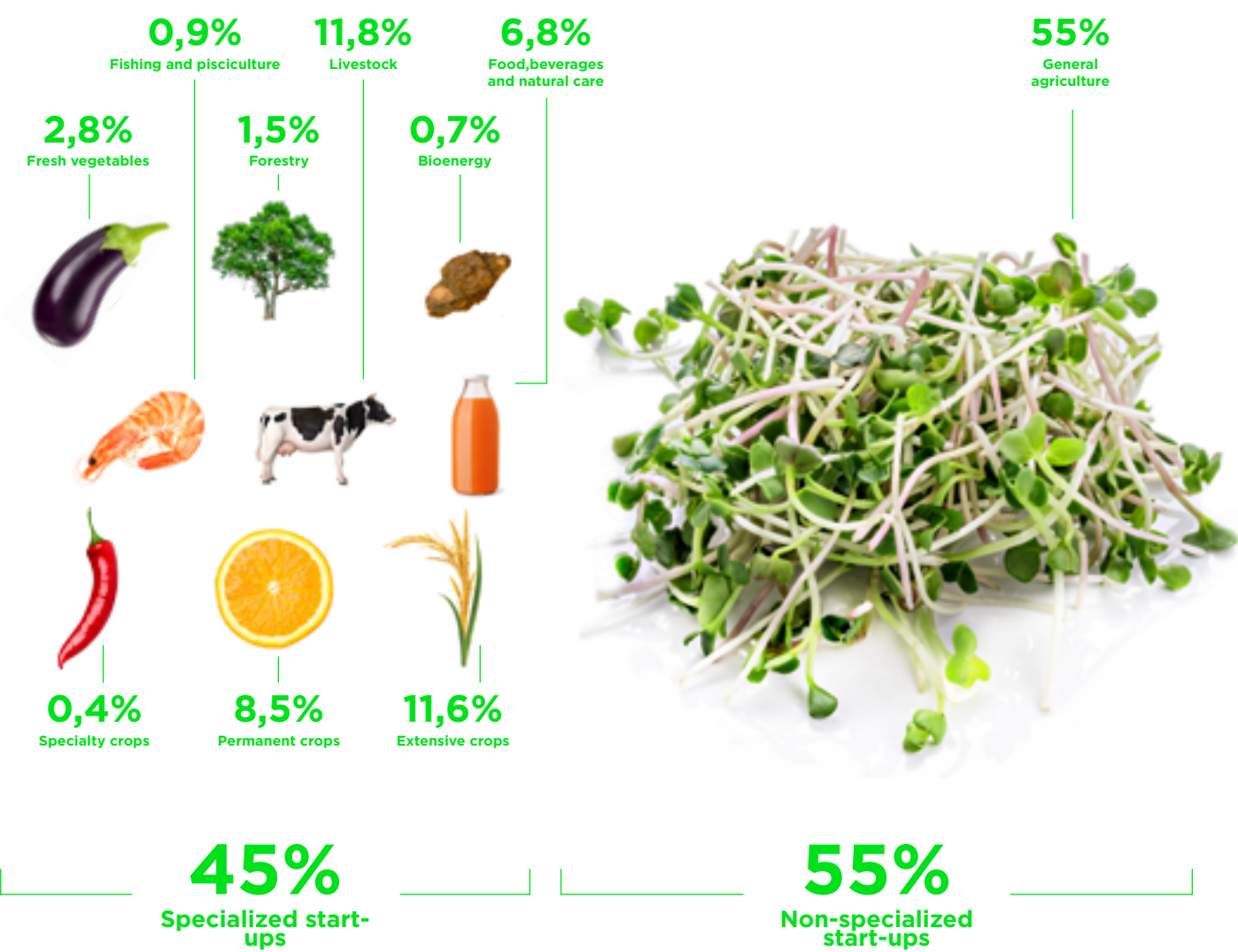
# Understanding Agtech innovation by vertical

From the analysis of the 457 start-ups mapped in this study, the profile of each one has been identified according to the corresponding vertical.

The following figure illustrates the distribution of these start-ups by main vertical.

Fig. 05

Start-up distribution by vertical.



**55% of the start-ups mapped are not specialized in an agriculture and food sector.**

Currently, 55% of the mapped start-ups are not specialized in an agriculture and food sector, but offer technological innovation solutions to the broader sector of agriculture and food. The remaining 45% focuses on specific verticals.

To understand this verticalization process, it is worth mentioning that, of all the start-ups created until 2015, 43% focused on a specific vertical. On the other hand, the percentage of start-ups created between 2016 and 2018 focusing on one vertical grew to 49%.

The following are the main verticals:

**Extensive crops**



- Innovations in precision agriculture for recommending works and applications, and also Marketplace and management software for buying and selling supplies, services and products. The development of biological products both for nutrition and for controlling crop diseases and pests is also significant.

**Permanent crops**



- Innovations are similar to those crops developed for extensive crops, but aimed at specific crops of interest such as seeds, pits, citrus and sugarcane, among others. The development of biological products, as well as intelligent irrigation systems, is also worth noting.

**Livestock**



- It is one of the verticals with the highest relative growth in recent years, where innovations are linked to various aspects of business, including operational management full traceability and marketing. The international demand for animal protein -beef, pork and poultry, as well as for dairy products- increases the interest in this sector.



Although even today there is a majority of start-ups with a more general approach regarding the sectors to which they are oriented, it is possible to identify some typical features of the productive activity in those countries that show a greater number of Agtech start-ups:

- To begin with, the countries with more entrepreneurial activity are also those that show the highest degree of specialization (as opposed to technological solutions that cover the entire farming sector).
- Argentina and Brazil have similar diversified profiles: a broad base of overall innovation, and also a growing focus on areas of extensive agriculture and livestock. At the same time, specific solutions for other sectors, including permanent crops, forestry, food and beverages, among others, are being developed.
- On the other hand, Chile and Peru show a high concentration of innovations for permanent crops, given their important fruit sectors, which are particularly more intensive in terms of capital and technology. Innovations in irrigation technologies, as well as biological solutions for pest and disease control in permanent crops are also worth mentioning.
- Uruguay, on the other hand, focuses on innovations for the livestock sector, given its leadership in this sector.
- Mexico and Colombia are stronger in the vegetable category, not only in terms of production, but also in terms of sales and distribution.

**Trends in the  
use of Agtech  
technologies**



**Technological innovation, combined with innovation in business models, will probably be the major source of disruption in the coming years.**

It could be argued that there is widespread perception that the innovation sought by the Agtech sector is mainly of a technological nature. Clearly, the incorporation of new observation sources (such as satellite images, drones or ground sensors), biotechnological development or e-commerce are new technologies available in the sector.

Indeed, most innovations mapped in this study incorporate new or recent technologies used in multiple sectors of our society. This is often referred to as the convergence of technologies with specific application to the needs and reality of our sector. Therefore, it is worth wondering whether Agtech innovation can actually generate true disruption in our sector, beyond innovation itself.

Obviously, there are areas with potential for disruption, such as those related to crop improvement, production of new alternatives for animal protein, and technologies for reducing or mitigating greenhouse gas emissions. Perhaps it is still too soon for Agtech to claim major disruptions in our sector.

In this sense, it is also important to point out that these new technologies are often combined with value propositions that transform existing business models. Therefore, technological innovation combined with innovation in business models is likely to generate more disruption in the future.

Some examples may help to understand this possible phenomenon:

- Besides from the efficiency improvements they generate, new production systems, as well as mechanization and robotization, will change labour demand in certain areas and will demand more skilled worker profiles. This implies a challenge, but also an opportunity to generate more qualified labour sources.
- The increased availability of information on markets, climate and agronomic recommendations, as well as the expansion of multiple marketing platforms for supplies and products, has the potential to empower small and medium-sized rural producers. With more information, knowledge and commercial visibility in the hands of these producers, it is possible to expect that the dynamics in various agribusiness chains will evolve, thus putting pressure on intermediaries and adding further changes that have yet to be determined.
- The increased value of by-products or waste from the agriculture and food industry, as a result of technologies capable of processing and transforming said resources into useful products has the potential to create new markets.






# Digital development as a pillar of Agtech innovation

In the portfolio of technologies used for Agtech innovation there is an array of digital solutions, employed extensively across virtually every sector of our society, which have been the main tool for entrepreneurs in the region.

The following chart introduces the different digital technologies most widely used by the universe of Agtech entrepreneurs.

Fig. 07

Main digital technologies used in the Agtech world.

Technology	Description
<b>Internet of Things</b> 	Technologies that include soil sensors, cameras, weather stations and other instruments that gather information on environmental factors and agricultural activities and send the information to processing systems for further analysis and issuing recommendations.
<b>Big Data</b> 	Massive volumes of information from multiple sources, usually obtained through the Internet of Things solutions, that can be captured, analyzed and used for generating predictive analyses for agricultural activities, and for real-time decision making.
<b>Artificial Intelligence</b> 	Artificial intelligence applications include robotization (autonomous robots for performing different tasks), soil and crop monitoring (computer vision and algorithms to process information for soil and crop monitoring) and predictive analyses (learning models for evaluating different factors and generating predictive analyses). The Internet of Things and Big Data solutions are an essential part of artificial intelligence developments.
<b>Blockchain</b> 	Blockchain technology has multiple applications in agriculture, including traceability along the logistics chain of food and agricultural products. Internet of Things solutions are an important component to capture information used by Blockchain solutions.
<b>Remote Sensors</b> 	Remote sensors make different measurements or observations of soil and crops over time, which allows for analyzing conditions and decision-making. Sensors can be aerial, ground or satellite. Remote sensors are particularly effective for IoT solutions. All sensors generate information that can be used in Big Data solutions and for the development of artificial intelligence.



## Geolocation



Geolocation is a very popular type of technology, since it allows to generate visual representations of information about specific locations. Nowadays, virtually all remote sensors provide geolocation, thus allowing the analysis of multiple layers of information or variables on a specific area.

## Mobile Technology



Mobile technology is currently widely used in the agricultural sector, although less frequently in some poor countries. Mobile technology can be very powerful to help producers access real-time information on markets and climate, and also allows access to management solutions as well as funding platforms. More broadly, mobile technology allows access to information generated by the other technologies described.

## Robotics



The use of robots in agriculture aims at automating certain tasks and processes, as well as developing stand-alone equipment for rural activities. Remote sensors and artificial intelligence are important components for robotics solutions.

Based on the different applications of these technologies in the Agtech world in the region, the following preliminary observations can be made:

- A distinctive feature of Agtech innovation is that, very often, a combination of these technologies is used for the development of solutions.
- While all of these technologies are available, there is a wide range thereof in terms of their readiness and their development possibilities regarding cost and usability.
- The continuous convergence of technologies could indicate that there will be no specific technologies that will prevail among others, but they are likely to be used in an interconnected way.

## Use of digital technologies in the Agtech universe

When zooming in on the digital-based Agtech sector, it is possible to identify the most commonly used technologies.

The following picture illustrates the percentage of digital-based Agtech start-ups that use each of the technologies described.

**Fig. 08**

Use of technologies  
in digital-based start-ups\*.

**41%**

Remote sensors

**36%**

Geolocation

**30%**

Mobile technology

**17%**

Internet of Things

**14%**

Big Data

**14%**

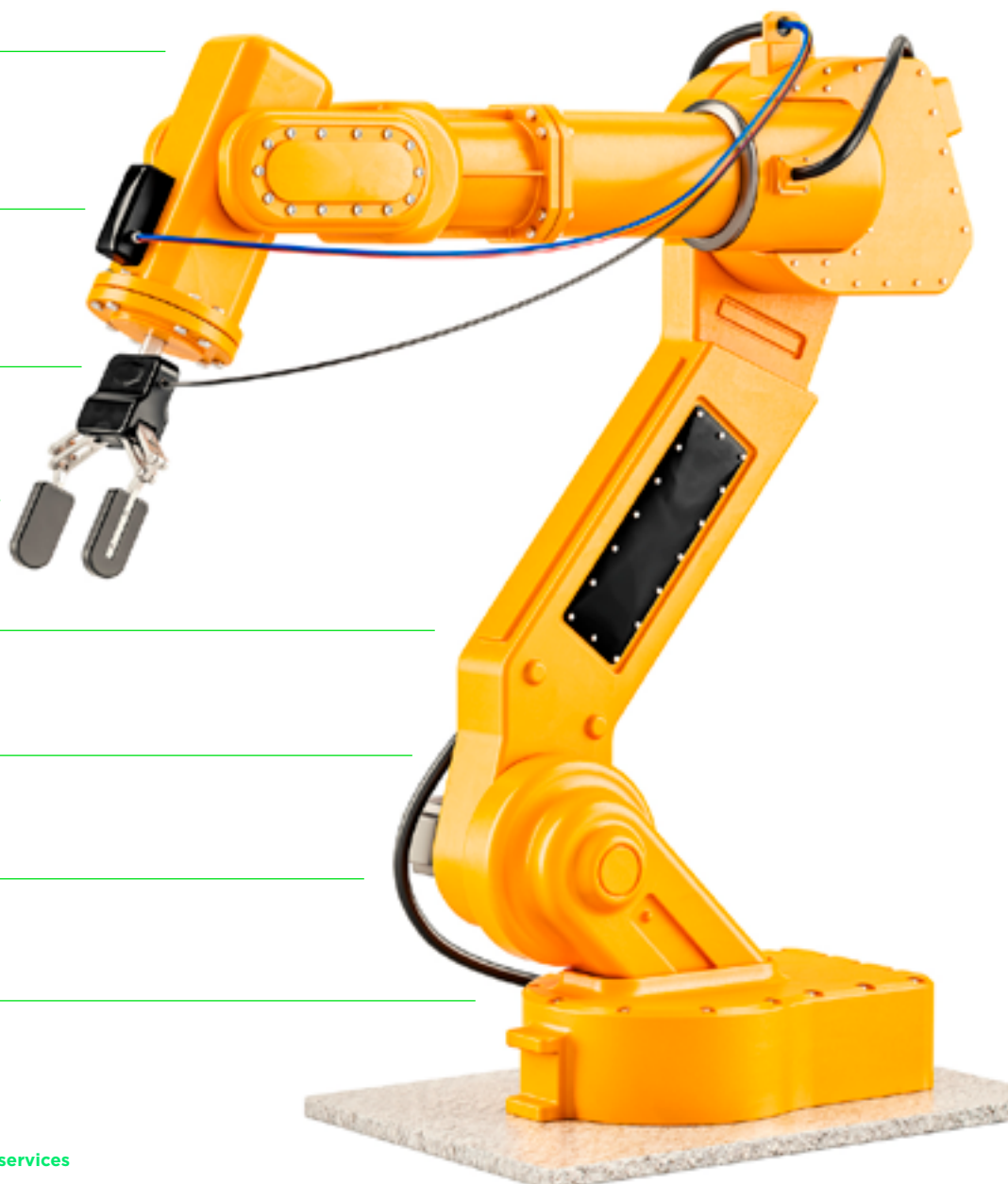
Artificial Intelligence

**1%**

Blockchain

**1%**

Robots



\*Based on start-ups in the fields of:  
1. Big Data and precision agriculture  
2. Management software and information services  
3. Digital platforms

Once again, the degree of technology used reflects the evolution, availability and development of the different technologies:



- Remote sensors - which include the use of satellite images, drone-generated data, ground sensors such as weather stations or sensors built into the ground and machinery - are among the most widely used digital technologies, with 41% of digital-based start-ups.



- Geolocation is also widely used, often integrated with sensors and mobile technology.



- Mobile technology is precisely among the three main digital technologies used, and its growth outlook is in line with the greater availability and resilience of data networks.



- The use of the Internet of Things is also growing, thanks to a more widespread use of sensors, although connectivity continues to be a constraint, even today.



- The development and incorporation of artificial intelligence into Agtech's technological solutions in the region is still in its early stages and, although there is an incremental use of predictive algorithms and models, it is an area with high potential.



- Something similar happens in the case of Big Data, given that the capture, storage and processing of information in the sector is only in its early stages.



- Finally, both Blockchain technology and robotics are still at a very early stage, with only 1% of enterprises using some of these technologies.



- The incorporation of Blockchain to a growing number of Agtech start-ups is to be expected, with an initial focus on those related to commercial transactions, as well as those related to the traceability of animals, food and other products of the agribusiness chain.

## Opportunities for further digitalization in the agriculture and food sector

A deeper analysis on the use of digital technology in Agtech may be carried out to identify opportunities for further digitalization. The chart on the following page details the implementation of the different technologies per technological innovation subsector.

The global outlook shows the most massive incorporation of remote sensor technologies, geolocation and mobile technology.

The more detailed sector-by-sector analysis outlines areas of particular interest for future technology development, among which the following can be mentioned:

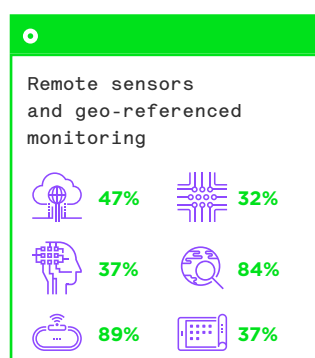
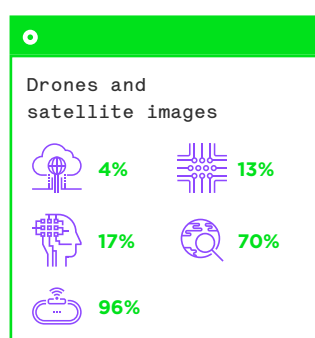
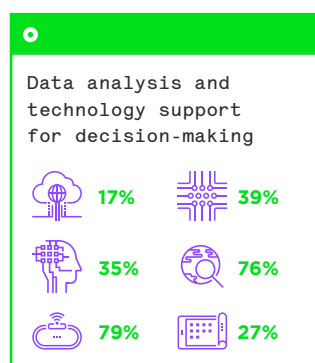
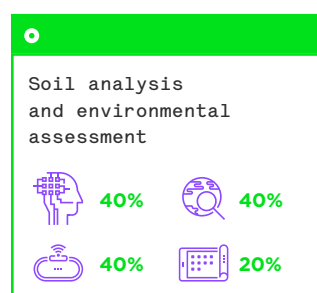
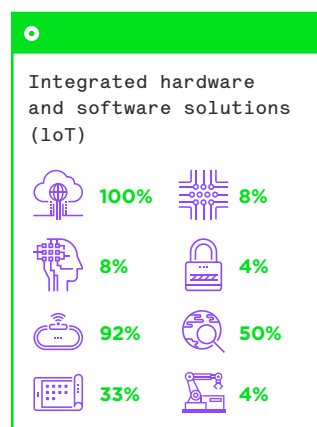
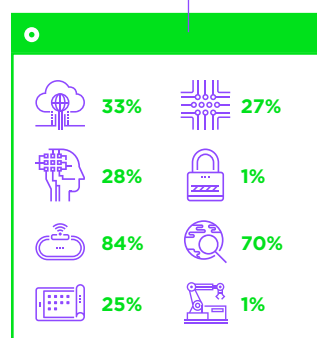
- Greater use of sensors in Big Data and precision agriculture are expected to begin to provide feedback to management systems. Both areas have been relatively disconnected so far, and there is an evident opportunity for their strengthening through greater incorporation of data and information into management systems.
- Mobile technology is and will continue to be very important to bring new innovations to the market. Even today, both connectivity and use are relatively low.
- Across the spectrum of more sophisticated technologies, it is evident that there is much progress to be made in the sector with the incorporation of the “Internet of Things”, artificial intelligence and robotics. Data generation, capture, storage and processing will become increasingly valued in this market, as it will be the resource for feeding more solutions, such as optimizing the different innovative platforms for buying and selling, funding and outsourcing services.



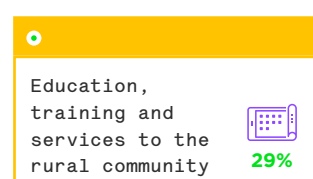
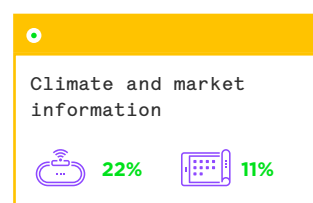
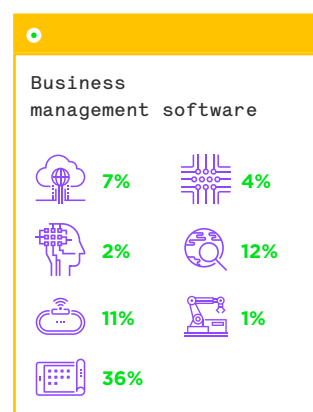
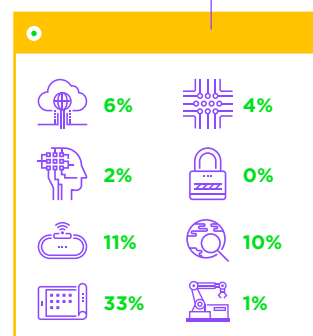
Fig. 10

Use of technologies within digital-based start-ups.\*

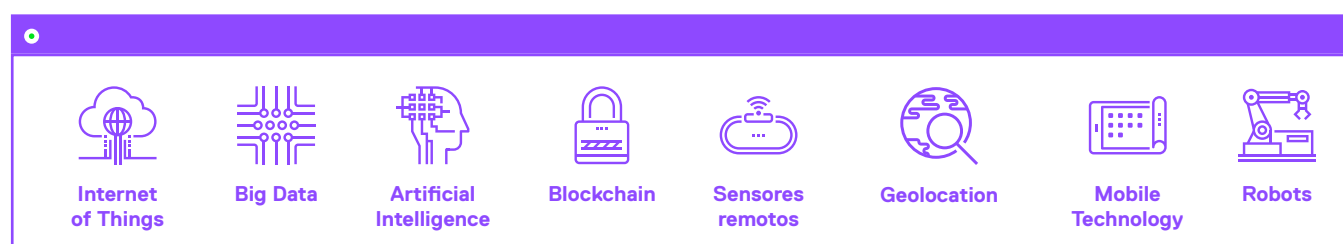
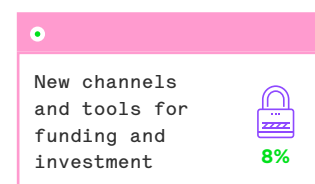
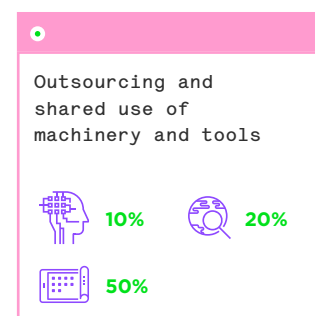
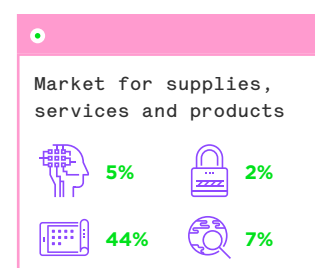
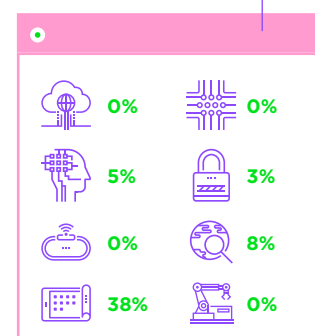
### Big Data & precision agriculture



### Management software & information and education services for agricultural producers



### Innovative platforms for buying and selling, funding and outsourcing services



\* Based on start-ups in the following areas:

1. Big Data and precision agriculture
2. Management software and information services
3. Digital platforms

**The impact of  
Agtech innovation  
on small producers**

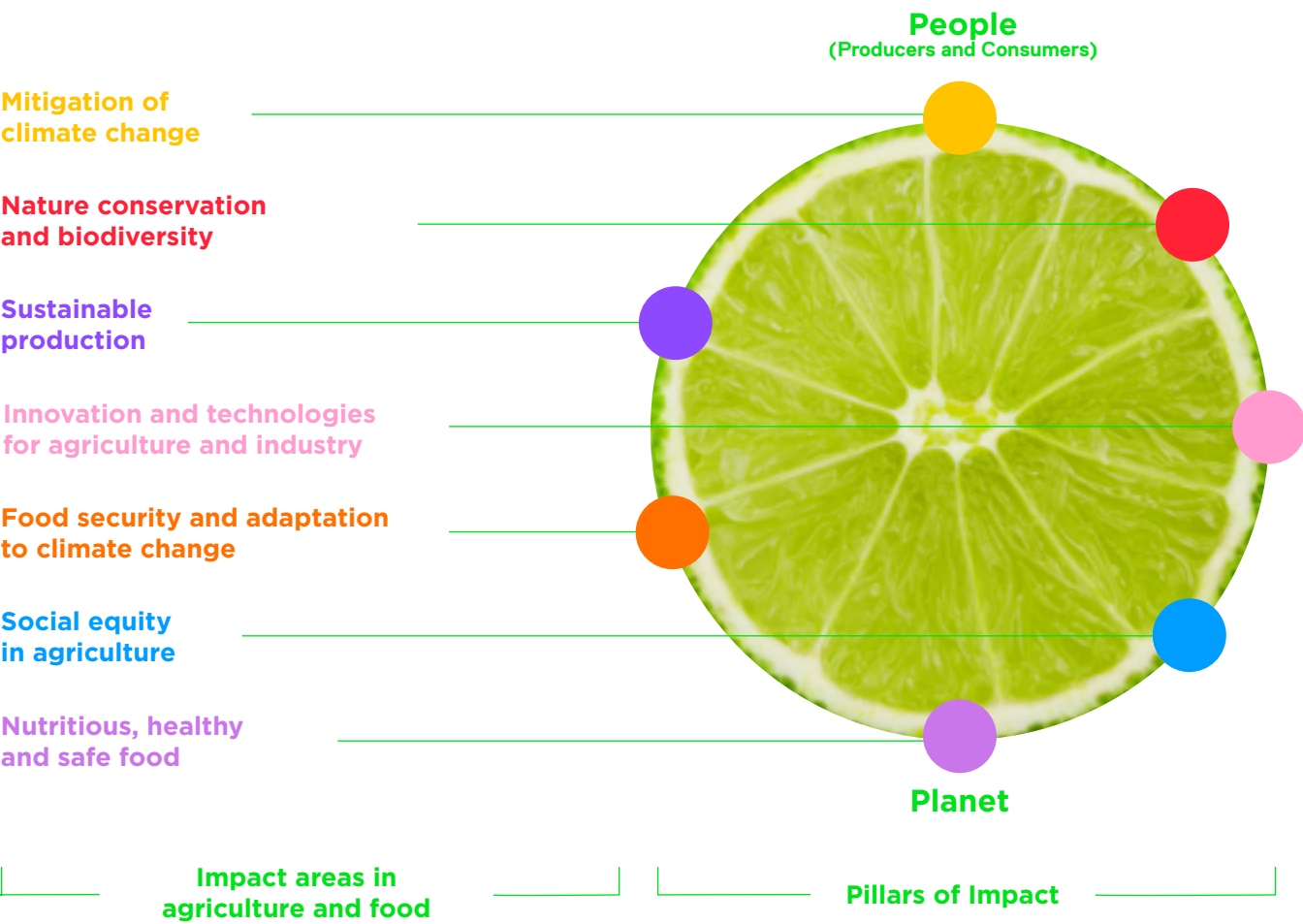


As previously mentioned in this study, Agtech’s opportunity in Latin America and the Caribbean has the potential to not only create innovations, but to also generate transformative changes in the way of producing food, with a positive impact on environmental, social and economic aspects at the local and regional levels.

In its recent study on impact investments in agriculture and food, Valoral Advisors developed a set of seven impact subject areas, which are illustrated below.

**Fig. 11**

Impact areas in agriculture and food.



Source: “Impact Investing Opportunities in the Global Food and Agriculture Investment Space.”

One of the characteristics of Agtech innovation is its potential to generate an impact on virtually all the topics mentioned above.

This study specifically focuses on the impact that Agtech innovation can achieve to reach small or vulnerable producers.

Among the objectives to be achieved, the following may be included:

### Knowledge

- Access to knowledge and technology to develop climate-resilient agriculture.

---

### Fair market

- Access to markets in fair conditions.

---

### Funding

- Funding for small producers.

---

### Inclusion

- Social inclusion through mobile technology solutions.

---

### Empowerment

- Empowerment of rural workers.
- 

The challenges are evident in Latin America and the Caribbean:

1. These populations are usually highly fragmented and live in hardly accessible areas (both physically and in terms of digital connectivity), in situations where poverty prevails, and they are also vulnerable to the effects of climate change on agricultural production.
2. In addition, they have limited access to technology, poor training and less technical know-how than medium and large producers, and generally have low economic resources to acquire and hire new technology.

While Agtech innovation in the region offers solutions (through more than 450 start-ups) to achieve the objectives described above, anecdotal information collected from different entrepreneurs reveals that there is still a long way to go to reach this segment.



Among the most recent Agtech innovations, the following can be highlighted:

### Crop and animal protection and genetics



- When observing the productive gaps faced by the most neglected or marginalized rural producers, it is evident that the improvement of seeds adapted to local conditions and the access to their commercial distribution is a real opportunity.
- Similarly, access to both to chemical and biological fertilizers has the potential to generate a quantum leap in the productivity of these rural communities.

### Big Data & precision agriculture



- Access via mobile telephony provides several solutions for making agronomic recommendations based on climate information and indicators of vegetative growth, among others, that are frequently accessible for free in its basic versions. This information, usually geo-referenced, can help in basic aspects such as optimal planting dates, pest control, frost precautions, crop conditions, etc.
- This type of solution constitutes a first step towards bringing digitalization to rural communities. However, to achieve true effectiveness, it is essential to provide rural producers with further training, so that they can benefit from these solutions.
- The most basic versions of several agricultural activity management systems operate via mobile telephony and are freely accessible.

### Management software & information and education services for agricultural producers



- These management systems allow livestock and agricultural producers to organize operational and stock information, by prioritizing and scheduling tasks, as well as sorting out the information to keep records of activities and results.
- Once again, training is necessary to enhance the use and efficiency of these solutions

### Innovative platforms for buying and selling, funding and outsourcing services



- Access to markets in fair conditions is one of the main ways to reach smaller or vulnerable producers. The “marketplaces” that already exist in the region, are a convenient platform to gain visibility in terms of input, availability and prices, as well as to improve the marketing conditions, even for small producers.
- Similarly, there is potential to improve financing platforms and reach those most underserved and marginalized populations. There is much to be done in this regard and, obviously, mobile technology plays an important role.

### Innovative food products and services



- There is a growing number of platforms that seek to integrate farm-to-consumer marketing, with the aim of reducing intermediation costs and establishing a more efficient supply chain, for the benefit of small producers.
- These concepts are more developed in markets with a higher percentage of producers in the vegetable sector, such as Colombia and Peru.
- These platforms usually work with local cooperatives, which act as production aggregators for a group of producers in a given area.
- Further development of these platforms and the dynamism that they are likely to infuse into the marketing of fresh fruits and vegetables can prove a significant opportunity.

### Bioenergies and biomaterials



- This is a developing area with a strong link to “the last mile”, where biomass or waste are intended for conversion into useful products such as organic fertilizers, which can be carried out by small producers.

Obviously, a considerable challenge for Agtech innovation to reach “the last mile” is the ability to distribute and profitably market the solutions available to more marginalized or neglected populations.

A general review of the business models of Agtech start-ups in the region shows that in several cases they are aimed at medium or large clients, who may be more likely to acquire products and services given their size, technical knowledge and availability of resources.

For this reason, the role of public agencies and the collaboration of technical and educational institutions will be key to promoting and facilitating access and technology transfer so that Agtech innovation effectively reaches “the last mile.”

**The business models of Agtech start-ups in the region show that they are often aimed at medium or large customers.**

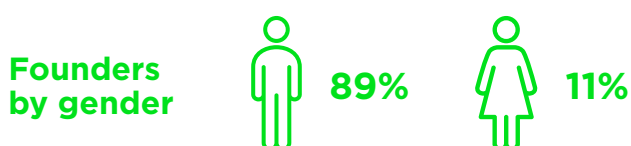


## El rol de las mujeres Founderas en los emprendimientos Agtech

Another positive impact that Agtech innovation can achieve in the region is the empowerment of women so that they can contribute to entrepreneurial activity in the Agtech sector and to the development of the broader entrepreneurial ecosystem.

Almost 300 founding teams were identified among the 457 Agtech start-ups mapped in the region. In this sample, only 11% of the teams include women.

Although there are currently no comparative data for other innovation sectors in the region, the preliminary analysis shows that the participation of women in Agtech innovation is significantly low.



The following preliminary observations were drawn from the information gathered:

- Agtech innovation in the region is mostly led by professional men, the majority being young, with university studies and experience in the agricultural sector, or with a more technological profile.
- Female founders have relatively higher participation in the sectors of i) genetics and protection of crops and animals, ii) innovative food products and services, and iii) bioenergies and biomaterials.
- This predominance can be explained by the entrepreneurial interest among women with training in the areas of biology, chemistry and veterinary medicine.
- On the other hand, women show an entrepreneurial interest in food, which is reflected in their participation in the production of innovative foods and the development of farm-to-consumer market platforms. There is a significant interest in developing a more nutritious, healthy and safe diet.
- Finally, there is also a particular interest when it comes to solutions for “Food Waste” and “Food losses,” an area in which women have a more active role around the world.
- One of the areas with the lowest female participation is that of “Big Data & Precision Agriculture”, which has the largest component of digital technology. This information is consistent with other observations that indicate less female presence in areas of strong technological content.

The rural culture in Latin America shows different contrasts, with a marked male tradition in the sector, but also with female presence in family production units and in activities related to feeding the family.

There is a long way to go, and access to the entrepreneurial ecosystem, funding and technical, economic and commercial knowledge of the sector will be important.

The expansion of Agtech innovation in the region beyond Argentina and Brazil, and towards new verticals that incorporate regional economies, is an excellent opportunity to address the empowerment of Agtech women entrepreneurs.

**Agtech innovation  
can contribute  
to the economic  
empowerment of  
women in the region.**



**Featured start-ups  
in the region**

**5**

**Ten start-ups providing innovative and creative solutions for the great global challenges in agriculture have been selected in the Agtech universe of the region.**

The selected projects are detailed below.

# BeGreen

## New production and urban farming systems //

[www.begreen.farm](http://www.begreen.farm)

» Brazil

### Problem and innovative solution

- Most vegetables are produced using inefficient water systems and high levels of chemicals, located far from urban centers, all of which entails high costs and CO2 emissions resulting from transportation.
- BeGreen develops urban farms to produce fresh and sustainable vegetables, conveniently available to consumers on a daily basis.
- The farms produce organic vegetables by means of an aquaponic system, have rainwater collection systems and use vegetable waste to produce fertilizer.
- Moreover, they incorporate a variety of sensor technologies to monitor and optimize different production factors.
- In this way, BeGreen allows to produce fresh food in a sustainable and efficient manner.
- In addition, BeGreen creates well-being and sustainable environments in urban centers, fostering healthy, organic food and sports practices in the community. This is also done for large companies in their factories.

### Main achievements

- In May 2017, BeGreen opened its first urban farm, BeGreen Boulevard, in a commercial area of the city of Belo Horizonte, Brazil, where 21 varieties of vegetables and sprouts are produced.
- The company distributes to restaurants and has its own store, called Casa Horta. Besides, it has opened a restaurant, Casa Amora, and sells household production kits.
- BeGreen seeks to expand to other cities in Brazil and to continue to extend its production and distribution platform.
- The initiative was incubated by Liga Ventures in Brazil.



◉ FEATURED START-UP

# BeGreen

◉ BEGREEN\_INFO.



**Brazil**  
Country of Origin

**2016** Year established

**Giuliano  
Bittencourt** Founder



# iCrop

## Task mechanization and automation //

[www.icrop.com.br](http://www.icrop.com.br)

» Brazil

### Problem and innovative solution

- In Latin America there are about 18 million hectares of agricultural land, subject to different irrigation techniques.
- The effects of climate change and other factors such as greater urbanization increase the pressure on the availability of water for irrigation. At the same time, the operation of irrigation systems requires energy.
- Even today, many producers lack irrigation systems management to optimize decision-making and reduce the impact on the use of water and energy.
- iCrop develops a technology-based solution to manage irrigation systems, aimed at optimizing water use and reducing energy costs.
- The technological platform consists of a software system that gathers information from a network of meteorological stations, remote sensors and operation monitoring tools for irrigation systems, as well as external information for weather forecasting.
- This platform provides visibility for efficient resource management of water and energy and for optimizing crop development.
- A team of consultants provides support to the technological platform with field visits.

### Main achievements

- iCrop is positioned as one of the main irrigation management companies in Brazil.
- Currently, iCrop monitors around 740,000 hectares of irrigated land.
- The German company Bayer became interested in the platform, and is currently offering the iCrop service through its own distribution network ("Rede AgroServices").



◉ FEATURED START-UP

iCrop

◉ ICROP\_INFO.



**Brazil**

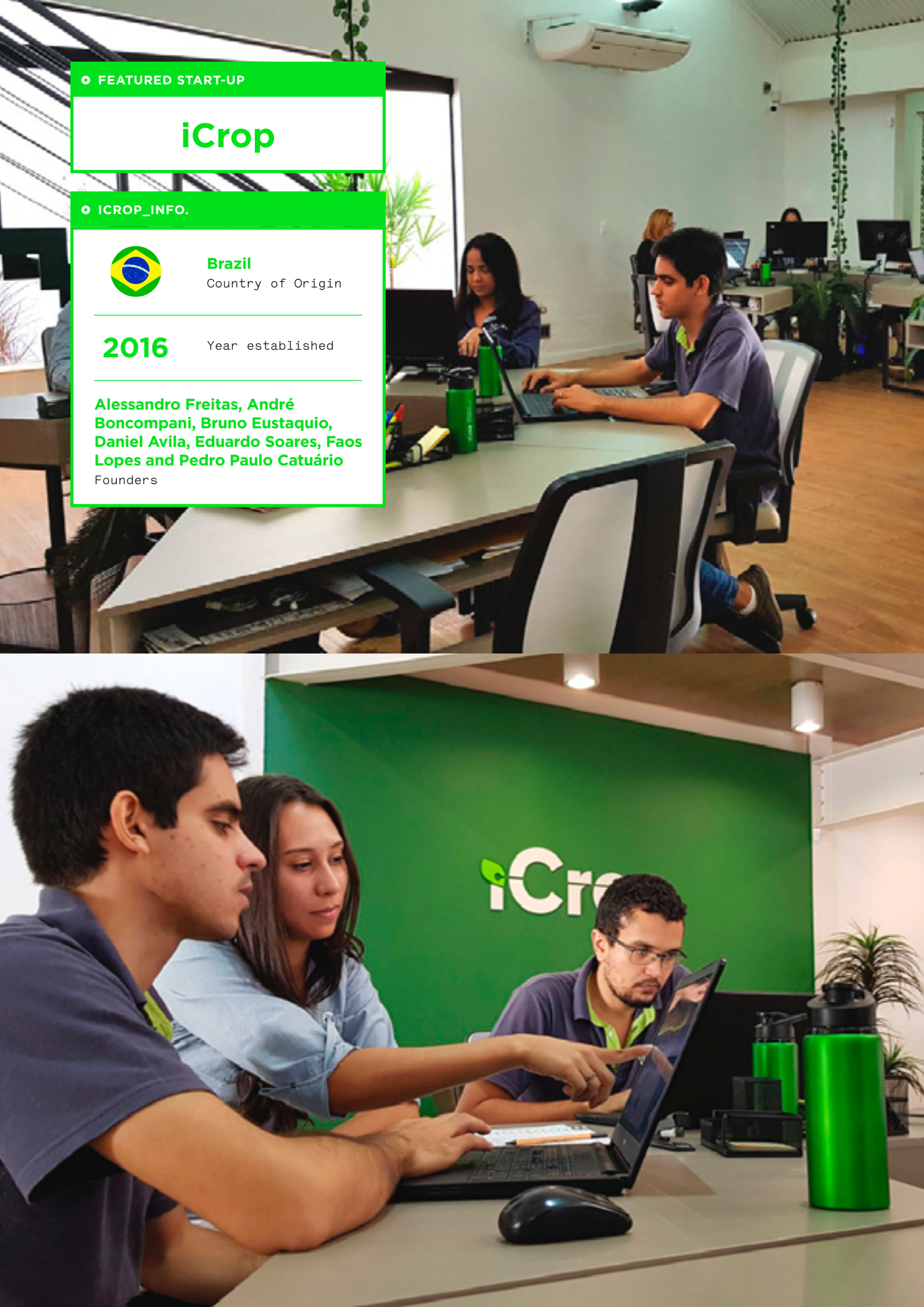
Country of Origin

**2016**

Year established

**Alessandro Freitas, André Boncompani, Bruno Eustaquio, Daniel Avila, Eduardo Soares, Faos Lopes and Pedro Paulo Catuário**

Founders



# Tierra de Monte

## Biotechnology & crop and animal protection //

[www.tierrademonte.com](http://www.tierrademonte.com)

» Mexico

### Problem and innovative solution

- The extensive use of chemical fertilizers and pesticides in agriculture is a threat to natural ecosystems and rural workers, and can affect the sustainability of productive systems in the long term, with stronger impact on small producers with fewer resources.
- The purpose of Tierra de Monte is to make agriculture a source of well-being and freedom. The company seeks to reduce the use of agrochemicals through the implementation of microbiological technology that restores ecosystem health, allowing to increase production and reduce risks and costs.
- Through microbiological technology the company enables the development of sustainable agriculture that does not require the use of chemicals and is more productive, distributing value across the commercial chain.
- The company produces biological products based on different communities of microorganisms to control pests, regenerate soils and nourish plants, which results in healthier and more productive lands.

### Main achievements

- Ever since it was established, the company has increased product sales and the areas it covers, by working with local partners, targeting small producers.
- In 2018, at least 15,000 hectares across 15 states impacting around 10,000 people were covered. Similarly, the use of the company's products replaced about 5,000 liters of insecticides and 7,000 liters of fungicides.
- Tierra de Monte won the Banamex Award for being the company with the greatest social impact. It was also awarded the CEMEX-TEC Prize in 2016 in the Social Entrepreneurs category. The company was also a semifinalist in the Cleantech Challenge Mexico 2015, in MassChallenge 2017 and is currently one of the StartUp I3 LATAM companies selected by the New Ventures accelerator.



◉ FEATURED START-UPA

# Tierra de Monte

◉ TIERRADELMONTE\_INFO.



**México**

Country of Origin

**2015**

Year established

**Adriana Luna  
and Etienne  
Rajchenberg  
Ceceña**

Founders



# Eiwa

## Big Data & precision agriculture //

[www.eiwa.ag](http://www.eiwa.ag)

» Argentina

### Problem and innovative solution

- The increase in food consumption projected for the next decades should be aligned with higher agricultural productivity, which will depend on the development of products with higher return: seeds, herbicides, fungicides and insecticides.
- Even today, the practices in plant selection for seed genetic development and multiplication are manual and intensive processes which entail high costs, are time-consuming and generate inconsistencies in process quality.
- Eiwa develops a digital platform for the selection of open-field phenotypes, which covers the full breeding, development and marketing cycle.
- Eiwa optimizes these processes by capturing and storing high-resolution images with satellites, drones and remote sensors, as well as image processing through algorithms, thus generating a set of analyses so that suppliers can improve decision-making and reduce time to market for new products.

### Main achievements

- Eiwa has successfully established itself as the digital solution for the seed breeding and reproduction process, with commercial contracts with several of the major seed companies in Latin America and the world.
- Eiwa has expanded in the region, and is currently operating in Argentina, Brazil and the United States.
- Since it was established, Eiwa has received investments from recognized venture capital firms, including The Yield Lab, Cygnus Capital and Glocal.



◉ FEATURED START-UP

# Eiwa

◉ EIWA\_INFO.



**Argentina**

Country of Origin

**2014**

Year established

**Nicolas  
Otamendi  
and Marcelo  
Gowland**

Founders



# Space AG

## Big Data & precision agriculture //

[www.spaceag.co](http://www.spaceag.co)

### » Peru

#### Problem and innovative solution

- Across its different coastal, mountain and forest environments, Peru has a considerable extension of land suitable for agriculture, on which a significant part of the local population depends. The country is a leading exporter of nutrient-rich crops considered as “superfoods”, being the second largest exporter of several varieties of avocados, as well as the fifth largest exporter of table grapes.
- A growing part of Peruvian agriculture is focused on these permanent crops with high nutritional value. Crop monitoring and production projection are key to optimize the business. However, traditionally Peru did not rely on technologies that facilitated these processes.
- Space AG offers a platform to digitalize farms by combining data captured by drones and satellite images, integrating and processing data from crops to create a digital map of the farms and generate alerts of anomalies related to irrigation and plant vigor, as well as more accurate harvest forecasts.
- The company uses artificial intelligence methods, correlating production data with chlorophyll concentration, leaf surface and plant height, and integrating them with other crop variables to develop harvest optimization models and plots to be harvested, harvest forecasting,

resource-focused application and early-detection of anomalies.

- More recently, the company has also developed image recognition to more accurately identify harvest volumes, times and sites, as well as fruit anomalies, together with a series of sensors and telemetry to operate agricultural machinery.

#### Main achievements

- To date, the company has covered more than 75,000 hectares belonging to more than 40 agribusiness exporters.
- The digital platform developed by Space AG allows to consolidate a series of solutions that are vital for Peruvian fruit companies, given the investment levels involved in permanent crops.
- Likewise, Space AG has provided important services during the occurrence of the El Niño Costero phenomenon in 2017 to map the flooded areas and identify future areas at risk.
- Space AG has received several awards in previous years: the company won the Biodiversity Challenge 2 at Startup Peru 2018, was ranked first in the Agrotechnology category at the Innovation and Entrepreneurship Forum of the Pacific Alliance 2017 and was also ranked also first in NXTP Agtech Startup Latam 2017. In 2018, Space AG was considered one of the 10 most disruptive startups in Latin America by TechCrunch.



◉ FEATURED START-UP

# Space AG

◉ SPACEAG\_INFO.



**Perú**

Country of Origin

**2017**

Year established

**César Urrutia  
and Guillermo  
de Vivanco**

Founders



# JETBOV

## Management software & information and education services //

[www.jetbov.com](http://www.jetbov.com)

» Brazil

### Problem and innovative solution

- Latin America has one of the largest livestock inventories in the world, with a mostly extensive production system, although increasingly supplemented by intensive production based on stockyard confinement systems.
- To improve the productive and economic efficiency of livestock, it is essential to incorporate a management system that organizes the multiple field activities related to animal husbandry: feeding, vaccinations, weighing, transportation, pastures, costs, etc., and allows to generate data to control and assess results.
- Jetbov has designed a livestock management platform, which allows to organize and manage information throughout the productive phases, i.e., livestock breeding, rearing, fattening and sale.
- The company allows livestock producers to collect data from each process and upload them to the Jetbov cloud to generate information for business management purposes.

- The platform also uses information from remote sensors.
- The platform can be accessed from a computer, tablet or mobile phone, and does not require online access for on-site data collection.

### Main achievements

- In 2016 the company was finalist of the Latam QPrize contest, organized by Qualcomm & Kaszek.
- Jetbov received the Toro de Oro Award at Intercorte 2018 in the livestock application category.
- Today, Jetbov has clients in 26 Brazilian states, Paraguay, Mozambique and Angola, totaling almost 1,000 production units with more than 1.5 million head of cattle.
- Jetbov was accelerated by Inovativa Brasil, and received contributions from ACE and the SP Ventures fund.
- In 2018, it was selected to participate in Launchpad Accelerator São Paulo, Google's business acceleration program.



◉ FEATURED START-UP

# JETBOV

◉ JETBOV\_INFO.



**Brazil**

Country of Origin

**2014**

Year established

**Xisto Alves  
de Souza Jr.**

Founder

# Agree Market

## Innovative buying and selling, funding and outsourcing services platform //

[www.agreemarket.com](http://www.agreemarket.com)

» Argentina

### Problem and innovative solution

- Agriculture is considered one of the least digitalized sectors of the economy.
- In particular, the trading of agricultural products is carried out through a long chain that involves different intermediaries and logistics processes, which reduce the transparency and efficiency of commercialization.
- Agree Market is a digital platform that seeks to achieve greater productivity and efficiency in the agricultural trade sector through the implementation of new technologies.
- Agree Market develops a global agricultural commodity trading platform that allows registered users to buy or sell grains, oilseeds and other kinds of food on their mobile or desktop devices.
- One of the most interesting aspects of the platform is its inclusive nature: all chain operators can participate, including agricultural producers, grain brokers, stockpile staff, exporters, industry players as well as any company in the chain.

- In this way, in addition to transaction transparency and security through Blockchain technology, Agree Market seeks to generate more dynamic negotiations by creating a more liquid market with multiple participants, which leads to better trading conditions.

### Main achievements

- During 2018, Agree Market launched its international market (FOB) and the Argentine domestic market (FAS), and carried out its first operations. Two months ago, it launched the Paraguayan domestic market (FAS), and started operating.
- Agree Market has also been the first Agtech start-up in Latin America to implement Blockchain technology for recording its transactions.
- The company is expanding to Brazil in the next 60 days and is also analyzing new verticals such as specialty products, fruits and vegetables.
- Agree Market has received capital contributions from different investors, including the venture capital firm The Yield Lab Latam.



● FEATURED START-UP

# Agree Market

● AGREEMARKET\_INFO.



**Argentina**  
Country of Origin

**2017**

Year established

**Gabriel Sánchez Catena,  
Nicolás Mayer-Wolf, Rodrigo  
Oscar Vázquez, Sebastián Miret**  
Founders



# PolyNatural

## Technologies in food processing, logistics and distribution //

[www.polynatural.cl](http://www.polynatural.cl)

» Chile

### Problem and innovative solution

- Fruits are highly susceptible to deterioration once harvested. In fact, post-harvest fruit losses can reach 50% in some countries.
- For this reason, fruit packing processing requires the use of products that reduce the natural deterioration process. In more conventional fruits, vegetable waxes with synthetic emulsifiers are used.
- For delicate or organic fruits, there is a small range of solutions.
- PolyNatural develops an organic edible coating to protect export fruit, based on natural extracts and vegetable polymers of fruit by-products.
- The coating, called Shel-life, is a natural covering that keeps any fruit fresh for longer. The product extends fruit shelf life through the reduction of microbial contamination and dehydration, while maintaining the natural appearance and aroma.
- The Shel-life product is applied using the usual packing methods, without the need for process modifications.

### Main achievements

- Organic certification by OMRI (main certification agency for organic products).
- Invention patent application filed under PCT. It is currently undergoing the corresponding national patent application processes in the countries where it was filed.
- In 2016, PolyNatural won the MIT Sloan Latin American Startup competition, held in Boston, United States.
- PolyNatural has begun to market its product among the main export companies in Chile, with a focus on four fruits: nectarines, plums, apples and blueberries.
- The company was selected to participate in the Agri & Co. Challenge in Switzerland in November 2018.
- Plans for 2019 include consolidating in the Chilean market and developing its global internationalization strategy.



◉ FEATURED START-UP

## PolyNatural

◉ POLYNATURAL\_INFO.



**Chile**

Country of Origin

**2015**

Year established

**Francisco  
Palma**

Founder



# Frubana

## Innovative food products and services //

[www.frubana.com](http://www.frubana.com)

» Colombia

### Problem and innovative solution

- The logistics chain and the trading intermediation that exists between the universe of small producers of fruit and vegetables who offer their products and the vast universe of restaurants that buy them on a daily basis generates inefficiencies and higher costs for both buyers and sellers.
- Finding a way for farmers to be recognized as entrepreneurs so they can receive a fair income is both a necessity and a challenge.
- Through the use of technology, Frubana seeks to make food cheaper for Latin America while allowing farmers to receive better income.
- The platform aims at optimizing the procurement processes between producers and restaurants, offering the latter better products and providing the former with more favorable economic conditions, by making processes more technology-oriented and reducing intermediation.
- The digitalization of the procurement process allows to gain better understanding of the procurement patterns of restaurants, significantly reducing losses from unsold fruits and vegetables.
- Frubana wastes less than 3% of the purchased production, compared to 50% waste levels across the traditional chain.
- The technology incorporated in the platform allows for the optimization of transportation logistics to receive and distribute production, leading to cost reductions.
- Frubana is also promoting the use of banking services by producers, thus facilitating the purchase of products through electronic means, with the collaboration of financial actors from the local market.

### Main achievements

- Few months after starting operations, Frubana already had 100 direct employees. Its catalog contains 500 fruits and vegetables provided by more than 200 farmers.



## FEATURED START-UP

# Frubana

## FRUBANA\_INFO.



**Colombia**

Country of Origin

**2018**

Year established

**Fabian  
Gómez**

Founder



# Aimirim

## Bioenergies and biomaterials //

[www.aimirimsti.com.br](http://www.aimirimsti.com.br)

» Brazil

### Problem and innovative solution

- The sugarcane value chain is one of the most important in the region given its large scale and its impact on the local economies of several countries.
- Sugarcane is the source for the production of various products such as sugar, bioethanol and electricity.
- Given the high processing volumes, improving conversion efficiency is a critical factor for the productivity and profitability of the sugar industry.
- Aimirim develops artificial intelligence for the simulation, control and automation of combustion processes, rendering them more efficient and reducing operating costs.
- In particular, the company develops a solution to optimize the combustion of sugarcane bagasse to generate energy.

- The technology, currently used in different industrial sites, adjusts combustion rates, resulting in an approximate reduction of 30% in the amount of bagasse necessary to generate the same calorific value, which allows for waste reductions in the industry.
- Aimirim uses the same computer-based technology to provide solutions to other industrial applications.

### Main achievements

- Aimirim provides services to several of the main food and ethanol production industries in Brazil.
- In 2017, the company was selected by Pulse, a business incubator and accelerator that is part of the Brazilian company Raizen, the largest sugarcane producer in Brazil.

◉ FEATURED START-UP

# Aimirim

◉ AIMIRIM\_INFO.



**Brasil**

Country of Origin

**2010**

Year established

**Renato Pacheco Silva , Felipe Adriano da Silva Gonçalves, Millena Martins Villar Vale and João Marcelo Vedovoto**

Founders



**The role of  
corporations  
in Agtech  
innovation**





## Understanding the role of the corporate sector in Latin America and the Caribbean

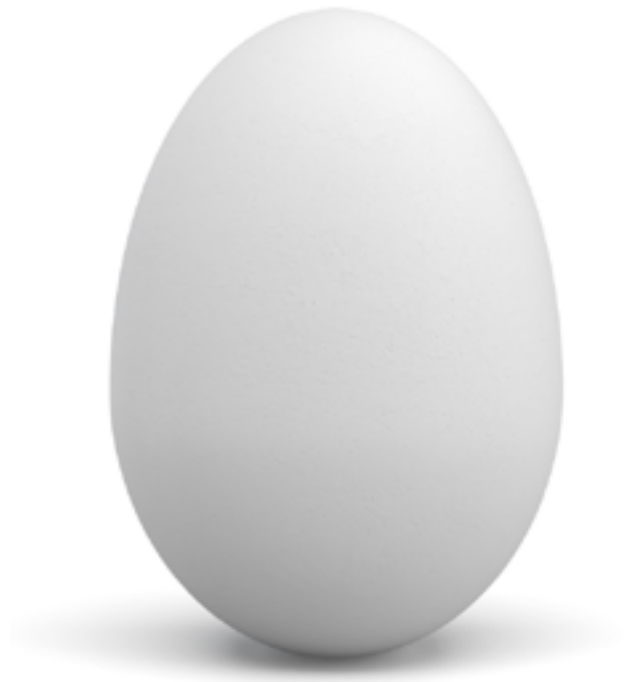
The entrepreneurial ecosystem in the region is continuously expanding.

Today, there are different local networks throughout the region that incorporate academic and research institutions, public promotion agencies, industry associations, incubators and project accelerators, venture capital funds and other participants that, altogether, contribute to the needs of entrepreneurs.

However, the role of the corporate sector in Latin America and the Caribbean is still limited at present, especially in comparison with the development that corporations have generated in other major Agtech regions in the world, where they are actively participating through incubators and accelerators, investment in venture capital funds, direct investments, corporate ventures and in IVs among companies in the sector.

Although there is a greater participation of companies in the region in Agtech ecosystems, which is evident by their presence in innovation and investment forums, the growing interest is still to be reflected in a significant investment flow.

**The role of the corporate sector it is still limited in the region.**





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