Chapter 111

Case of the "Business Incubator of the Universidad de La Frontera" - Incubatec UFRO

10.56238/tfisdwv1-111

Letícia Fernanda Baptiston
Master's degree in Management and Innovation in animal industry, Faculty of Animal Science and Food Engineering, FZEA -USP;

Celso da Costa Carrer
Professor at the Faculty of Animal Science and Food Engineering, FZEA-USP

ABSTRACT
With the changes experienced in food production, agribusiness needs to serve increasingly exigenous markets that seek to understand how, when and where they are producedfrom their food. Adding this with the great need to increase the volume of food due to aggregate demand from factors such as population growth, urban expansion and the reduction of agricultural areas, makes food producers more productive and competitive in the domestic and foreign markets. An important way out of this is investment in innovation, whether by public or private funds, which focus on the development of agribusiness or agroindustry, such as product differentiation. In order to understand a country focused on the foreign market and on delivering greater added value to its customers (more demanding), this study focused on the"Business Incubator of the Universidad de La Frontera" - INCUBATEC UFRO. For this, an exploratory research was conducted, based on secondary and qualitative data that were previously published in FINOVAGRO-2020 in order to identify what are the factors that condition the success in the production of food Chilean companies. It was found that Chile is a major exporter, and therefore there is a large input of public investments that generate innovations to meet the requirements of international markets, aiming at the internationalization of their products, for through the differentiation of these. There is also a technological policy, used as a principal strategy, innovation programs focused on products with added value, important critical mass formation, skilled labor to operate in some production chains (as in the case of salmon) and the development of new products that are export targets, such as those mentioned above. It is notepoint that the results found by the authors are part of the author's master's project "Innovation Environments for the Generation of Startups of Agri-Food System: Case Study In the Ibero-American Sphere", which at the present date has not yet been published.

Keywords: Agribusiness, entrepreneurship, Chile, export, salmon farming

1 INTRODUCTION

Audretsch and Belitski (2017) mention that innovation environments can be influenced by the regional aspects where they are inserted, which in turn can determine the business practices that occur in these innovative ecosystems.

Among the innovation environments, incubators (common loci of startup genesis and spin-of fs...) employ mechanisms that are based on knowledge, these in turn have spread and strengthened since the 1990s . An important aspect of incubators is the training of entrepreneurs in terms of the management of their business, aspect relevante and important in the development of startups and that includes administrative support services, mentoring and networking with specialists (BAÊTA; BORGES; TREMBLAY, 2006). There are also coworking spaces, so that actors within innovative companies can hold meetings in environments that expand synergy between people and thus favor successful business

development. The main purpose of technology incubators is to generate conditions for incubated enterprises to succeed and scale in the market (ENGELMAN; FRACASSO, 2013).

> One of the mechanisms used by people who createbusinesses in the form of micro and small enterprises, to reduce instability, is to settle in business incubators. Incubators seek to promote this reduction by helping them to better prepare through administrative , financial and structure support, which is made available to incubated companies during the incubation process. Relating the various initiatives provided by incubators in the generation of new ventures compared to the mortality of many companies , it is believed that incubated companies tend to be better prepared when they enter the market autonomously and, therefore , avoid mortality in the initial phase of the enterprise. These issues reinforce the future of companiesincubated in the market and the creation of new incubator networks in the country (RAUPP; BEUREN, 2009 p. 84).

Technology-based Business Incubators (IEBTs) also promote the development of technological innovations in Brazil. These were created in order to monitor technological transformations, where new jobs are generated. In these incubators, there are activities among different actors in addition to entrepreneurs who, in turn, result in the creation of technology-based companies, by the opportunity to participate in programs aimed at training in topics involving business creation (SILVEIRA; BAZZO, 2009).

For Rayna and Striukova (2010), these are very relevant factors regarding the development of open innovation, since the innovations generated depend on a large number of people, compared to the traditional innovation systems that occur within large corporations. It is also essential that there is an interactive and contextualized view of the relations between science, technology, innovation and society; appropriate public policies that generate opportunities; and also consider the realneeds of the population, technical-productive risks and social change. Thus, the activities of Science, Technology and Innovation will be less exclusive (SILVEIRA; BAZZO, 2009).

> According to profa. Dr. Claudina Teresa Uribe Bórquez, Technical Director of INCUBATEC UFRO and speaker at FINOVAGRO 2020, investments in innovation for R&D are around 7.6% of GDP, lower than other OECD countries, but much higher when compared to most Latin American countries, including Brazil. Boris mentions that due to the health problems arising from the Covid-19 crisis, these budgets for innovation were maintained or reduced, given the need to prioritize other areas. It is at these times that countries without long-term planning and that do not view the Area of C,T&I as state policy, decide to restrict the resources allocated to P & d, sometimes due to lack of strategic vision, sometimes because this investment generates results and medium to long-term impacts (BAPTISTON, p. 58, 2021).

Regarding the performance of the University:

> [...] universities are the most indicated agents, both for their capacity and responsibility, to generate ideas and actions that seek to solve or mitigate situations in various areas and segments in society, from issues related to the environment and economic and social problems to issues of educational advances and technologicaldevelopment (CASADO; SILUK; ZAMPIERI, 2012 p. 635).
> The industrial components linked to the agribusiness sector cause the dependence of agriculture on them when it creates the link with the industrial sector of capital goods that produces machines, implements and insums, a sector that sells products for agriculture and the consequent link with the industrial sector that p and benefits the production of raw materials from the agricultural sector. With this dependence created between the agricultural sector and the industry sector that provides

> equipment and services, the stages of technology taken directly to its production are fixed, since the responsibility for technological updating is on a large scale (GONSALES NETO, 2016, p. 2).

Guimarães, Lourenço and Cosac (2001) found that the percentage of doctors working in Brazil in areas that can foster the development of innovations in agribusiness are approximately 53%, being : (i) Exact and Earth Sciences (22.4%); Biological Sciences (16.7%) and Agrarian Sciences (12.0%), both areas that have professionals trained to work in agribusiness, being also a relevant intellectual capital that can innovate in this strategic sector worldwide. Therefore, there is no doubt that there are many experts who can contribute to the development of solutions that increase the productivity of the agri-food sector and also collaborate with the development of successful AGTECHs, whether as an entrepreneur or consultant.

It is also necessary to have the understanding that agro experiences the paradigm of agriculture 4.0, which uses the knowledge obtained in agriculture 3.0, and mesca information aimed at a more technological action, which permeates the digital revolution with consumers (MIKHAILOV, 2019).

Another important aspect that can contribute toapplied research focused on the development of agro-innovative companies is due to the fact that researchers working in public educational institutions and research are innovative, creative, act with a certain autonomy and independence of thought, besides being carried out professionally (CAMMAROSANO; SAINTS; ROJAS, 2014), relevant factors that are sought in the entrepreneurial profile and innovations.

Also according to Etzkowitz (2003), universities constitute themselves as a favorable environment for innovation, which in turn need to be transferred to society. Also according to the same author, universities that engage in their activities the compositionof economic and social development, can be called "Entrepreneurial Universities". Cheng et al. (2007), corroborates stating that the University can be considered a great generator of innovative companies, spin-offs, companies that incorput innovations, enabling the creation of differentiated products.

According to Pereira Júnior (2018), factors such as trade opening and the aspects that condition Chile as a major exporter, already in the 1980s, are usually related to the economic development that this country has experienced in the recent past (MONTERO, 2004). Chile is also an important exporting industry of fish obtained by fishing and aquaculture, in which they have a wide advantage that makesthe innovation industry a major vector of development in this area. Also, according to Pereira Júnior (2018), this is due to a synergy between all links in the fish production chain. Among theproductions are salmon fillet, mussels and fresh fish. There are also large projects located to the north, in the Atacama Desert, where there is an intensive and developed algae cultivation (BAPTISTON, 2021).

Therefore, considering Chile's actions in fostering innovations aimed at agro-industrial production and the various policies that foster innovation, this work sought to understand what are the key activities, actors and established partnerships that condition success in development of the agro sector in this country.

2 MATERIAL AND METHODS

The study consists of an exploratory research, based on the survey of qualitative information with the Business Incubator incubator of the Universidad de La Frontera. Aiming to collect the information necessary to composing the work, the strategy of using the lecture took place at the International Online Forum on Entrepreneurship and Innovation in Agro (FINOVAGRO 2020) was established. This event was organized by the Center for Innovation, Entrepreneurship and University Extension (UNICETEX), a didactic laboratory in business management and agribusiness entrepreneurship of the Department of Biosystems Engineering (ZEB) school of animal science and food engineering (FZEA) of the University of São Paulo (USP); the Professional Master's Program in Management and Innovation in the Animal Industry (PPG-GIIA), of the same unit and the Ibero-American Network of Incubators, Technological Science Parks, Accelerators and Innovation Hubs in the Agri-Food System (Agroinncuba Network). The three entities are interrelated in the planning and execution of the pesquisa project number 2019/02643-2, called "Impact of innovation ecosystems on the promotion and performance of agri-food startups (AGTechs): an Ibero-American case study", as regular support to (ARP) with FAPESP, since the simultaneous coordination of the four initiatives is exercised by Prof. Dr. Celso da Costa Carrer (advisor to the researcher).

The event took place in December 2020 and was co-organizing by the government of the state of Paraná, with the participation of the "General Superintendence of Science, Technology and Higher Education" (SETI-PR), the Virtual University of Paraná (UVPR) and the " Commission of Animal Science of the Regional Council of Veterinary Medicine of the State of São Paulo" (CRMV-SP).

It was also used to collect data from the "4th World Meeting of The Reof Agroinncuba", Ibero-American Network of incubators of the agri-food sector. The network emerged in 2017, formed by PCTs, incubators, universities, research center, researchers, accelerators, this network has the focus on supporting innovative startups that operate in the agri-food sector.

Both events addressed the theme of "Innovation Ecosystems and cases of innovative entrepreneurship in agro". To this end, it had the participation of researchers and public managers of universities, research centers, incubators and technology parks in some countries of the Ibero-American region, as well as professionals and entrepreneurs who work in the agro innovation ecosystem.

In order to systematically understand how the business incubator of the Universidad de La Frontera, INCUBATEC UFRO, located in Chile, after the event, was made a detailed transcript ive of the interview given by the member of the Incubator ufro, in order to present the case in depth. Para tanto, the lecture that was previously recorded during FINOVAGRO-2020, was carefully transcribed by the author. According to Graham (2008), the transcription of qualitative data involves precision, fidelity and interpretation of the content that was exposed/collected with the people who participated in a given study, and it is also necessary that this procedure be performed with due ethical care and attention, in order to avoid errors (RAPLEY, 2007).

Regarding data analysis, after the detailed transcription of the lecture, an analytical analysis was applied to the data that were obtained. These will enable the understanding of activities, management form and key partners that can result in success and insucesso in technological incubators that foster innovation. It is notepoint that the data that are exposed in the present work, composes the master's thesis project of the first author, entitled "Innovation Environments for the Generation of Startups of the Agri-Food System: Case Study In the Ibero-American Sphere" (BAPTISTON, 2021).

3 RESULTS AND DISCUSSION

The Business Incubator of the Universidad de La Frontera, INCUBATEC UFRO is located in Chile in the Region of Araucania. The innovation ecosystem in Chile focuses on value creation, through research, science, products and processes that can generate value for society and are profitable (BAPTISTON, 2021).

As a country of smaller size, with production areas with high value, as well as the use of water (70% used for agro-industrial production), Chile seeks to optimize land and soil use for agro-industrial production as much as possible. For this, it has programs of agricultural innovation that intend to understand how to better use the land, how to be more productive, how to better manage projects and the development of projects that are responsible and sustainable with the environment, as verified by Ramírez and Garcia (2010). There are also several public and private institutions that work in this sector, to promote innovations that will be applied in the generation of better products and processes (BAPTISTON, 2021).

Another important factor worked in chilean produtos are linked to the strategy of innovation in marketing, so that these products and processes are able to achieve success in the national and international market, mainly by differentiation (BAPTISTON, 2021). According to Vargas (2008), factors such as globalization, uncertainty about the origin of food and food crisis, led to the search for the development of differentiated products, with quality and traceability to the consumer market. In this case, naturalproducts, which are referenced in terms of their geographical aspects, culture, with seals of origin and that are produced locally, are important factors for the aggregation of value and positioning of these to specific market niches (BAPTISTON, 2021).

Chile has the "Agrarian Innovation Foundation" that articulates the relationship between small and large producers to generate value chains in the agro-industrial or agricultural sector. There are also commercial or business models that are being widely developed in Chile (BAPTISTON, 2021). For Ramírez and Garcia (2010), the success in the Chilean model of action is due to the public-private initiative, focused on innovation; market orientation, by identifying existing demands; work with multidisciplinary networks (University-Company-State); funding and have results that directly impact the market.

Compared to other countries, Chile makes a lot of investment in this activity, as companies invest up to 30% of their R&D revenues, resulting in a continuous and gradual process of innovation. On the other hand, these companies are small and medium and are mainly related to the financial or retail sector. In recent years they have become aware of the importance of R&D activities to expand competition and survive in this increasingly competitive market (BAPTISTON, 2021).

Chile is a great exportador of agro-industrial products (MINISTERIO DA ECONOMÍA FOMENTO Y TURISMO DO CHILE, 2016). It is also the world's first exporter of fresh grapes, fresh cherries, fresh blueberry, being "San José Farms" the largest exporter of these fruits to markets that are located in the United States and Europe. Apples are exported throughthe South and Central region of Chile (BAPTISTON, 2021). Montero (2004) mentions that the performance of different clusters provided the global positioning of Chile as to constitute a major exporter of the salmon farming industry, as well as the investment made in innovations technologies that have allowed the production of this important product for the country. Also, according to this author, with the implementation of such technologies, there have been improvements regarding the fishing industry and human capital to operate in the aquaculture sector. All the technologies used in this country still seek to adapt to the national reality.

Another important raw material mentioned by the speaker in the agro segment was the case report in relation to the production and commercialization of algae. With the growing demand for this product in the biofuels area, we sought to increase the competitiveness and expansion of the production of this raw material in the country. Other promising markets for the implementation of algae were identified, such as food use through products that are ingested as a food supplement beyond what waspredicted as biomass capable of generating energy by introducing other types of production. All innovation programs in Chile are focused on products that are productive, competitive, with important critical mass and on products that are targets ofex-portation, such as those mentioned above. As a state policy, the country seeks to differentiate itself and offer high quality food to its consumers, whether internal or external (BAPTISTON, 2021).

Considering the base of exportable products, such as secondary products, Chile is a major player in export. Practically 34% of what is exported comes from products associated with innovation. Lall (2000) mentions that products from sectors using technologies generate higherexport rates, so Chile being a major exporter, it is understood that all public investments in innovations meet the needs of this country, in order to make it even more competitive and electing technological policy and those that are integrated as a basis for the main strategy state.

In 2020, according to Bórquez, this represented US$380 million (8.1% more than 2019). This data shows that the agri-food sector of the country, with the supply depressed in several countries of the world by the time of the world health crisis, grew its exports, generating wealth and promoting the development of GDP. Therefore, the investment in innovation in this segment is fundamental to make the agroalimen sectoreven more competitive and sustainable in all areas (social, economic and

environmental), a situation observed in the Chilean condition and in many other countries around the world, including Brazil (BAPTISTON, 2021).

In recent years, major investments have been made in innovation to expand the revenues of cereals and grains destined for the food industry. Another major export segment in Chile is the production of fishmeal derived from the salmon and aquaculture industry. There was also growth in the nut industry. Nogales represent growth in central Chile, with high export demand in European markets, where they become higher value-added products. According tothose of the "Ministry of Economy, Development and Tourism of Chile" (2016), 80% of Chilean exports are from products with added national value, while the other 20% incorporate foreign goods and services (BAPTISTON, 2021).

According to the Global Innovation INDEX CORNEL, INSEAD and WIPO (2018), it is necessary to envision innovation with an ecosystem perspective, because it is not something linear. Several "pollinator" components are needed within a value chain that must be systematized for generating R&D innovations. Crespi, Fernández-Arias and Stein (2014) mention that R&D activities, if carried out through collaboration between different companies an institutions, can reduce duplication costs by creating more externalities compared to R&D performed by individual companies, where there is a limitation on the learning curve agin and the knowledge obtained and, above all, appropriate. In this way, encouraging collaboration in R&D projects can overcome/deal with certain market failures much more effectively (BAPTISTON, 2021).

Considering the ecosystem point of view, Bórquez mentions that human capital is needed that has specific knowledge for certain areas. In the agro-industrial sphere, a network of infrastructure of physical and technical assets is needed to support the management of theseprocesses of innovation (BAPTISTON, 2021). For Ramírez and Garcia (2010), for the use of human capital in development it is crucial that there is a bridge between Government, University and Company, making available to the process, the scientific and technological capacities with the sector productive. As for the provision of innovation, whether public or private, the development of innovation must be based on knowledge and technologies, thus generating knowledge in an endemic way and also collaboratively. This informationis highlighted by Dornelas (2002), who considers that incubators are mechanisms that will stimulate the creation of smes industries or technology-based or light manufacturing. This is due to entrepreneurial training regarding technical, managerial and facilitation aspects of technological innovation processes for these companies. During the incubation process, services such as business management, accounting, marketing, technology management, marketing and many others, can result in the success of incubated enterprises.

Crespi, Fernández-Arias and Stein (2014) mention that public policies for the development of innovations need to be broadly focused, because the needs for innovations in the agro-industrial sector may not be the same for the textile sector. This reinforces that the promotion of innovation, public policies,

business participation and the academic sector, when they work together can increase the value for all these sectors.

In the case of INCUBATEC UFRO, this concern of collaborative action, even with other startups located in the UFRO Park, is evident, because events are held that promote the approximation and relationship between all these companies. Also according to the panelist, the collaborative interaction for the development of projects results in the sophistication of the products that will be inserted in the market. Considering that Chilis a small country (with lower demand compared to large countries with a larger population volume, as in the case of Brazil) and serving a sophisticated market, commercial or production chains need to develop innovations that expand the sofistic action of products, expanding the added value of these so that they can meet a higher demand (BAPTISTON, 2021).

As for the level of business sophistication, Chile is a country that concentrates organized processes, regulated with the proper tax and tax systems, besides being competitive at the international level. This causes the Chilean market to be organized for the production and disposal of its products with emphasis on the foreign market (BAPTISTON, 2021). According to Correa and Dine (2017), in Chile, 12% of municipalities usually define uses of areas to generate innovations. Such uses involve the creation of PCT, industrial parks, industrial, agro-industrial and commercial zones, to generate innovations through community use among people. For this, private investments are proposed, through the creation of productive infrastructure, urban-territorial policies and policies aimed at the development of the environment (economic-productive), cultural factors, consumption and heritage, which in turn have a connection to rural areas, also seeking tourism development in some regions.

Chile has large public or semi-public institutions that promote entrepreneurship and innovation. Some have operations aimed at the development of the agribusiness chain, as is the case of the "Fundación para la Innovación Agraria", which acts promoting innovation with small producers, agricultural chain or young people who seek to develop innovations and undertake by realizing R&D solutions. This Foundation turns to researchers or engineers who can use such investment funds. There is also the "National Agency of Investigación y Desarrollo", which performsR&D activities, and this agency is totally dependent on the Chilean "Ministry of Science and Technology". In this case, a large percentage of funds are generated that are used for the development of research in the agricultural sector. The technological policyalso acts with the qualification of young researchers who are able to propose innovation projects with rapid implementation through a validated scientific base, in order to generate scalability for each project. To this end, the State promotes the development of projects with resources that reach US$100,000 per year, aiming at generating these innovative businesses capable of generating economic development (BAPTISTON, 2021).

It is observed that in Chile, there are resources that come from public-private funds, and public action is crucial for the generation of R&D activities that will generate innovations. According to the "Ministry of Economy, Development and Tourism" of Chile (2016), produtos that are classified as "High-

Tech Manufacturing", group proposals that are developed by the use of advanced technologies and rapid changes, with broad investments in R&D, aiming at the main development in product design. In this case, the authors mention that the main comparative advantage with the other products is their technological factor. For this, sophisticated infrastructure, specialized knowledge capital use and great interaction between companies , universities and/or research institutions are needed (BAPTISTON, 2021).

There is also "CORFO", an agency that promotes entrepreneurship and innovation in Chile, in addition to technological transfer. To do so, they have programs and management. They seek from innovations that are applied to the market and in society, but are also focused on the institutional structure of technological transfer, such as patent workshops, licensing, collaboration programs in companies , universities and research centers. Currently they have a very relevant program, "Transforma Alimentos", which is aimed at the development of the agricultural industry 4.0 in Chile (BAPTISTON, 2021). In this case, the aim is to implement technologies for advanced manufactures, creation of new products and packaging through active ingredients from the country. According to Montero (2004), many of these programs emerged in the 1960s as a cooperation initiative between different public organizations in the country. The same author also mentions that the public sector acts to solve the pains that the industry has, starting with concerns regarding production tothe market, and in this process included the participation of key actors that resulted in the success of the case of Chilean salmon, for example. Considering the problem of sustainable and consumer-attractive food production, something that is sought in Chilean industry, the "Alimentos Transformation" program proves to be an interesting case for developing products from agribusiness. There is also the "ProChile" thathas specific funds for international approach, aiming at projects that develop products and services aimed at international actors (BAPTISTON, 2021).

When mentioning the human resources available in that country, Bórquez mentions that, from the point of view of technicians and specialized engineers, Chile occupies a lower position than other OECD countries. This is due to the fact that the critical mass works with universities, research centers or public entities, representing 90% of the available human resources. While companies , despite having technicians, these are not formed consisting of doctoral titles, that is, despite being good technical professionals, they do not compose the specialized critical mass required for the development of innovations in agribusiness and in several other areas (BAPTISTON, 2021).

This difference between the professional profiles working in academia and the private sector in Chile generate a discrepancy between the language used by them. While researchers seek the development of innovations focused only on the academic area, where processes are actually slower, technicians working in the market are focused on increasing competitiveness in the markets in which they operate. This means that the generation of market-focused innovations does not occur at the expected speed or does not occur, because these two important actors do not relate and have different discourses, as reported by Bórquez (BAPTISTON, 2021).

> [...] in the context of the example of the appropriation of innovation in agrotechnologies in the universities surveyed, many institutions may be able to respond to the problems of society. Its basic functions – teaching, academic research and extension – can be expanded. In the current context, public universities have as main functions: (i) to offer quality higher education for professional training; (ii) develop academic research to expand the knowledge base of society; (iii) bringing knowledge to society through extensionist actions; (iv) develop applied research aimed at generating technologies useful to society; (v) incorporate new technologies intothe productive sector, the public sector and communities; (vi) implement the direct and indirect ownership of technological innovations, and; (vii) create a flow of tangible and intangible benefits arising from the appropriation, which must be channeled both to feed and enhance the internal activities of the university and to the economic and social development of the country (BENEDICTO; AMBALDE Z; BITTEN COURT; FERREIRA DA SILVA FILHO, p. 208, 2014).

Considering the Chilean institutions, in recent decades, "CORFO" has attracted several international centers that have settled in Chile to work in technological science disciplines, with resources that exceed 10 million dollars, where the institutions international agreements with universities or research centers located in the country. Currently, at least 10 international centers have been installed in Chile for the development of agriculture. There is also the "US Davis" center, which is a center associated with the University of California that has settled in Chile to collaborate with Universities, researchcenters and mpresas that turn to the development of issues related to the environment, agriculture and food production as a whole. To this end, these major centers propose the development of innovation and extension projects for solutions applied in the agro-industrial sector. Among extension projects under development, there is the action of "US Davis" with small farmers with the objective of rapidly developing the transfer of technology obtained through appliedresearch (BAPTISTON, 2021).

Regarding technology transfer, "CORFO" operates by promoting, financing and developing technology transfer workshops in various locations in Chile. Institutional regulation was formatted, whereby scientific and technological information is transferred to the population. Currently, each University has its own technology transfer model, according to its public or private operations. It is noteworthy that private Universities in Chile have fewer problems related to the comptitia of their management snares compared to public universities, where there are restrictions on academics and researchers regarding their intention in undertake or make available hours of operation in these segments of the company. This also occurs in public universities in Brazil. Teachers have a tight performance schedule (hours) because they perform research, teaching and extension activities, in addition to participating in commissions within universities. There is also a certain "prejudice" of many researchers about the theme related to entrepreneurship. Many courses, even technicians in the agrarian sciences segment, have between 1 and 3 disciplines on the subject or have none, being an evident deficiency and that needs to be developed, because entrepreneurial training is extremely relevant for the generation of wealth at the national level (BAPTISTON, 2021).

"CORFO" has offices installed in several Universities, where for three years it proposes a model that differentiates what will be transferred from the University itself and what will require capabilities to act in international countries, and this model is defined as on-campus and off-campus. These models are

based on the union between the associations that were created in different universities and centers that generate applied research in different focuses of activity. Chile has developed solutions focused on health, agro-industrial sector and engineering. In this way, universities and innovation centers have come together according to the specialties they have to create and develop innovations aimed at these sectors, aiming to generate a greater critical mass of specialized personnel. This occurs through disciplines that accelerate the processes of technology transfer obtained by R&D activities that occur from collaborative forma between company and University, thus generating a flow of scalding of technologies and development in each of the disciplines for the association. This off-campus model seeks to specialize in certain areas and generate faster development from academic research that are developed by doctoral students with investment funds. This is relevant because they are important actors for innovation that act disconnected. In this way, the projects will be developed more rapidly for the development of innovation processes and gain of scalability of companies. In this model , three technology transfer hubs were created, with an associative model that aims to trade r&d results with global reach (including 26 Universities, 12 Technology Centers, 2 Inversion Funds and 11 Industry Associations) (BAPTISTON, 2021) .

The "CORFO" is relevant for associating different companies, industries, academics and universities . To develop the infrastructure area, which was a barrier in Chile, the "CeTA", Technological Center for Food Innovation, was created. It has different centers that operate in the country and has an infrastructure capable ofserviced macro-areas, with an area for development of products or prototypes. For this, the partners have sized a technical infrastructure for the generation of piloting technologies, service delivery, in addition to the performance of entrepreneurs and companies that can drive innovations in processes or food products. Investments were made in infrastructure, machinery, laboratories, product and process development, environment for pilot tests and prototyping. Thus, the "CeTA" complemented the existing innovation environment at UFRO to develop new agro-innovative processes that streamline processes and act in the provision of services to producers who in turn use this same infraestrupture (BAPTISTON, 2021).

"Fraunhofer" operates in the same line as "UC Davis", both with several programs focused on water and soil optimization. These programs seek to develop active ingredients that will be used in the creation of innovative products and packaging. For the development of these it is necessary to obtain critical mass with capacity to develop a wide range of innovations or technological enterprises with operations in this area (BAPTISTON, 2021). There is also a line center that is packaging that acts in the development of new packaging that are environmentally correct. Chile has a center for packaging development that brings together all companies in a non-profit organization that allows new development of new products based on "ecodesigner" and environment, which in turn operate in the agri-food service industry in Chile. It receives the acronyms of "E+E", where:

1. Circular Economy – Agroindustrial Waste: Focused on the different programmatic proposals to introduce the concept of EC, focused mainly on the reuse of agro-industrial waste generated by Chilean processes, as in the case of biofertilizer production. A lin ha of biogas-based products for horticulture are also under development. In this case, the use of manure from small producers for biogas production that generate innovations in these processes is used. Another issue being developed is the revaluation for the improvement ofthe sun, plants, industry of byproducts, generated by flours in the disposal of grapes and production of food supplements, as mentioned earlier. Another emerging issue is the elimination of plastics, where more sustainable packaging is used for the export industry, in addition to the manufacturing industry of formulated products with the use of seaweed, a large niche of activity worldwide.

2. A scientific venture, this is another line of this center of activity in Chile, where efforts are made to obtain C&T funds that create projects and accelerate innovation and promote entrepreneurship. To this end, seed capital funds are sought to promote these projects in their early stages. An example is the"NotCo" project, an AI that simulates the flavors of various products, but which will be prepared using vegetable raw material. These cannot be toxic to the body. This company was bought in the U.S. by a major entrepreneur, and the fastest growing product line is the development of a mayonnaise that can be consumed in order to minimize eating disorders.

3. Venture capital industry, in this case there is the incentive to create "venture capital funds" aimed at thedevelopment of chilean agroindustry. These resources are used by startups in the first three years of the enterprise, when the risk is high and these companies do not yet have financial capacity to sustain. To this do so, Chile seeks to connect these funds that will support the development of technological and scientific projects.

According to Boris, the process of stimulating innovation d eve occurs collaboratively, with patience to researchers and with strong interaction between academic-companies. It is necessary to consider changes in behavior so that partnerships between companies and the University can be developed so that the research is morelaborious. There is also a need to train doctors, engineers and multidisciplinary teams to work. All these aspects must be focused on the development of innovations and technology-based companies so that they occur in an acelerada way. According to Correa and Dine (2017), in Chile the creation of enterprises is present in 72% of the municipalities that were studied by these authors. Also, according to Sánchez, Chamichade and Olea (2000), companies with high intellectual capital expand their size and scale, when human capital, structural and relational capital are raised, or by the interaction between these three groups. In this case, the authors mention that these are groups of intangibles that are highly interligados.

For this, there are policies that foster entrepreneurship through the creation of business incubators, public and private development funds, information on the creation of patents and licenses, technical support and support for SMEs, sendwhat technical support to enterprises, is the main key to their success. Also according to Correa and Dine (2017), public policies promote the development of technologies and innovations in 29% of the municipalities studied by them. Theseprograms, in turn, include digital training,

training, PCT training, programs aimed at technological transfer and agreements with universities. Crespi, Fernández-Arias and Stein (2014) mention that innovation environments such as incubators should be remunerated for the success rate of their incubated and not only for the number of companies incubated within the hub. This is because, according to these same authors, it is an incentive for incubators and other innovation environments to select projects with aggregation potential value to its customers and society (BAPTISTON, 2021).

Another major need is the creation of cross-pollination meetings aimed at dialogue between actors who are involved in the chain of research, innovation, entrepreneurship and academic training, as mentioned by Correa and Dine (2017). A strategic performance is the participation of these actors in the exhibition of pitches and participation in events related to the creation and management of business, so that this is built business culture, where doctors and engineers simplify the language used so that they do not exist speeches (BAPTISTON, 2021).

4 FINAL CONSIDERATIONS

Chile is a country focused on food production and innovations that serve the foreign and domestic market, but aim at all exporting products with broad added value. For this, public funds are used that promote the strengthening of the production chain and Chilean agro-industrial industry. With regard to food production in the agro chain, this country seeks the implementation of tools that increase the productivity of agricultural producers, since it is a country that has a smaller extension and smaller agricultural area.

This countryalso has an exemplary fish production chain, and salmon farming is an important and extremely profitable activity. This in turn occurred due to the use of technologies aimed at sustainable production, skilled labor and a highly valued pipeline, which in turn generates high economic value for the country, which is a major exporter of the species.

There are also several other programs that turn to the development of features such as product and packaging designer, adding geographic and nutritional information that increases value to the final product. Thus, they meet the anires of a demanding consumer market, which has a willingness to pay more for food with high added value.

In addition tothe pr ograms that generate development in the agri-food sector, Chile promotes entrepreneurship, the participation of universities and companies, technology transfer and talent training, as well as the employment of multidisciplinary teams acting jointly within universities . These being essential practices so that the productive sector and the University do not have noise in communication and develop together innovations that will be transformative in the sector that is proposed.

ACKNOWLEDGMENT

To FAPESP for the scientific technical training grant (TT-3), under process no. 2020/01135-0.

TO CAPES for its support in the evaluation of PPG-GIIA/FZEA/USP, enabling it to assist in the qualification of many professionals in the market

CITED LITERATURE

AUDRETSCH, David B.; BELITSKI, Maksim. Entrepreneurial ecosystems in cities: establishing the framework conditions. The Journal of Technology Transfer, v. 42, n. 5, p. 1030-1051, 2017.

BAÊTA, Adelaide Maria Coelho; BORGES, Candido Vieira; TREMBLAY, Diane-Gabrielle. Empreendedorismo nas incubadoras: Reflexões sobre tendências atuais. Comportamento Organizacional e Gestão, v. 12, n. 1, p. 7-18, 2006.

BAPTISTON, Letícia Fernanda. Ambientes de inovação para a geração de startups do Sistema agroalimentar: estudos de caso no âmbito Ibero-Americano. 2021. 118f. Dissertação (Mestrado), Programa Pós-Graduação em Mestrado Profissional em Gestão e Inovação na Indústria Animal, Faculdade de Zootecnia e Engenharia de Alimentos, Universidade de São Paulo. Pirassununga, 2021.

BASSI, Nádia S. Schmidt. Proposta de um processo de transferência de tecnologia para as instituições públicas de pesquisa: o caso da Embrapa. 2015. 270f. Tese (Doutorado em Tecnologia), Programa de Pós-Graduação em Tecnologia, Universidade Tecnológica Federal do Paraná. Curitiba, 2015.

BENEDICTO, Samuel Carvalho de; ZAMBALDE, André Luiz; BITTEN COURT, Josias Jacintho; FERREIRA DA SILVA FILHO, Cândido. A apropriação da inovação em agrotecnologias: estudo multicaso em universidades brasileiras. Revista Organizações em Contexto, v. 10, n. 19, jan./jun. p. 181-212, 2014.

BOECK, Jones Augusto. Desenvolvimento de metodologia visando intensificação de busca, transferência e adoção de tecnologias em pequenas propriedades rurais. 2020. 74f. (Mestrado em Propriedade Intelectual e Transferência de Tecnologia para Inovação), Programa de Pós-Graduação em Propriedade Intelectual e Transferência de Tecnologia para Inovação, Universidade Federal de Santa Catarina. Florianópolis (2020).

CAMMAROSANO, Marília; SANTOS, Fernando César Almada; ROJAS, Francisco Antônio Rojas. VALORES RELATIVOS AO TRABALHO DE PESQUISADORES EM UMA ORGANIZAÇÃO BRASILEIRA. Revista de Administração de Empresas, [S.L.], v. 54, n. 4, p. 445-457, ago. 2014. FapUNIFESP (SciELO). http://dx.doi.org/10.1590/s0034- 759020140409.

CAMPOS, Manuel Hyleer Alania. Startups no setor do agronegócio brasileiro. In: VII Ciência do Agronegócio, 7., 2019, Porto Alegre. S.I. Porto Alegre: UFRGS, 2019. Disponível em: https://www.researchgate.net/publication/339825984_Startups_no_setor_do_agronegocio_bras ileiro. Acesso em: 30 out. 2021.

CARMO, João Paulo; RANGEL, Rodolpho da Cruz. Fatores críticos de sucesso da rede de incubação de empreendimentos do IFES. International Journal Of Innovation, [S.L.], v. 8, n. 2, p. 150-175, 31 ago. 2020. University Nove de Julho. http://dx.doi.org/10.5585/iji.v8i2.17390. Disponível em: https://periodicos.uninove.br/innovation/article/view/17390/8415. Acesso em: 28 out. 2021.

CASADO, Frank Leonardo; MAIRESE SILUK; Julio Cezar, VENTURINI ZAMPIERI, Nilza Luiza Universidade Empreendedora e Desenvolvimento Regional Sustentável: Proposta De Um Modelo. Revista de Administração da Universidade Federal de Santa Maria [en linea]. 2012, 5 (), 633-649 [Acesso em 8 Out. 2021]. ISSN:. Disponível em: https://www.redalyc.org/articulo.oa?id=273425839002

CHENG, Li Chun. et al. Plano tecnológico: um processo auxiliar ao desenvolvimento de produtos de empresas de base tecnológica de origem acadêmica. Locus Científico, v. 1, n. 2, p. 32-40, 2007.

CORREA, Felipe Mautz.; DINI, Marco. Políticas de desarrolho económico local em Chile: mas allá del asistencialismo. CEPAL, Serie Desarrolho Productivo, n. 211, 2017.

CRESPI, Gustavo; FERNÁNDEZ-ARIAS, Eduardo; STEIN, Ernesto. ¿Cómo repensar el desarrollo productivo?: políticas e instituciones sólidas para la transformación económica. BID, Desarrolo em las Américas, 2014.

UNIDADE EMBRAPII DE BIOCONTROLADORES DE PRAGAS AGRÍCOLAS | ESALQ/USP – ESCOLA SUPERIOR DE AGRICULTURA "LUIZ DE QUEIROZ" DA
UNIVERSIDADE DE SÃO PAULO. Empresa brasileira de pesquisa e inovação industrial, 2021. Disponível em: < https://embrapii.org.br/unidades/esalq-escola-superior-de-agricultura- luiz-de-queiroz/>. Acesso em: 5 nov. 2021.

DORNELAS, José. Planejando incubadoras de empresas: como desenvolver um plano de negócios para incubadoras. Rio de Janeiro: Campus, 2002.

ENGELMAN, Raquel; FRACASSO, Edi Madalena. Contribuição das incubadoras tecnológicas na internacionalização das empresas incubadas. Revista de Administração, [S.L.], v. 48, n. 1, p. 165-178, 2013. Business Department, School of Economics, Business & Accounting USP. http://dx.doi.org/10.5700/rausp1080.

ETZKOWITZ, Henry. Research groups as 'quasi-firms': the invention of the entrepreneurial
university. Research Policy, v. 32, n. 1, p. 109-121, 2003.

GONSALES NETO, Rafael. Panorama do setor energético e seu relacionamento com o agronegócio brasileiro: um estudo com uso de técnicas multivariadas. 2016. 68f.
Dissertação (Mestrado em Gestão e Inovação na Indústria Animal), Faculdade de Zootecnia e Engenharia de Alimentos, Universidade de São Paulo, 2016.

GRAHAM, Todd. Needles in a haystack: a new approach for identifying and assessing political talk in non-political discussion forums. Javnost-The Public, v. 15, n. 2, p. 17-36, 2008.

GUIMARÃES, Reinaldo; LOURENÇO, Ricardo; COSAC, Silvana. O perfil dos doutores ativos em pesquisa no Brasil. Parcerias Estratégicas, S.I., n. 13, p. 123-150, dez. 2001.

LALL, Sanjaya. "The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98" Oxford Development Studies. Taylor & Francis Journals, v. 28, n. 3, 2000.

LESO, Bernardo Henrique; ENRIQUE, Daisy Valle; PERUCHI, Diego Falcão. O papel do ecossistema de inovação para desenvolver uma agricultura inteligente. Exacta, [S.L.] jun. 2021. http://dx.doi.org/10.5585/exactaep.2021.17362.

MIKHAILOV, Andrei. (2019). Agriculture 4.0: Innovation and absorptive capacity in AGtechs. (Mestrado em Administração), Programa de Pós-Graduação em Administração, Universidade Federal do Rio Grande do Sul. Porto Alegre (2019).

MONTERO, Cecilia. Formación y desarrollo de un clúster globalizado: el caso de la industria del salmón en Chile. CEPAL, Serie Desarrollo Productivo, n. 145, jan. 2004.

PEREIRA JÚNIOR, Alcebíades Gomes. MUDANÇA INSTITUCIONAL E O SISTEMA
SETORIAL DE INOVAÇÃO: a indústria do salmão no Chile como estudo de caso. 2018. 126

f. Dissertação (Mestrado) - Curso de Ciências Sociais, Departamento de Estudos Latino- Americanos, Universidade de Brasília, Brasília, 2018. Disponível em: https://repositorio.unb.br/handle/10482/34065. Acesso em: 26 out. 2021.

RAMÍREZ, María del Pilar Salazar; GARCÍA, Manuel Valderrama. La alianza Universidad- empresa-Estado: una estrategia para promover innovación. Revista EAN, n. 68, p. 112-133, 2010.

RAPLEY, Tim. Explorando documentos. Fazendo Conversação, Discurso e Análise de Documentos. London: Sage, p. 111-124, 2007.

RAYNA, Thierry.; STRIUKOVA, Ludmila. "Large-scale open innovation: open source vs patent pools". International Journal of Technology Management, v. 52 n. 3/4, p. 477-496, 2010.

RAUPP, Fabiano Maury; BEUREN, Ilse Maria. Programas oferecidos pelas incubadoras brasileiras às empresas incubadas. Revista de Administração e Inovação, v. 6, n. 1, p. 83- 107, 2009.

SANCHEZ, Paloma; CHAMICHADE, Cristina; OLEA, Marta. Management of intangibles: an attempt to build a theory. Journal of Intellectual Capital, v. 1 n. 4, p. 188-209, 2000.

SERRA, Bernardo et al. Fatores fundamentais para o desempenho de incubadoras de base tecnológica. RAI Revista de Administração e Inovação , v. 8, n. 1, pág. 221-248, 2011.

SILVEIRA, Rosemari Monteiro Castilho Foggiatto; BAZZO, Walter. Ciência, tecnologia e suas relações sociais: a percepção de geradores de tecnologia e suas implicações na educação tecnológica. Ciência & Educação, Ponta Grossa, v. 15, n. 3, p. 681-694, 2009.

STEINER, João E.; CASSIM, Marisa Barbar.; ROBAZZI, Antonio Carlos. Parques Tecnológicos: Ambientes de Inovação. IEA: São Paulo, 2015.

VARGAS, Ivens Cristian Silva. Indicações geográficas do Brasil: possibilidades para os produtores inseridos na área de proteção ambiental do Ibirapuitã-RS. 2008. 114 f. Dissertação (Mestrado em Extensão Rural) – Centro de Ciências Rurais, Universidade Federal de Santa

Maria, RS. Disponível em: http://cascavel.cpd.ufsm.br/tede/tde_ arquivos/15/TDE-2008-06- 17T155740Z-1614/Publico/IVENSCRISTIANVARGAS.pdf. Acesso em: 28 out. 2021.