International Organisation of Vine and Wine
Intergovernmental Organisation

Available on IVES Conference Series vine & wine

**DOI :** https://doi.org/10.58233/DSYn5mjK

# StartupLab and HackaVitis: open innovation and technology transfer in the wine sector

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**Abstract.** The study analyzes a set of open innovation actions promoted by the innovation environments of the Instituto Federal do Rio Grande do Sul (IFRS), in cooperation with entities, companies in the sector and the Department of Innovation, Science and Technology of Rio Grande do Sul. The initiatives are grouped into 3 axes: StartupLab-ClickLabs, HackaVitis and Click-up. StartupLab is an open innovation program, which identifies technological challenges and demands of consolidated companies and prospect startups that can offer innovative solutions. HackaVitis is an entrepreneurship and innovation marathon (hackathon). Click-Up, a pre-incubator, i.e., environments that provide support to entrepreneurs to transform ideas into formalized businesses or to develop new business models in established companies. The initiatives work in synergy, connecting prospecting demands and searching for solutions, whether through prospecting startups or developing new solutions or new business models. In the first cycle of the program (2021-2022), companies from the region's tourism and gastronomy sectors were approached, as well as other sectors, such as furniture and metalworking. In the second cycle, starting in 2024, partnerships are being established with wineries, including an important cooperative in the region, which has more than 1,100 producers. All these initiatives strengthen the sector's dialogue with ICTs and demonstrate in practice how innovation can solve real problems and contribute to the competitiveness and sustainability of the Brazilian wine sector.

## 1. Introduction

Open innovation is a process that involves collaboration with external partners to develop new solutions, products and services. This process involves companies interacting with educational and research institutions, startups, suppliers and even competitors [1]. In the case of the wine sector, open innovation has the potential to contribute to competitiveness and sustainability, considering the diversity of pressures that range from reducing consumption in the international context to the challenges of climate change.

Even considering the potential impact, open innovation is not evident in low-tech companies, such as wineries. In the case of, Brazilian wineries, factors such as the predominance of family and small or medium-sized wineries, the strong link with local traditions and knowledge, the low investment in formal R&D, the predominance of tacit and empirical knowledge and the focus on territorial differentiation (DOs and IGs) contribute to low adherence to open innovation models, as indicated in the literature [2,3].

The study analyzes a set of open innovation actions promoted by the innovation environments of the Instituto Federal do Rio Grande do Sul (IFRS), in cooperation with entities and companies in the sector and with the Postgraduate Program in Viticulture and Enology. The initiatives are grouped into 3 axes: StartupLab-ClickLabs, HackaVitis and Click-up.

The initiatives work in synergy, connecting prospecting demands and searching for solutions, whether through prospecting startups or developing new solutions or new business models. In the first cycle of the program (2021-2022), companies from the region's tourism and gastronomy sectors were approached, as well as other sectors, such as furniture and metalworking. In the second cycle, starting in 2024, partnerships are being established

with wineries, including an important cooperative in the region, which has more than 1,100 producers.

Thus, this study uses participatory research to analyze the performance of innovation environments and initiatives applied to the wine sector in southern Brazil, in order to understand its dynamics and contribute to its improvement. Furthermore, the study aims to exchange experiences, in order to contribute and also learn from similar actions in other contexts.

## 2. Background

The innovation ecosystems are a set of structures and processes that act in synergy, favoring innovation and entrepreneurship. At the turn of the 20th century to the 21st century, the perception that innovation processes could be fostered through collaborative arrangements between companies, entrepreneurs, academia and governments, open to interaction and sharing of experiences, experimentation and the possibility of errors, allowing the entrepreneurial and creative capacity of society to be developed with greater social reach and impact on markets, and lower costs and timeframes. [4].

Among the various approaches that address the topic of innovation, one point of consensus is that it is not an individual effort, but rather a group of actors and their formal and informal relationships. From the perspective of the Triple Helix, for example, the interaction between science institutions (STIs), industry and government is highlighted, generating a synergy in which each sphere contributes and, at the same time, appropriates the benefits generated.s [4].

"Open innovation" is the opposite of "closed innovation", as it is based on knowledge flows with actors external to organizations to enhance innovation processes and, consequently, their results [1]. The promotion of open innovation enables interaction and partnerships between startups and mature companies, strengthening the innovation ecosystem and, therefore, social and economic development. Startups are the product of the availability and abundance of ideas that have ended up going beyond traditional business environments, as “a human institution designed to create new products and services under conditions of extreme uncertainty.” [5]. Compared to large corporations, startups have competitive advantages due to their greater agility, promising ideas, organizational agility, propensity to take risks and aspirations for accelerated growth; however, they lack the resources, size, power and already structured routines necessary to execute an efficiently proven business model in established companies [6]. Established corporations generally have a wide range of competencies, including capital, organizational structure, market knowledge, and other specialized skills needed to develop a market infrastructure. Open innovation has the potential to bring these two actors together and collaborate.

However, the establishment of processes, flows and networks requires animation and coordination in order to keep the ecosystem alive and active. In this sense, the so-called innovation habitats are made up of several structures, each with its role in the innovation process and in the entrepreneurial journey, such as: coworking, pre-incubator, incubator, accelerator, Technological Innovation Centers, maker spaces, fablabs, technology parks, among others.

In terms of open innovation in the agri-food sector, studies focused on MSMEs indicated that the main fields of interest and application are product co-creation, eco-innovation, and bioeconomy. In addition, the study identified a positive correlation between innovation performance and collaboration with external partners [7].

In this context, the wine industry is considered a low-tech sector, with a greater focus on tradition and authenticity, emphasizing the culture of know-how. In addition, SMEs predominate in the sector, most of which do not have a formal structure for R&D. Thus, innovation processes as a whole and also open innovation tend to be less dynamic. On the other hand, more recent literature suggests that, even in low-tech sectors, specific forms of open innovation are emerging. Examples include innovation based on design and experience, such as that which occurs in wine tourism or brand storytelling. [8,9].

Another point to be highlighted when considering innovation in wine is the adoption of digital technologies. In a study on digitalization in the wine sector, the OIV pointed out that the main objectives behind the drive for digitalization are: efficiency, productivity, transparency, value proposition and new business models and sustainability [10]. Among the trends highlighted by the OIV study and also by the literature are the use of the Internet of Things (IoT), artificial intelligence, augmented reality on labels [11] and Blockchain [12]. However, despite the availability of technologies and the perception of industry players that digitalization will bring benefits, the perception of the countries surveyed is that the sector still lacks initiatives and maturity, especially considering vineyards - with wineries and distribution relatively ahead [10]. These findings are in line with the preliminary literature on the agri-food sector and reinforce the importance of initiatives to promote innovation, aiming at the competitiveness and sustainability of the wine sector.

## 3. Methodological procedures

This study employs a qualitative, exploratory approach, grounded in participant research. The objective is to understand the dynamics and meanings associated with open innovation initiatives promoted by the innovation environments of the Federal Institute of Rio Grande do Sul (IFRS), in collaboration with companies, sectoral entities, and the Department of Innovation, Science and Technology of the State of Rio Grande do Sul.

Participant research was chosen as the methodological approach due to its ability to provide in-depth understanding of social processes through direct engagement with the research context [13]. By assuming

an active role within the innovation environments, the researcher could experience and interpret the practices, interactions, and challenges from the perspective of the actors involved. This approach is particularly suitable for studies focusing on organizational practices, collaborative processes, and multi-actor innovation systems, where meanings are co-constructed through everyday interactions [14]. The study was structured into 4 phases:

- Field immersion: the researchers were actively involved in the daily activities of the innovation environments, participating in meetings, events, and collaborative projects. This immersion enabled direct observation of the interactions between institutional actors and external partners.
- Participant observation: the researchers maintained continuous field notes and reflective journals to document processes, relationships, and decision-making dynamics. Informal conversations and spontaneous interviews were also used to capture the perspectives of key stakeholders.
- Document analysis: institutional reports, project documentation, meeting minutes, cooperation agreements, and other relevant materials were analyzed to complement the empirical data and contextualize the observed practices.
- Thematic content analysis: the collected data were organized and analyzed using thematic content analysis to identify recurring patterns, perceptions, and meanings attributed by participants to their involvement in open innovation actions.

The research followed ethical standards regarding informed consent, confidentiality, and transparency. Participants were informed about the research objectives, and preliminary findings were shared to ensure alignment and validate interpretations.

## 4. Results

The results will be presented in the 3 work axes: StartupLab-ClickLabs, HackaVitis and Click-up.

### 4.1. StartupLap-ClickLabs: open innovation hub

StartupLab is an open innovation program from the Innovation Department of the state of RS and the InovaRS Program. The goal of the program is to map technological challenges and demands of consolidated companies and prospect startups that can offer innovative solutions, promoting business rounds. IFRS is the program hub for the Serra Gaúcha region, the main wine-producing region in Brazil, with StartupLab-ClickLabs. The process also includes open innovation training for teams from participating companies.

In the first cycle of the program (2021-2022), companies from the region's tourism and gastronomy sectors were approached, as well as other sectors, such as furniture and metalworking. Workshops were held to prospect demands with 14 companies and 13 challenges or demands were listed, classified into production, human resources, logistics, marketing and sustainability. 11 solutions were prospected and business rounds were held at events: Gramado Summit (innovation) and Envase Brasil (international fair of machines, equipment, technology, supplies and business for the bottling, packaging and processes industry for beverages and food).

In the second cycle, in 2024, prospecting was carried out with 6 consolidated companies, for which 18 challenges or demands were listed. Startups were prospected and 38 solutions were registered. The business round took place at Mercopar, the largest innovation fair in Latin America, and started with a Reverse Pitch, in which the companies presented their challenges and then continued with the business round.

A partir de 2024 partnerships are being established with wineries, including an important cooperative in the region, which has more than 1,100 producers. Throughout 2024, training sessions were held with the cooperative to identify demands, in addition to prospecting other wineries and vine producers. The approach with the cooperative resulted in a partnership for other innovation initiatives, such as holding a special edition of HackaVitis and also participating in a fair organized by the cooperative, organizing an area for exhibiting startups.

In the perception of the actors involved, the impact of StartupLab-ClickLabs goes beyond the identification of challenges, recruitment of startups and approach rounds, which are the main objectives of the program:

> "We are managing to really talk about the subject of innovation, applying a real innovation strategy, open innovation within businesses and with this action we are making businesspeople, directors, and employees start to see the innovation process differently, moving away from an immediate action of buying imported machines, buying systems, ready-made solutions, to understanding the real need, what exists that we can use in our region, state, or country"

The movement to change the mental model is highlighted by the participants, in the sense of moving away from a traditional business model and envisioning innovative business models, focused on the client's problems and with potential for scalability. In addition, the mapped challenges and demands are being integrated into training activities, serving as "input" for professors of the professional master's degree in viticulture and oenology and also of entrepreneurship courses, in the sense of thinking of real solutions to real problems and already having a possible future client within the entrepreneurial journey. StartupLab-ClickLabs also acts as a source of information for other initiatives and public policies, such as HackaVitis.

In addition, the involvement of all stakeholders in the process is highlighted. Contact begins with the entities, through awareness raising so that they can act as

multipliers and links with members and the productive sector. The same occurs with innovation spaces, which receive all the program's actions, from a lecture on innovation and presentation of the program, workshops such as mapping challenges, enabling innovation, team and money, project scope and hiring of Startups, business rounds or Pitch Day. The objective of these actions is for companies to truly understand the importance of these spaces and for the climate of innovation to be more present and for the evolution of attitudes, behaviors and actions to occur.

### 4.2. HackaVitis: wine industry marathon

HackaVitis is an entrepreneurship and innovation marathon (hackathon) that began in 2022. At HackaVitis, multidisciplinary teams made up of industry professionals, students from PPGVE and other higher education courses, have around 16 hours to develop a solution to a challenge in the industry, presenting it in the form of a business model and pitch. Challenges are identified through StartupLab-ClickLabs.

The process is based on lean startup and Design Thinking methodologies. During HackaVitis participants are mentored by specialists, in terms of methodologies or in the wine industry. The initiative is very well-received in the industry and takes place in two editions per year, one of which is in partnership with Wine South America, the largest trade fair in Latin America.

From a Problem-Based-Learning (PBL) perspective, participants seek solutions to the proposed challenges by putting into practice concepts and tools that are presented during the journey, such as empathy map, lean canvas, job to be done, validation techniques and pitch. The experience is thought of as a story. According to those involved:

> "Carrying out a Hackathon allows you to think outside the box, proposes innovation, integration, and the development of new skills, qualifies problem-solving skills, and accustoms you to fast thinking and agile development, also expanding your communication skills. [...] The content and practices create connections that prepare participants to apply what they have learned in their daily lives."

The methodology goes through all the stages foreseen in design thinking and lean startup, namely, immersion and empathy, ideation, prototyping and testing. In the process, the problem and the target audience are at the center of the discussion, and the solutions need to be validated at various stages, until the final proposal of a business model.

Another related aspect is the formation of connections and teamwork. According to those involved:

> "In addition to advancing the project's results, the event's atmosphere creates relationships between participants. They live a unique and intense experience of collaborative work, proving that it is possible to do much more when we all work together."

In terms of results, there are already more than 40 challenges mapped out, and more than 60 students participating in HackaVitis. The solutions developed met real demands in the following areas: sales of products from small producers, sustainability, collective purchase of bottles, low adherence to certifications by producers, logistics, freight costs, packaging, grape production, disease and pest control, sales to generation Z, among others. Holding 4 editions within Wine South America was important for publicizing innovation initiatives, as the fair brings together several players from the wine industry.

The 2025 special edition was held in partnership with a major cooperative in the sector, which brings together 1,100 producers. A series of awareness-raising actions were carried out with the cooperative, which included meetings and training in methodologies and innovation. Next, two main challenges for HackaVitis were mapped out: self-assessment of good agricultural practices for the group of producers and organization of a database to support decision-making, containing information on soil, climate, and production and quality parameters. The event was held at the cooperative's premises and was attended by those responsible for providing technical assistance to producers from the cooperative. Four solutions were proposed, two for each challenge, and presented at a Pitch Day at a fair promoted by the cooperative. One of the important results was the mobilization of the cooperative to work on surveying demands and proposing innovation actions. The activity ended up involving teams and employees from all sectors. Understanding the dynamics and methodologies of innovation is a relevant point to envision how to adopt and insert them into the routine, generating results.

HackaVitis is an important moment for dialogue with the industry and also for popularizing innovation methodologies (agile methodologies, Design Thinking, lean startup) and the open innovation approach in a sector with very traditional practices. The next step to enhance actions is to connect with incubation environments and accelerate these solution hypotheses so that they actually become businesses and generate an impact on the economy and the sector.

### 4.3. ClickUp: pre-incubator

The third initiative is Click-Up, a pre-incubator. Pre-incubators are environments that provide support to entrepreneurs to transform ideas into formalized businesses; they can also be used to develop new business models in established companies. At Click-Up, pre-incubation takes place over 6 weeks (Fig. 1). The schedule of activities begins with an opening lecture, to which a startup entrepreneur is generally invited.

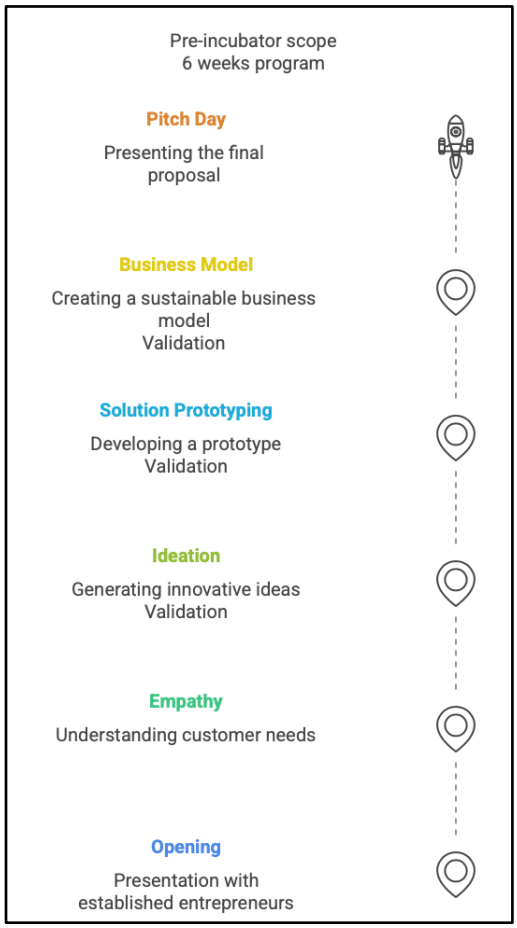


**Figure 1.** Pré-incubation program

Pre-incubation activities follow lean startup and design thinking methodologies. Over the 4 weeks following the launch, tools for empathy, ideation, prototyping and business model are proposed. The validation process with potential clients is transversal and occurs in all phases. The last stage is the presentation at a Pitch Day, with an external panel of consultants and investors.

Four pre-incubation cycles have been carried out since 2022, with the participation of more than 50 people. Click-Up has also been supporting research projects and professional master's degrees, with a view to technology transfer. In some cases, pre-incubation is used directly in the research project, in other cases it is used for other projects of the students or in the companies in which they work, to review the strategic positioning of family businesses. In both situations, technology tra

### 4.4. Main categories

Based on a cross-sectional analysis of the data collected, categories of action and impact were systematized (Fig. 2). The categories of action are: ideation, prototyping and connection. The ideation category encompasses the entire process of empathy, immersion, search for solutions and systematization of proposals. Ideation is worked on in the three actions at different levels that range from simple exercise to commitments to the development of new products or business models. Prototyping is another category that encompasses both business models and products themselves. Other environments such as makerspaces and laboratories are also used for this purpose. The connection is made between participants during the activities, with investors and other agents of the innovation ecosystem. The important connection between research and academia with the productive sector is also highlighted.

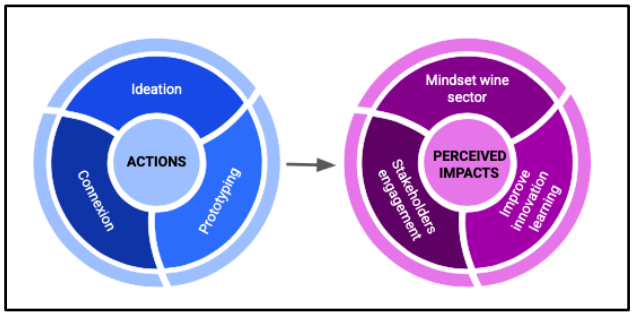


**Figure 2.** Main categories of actions and impacts

The main impacts identified by the participants were: dissemination of the innovation methodology in the industry, strengthening of entrepreneurship and innovation education, and stakeholder engagement. The systematized categories show that the impacts perceived go beyond the initial scope of the programs. Thus, it can be concluded that the initiatives end up acting as a means of promoting innovation in a broader way, which is important for the sector but can make it difficult to perceive results in the short term.

## 5. Final considerations

Diffusion of innovation involves the gradual adoption of new ideas, technologies, or practices by individuals, organizations, or markets. This process is influenced by factors such as the perceived value of the innovation, effective communication among adopters, social structure, and the time required for assimilation. In addition, it requires continuous investment in training, marketing, technical support, and adaptation to user needs.

The study proposes an analysis of innovation initiatives using participatory research, which implies limitations such as participant bias, researcher influence in the process and gaps in validation with other documents and instruments. Future studies can apply different techniques and validation with the participation of sector actors and also sector indicators.

Finally, the importance of continuing initiatives in this direction is highlighted. All the initiatives implemented will strengthen the sector's dialogue with STIs and demonstrate in practice how innovation can solve real problems and contribute to the competitiveness and sustainability of the Brazilian wine sector.

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