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FEASIBILITY ANALYSIS OF INTERNATIONALIZATION OF STARTUPS USING A SYSTEMATIC FRAMEWORK

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ABSTRACT

Internationalization is the process of commercial expansion of a business to other countries, expanding its visibility and sustainable growth. In order to analyze the feasibility of internationalization of a startup, the use of a systematic framework is presented in this case study, encompassing analysis of opportunities and partners, market study, planning through flight plan, cost structuring, pricing and take-off for the execution of the proposal. It is understood that for startups, internationalization is not only a path to growth but also a boost for innovation and competitiveness in the global business landscape. The results of the application of the framework highlight the potential for scalability and expansion of startups, and the need for careful planning that considers all the variables of this process. This article contributes to the field of international business management by presenting valuable insights for entrepreneurs seeking effective expansion strategies.

Keywords: Internationalization. Startups. Feasibility Analysis. Systematic Framework.

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Revista ARACÊ
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INTRODUCTION

The internationalization of companies, especially startups, has become a crucial vector for sustainable growth and global innovation. In the business sphere, international expansion as a growth strategy, in addition to the movement of capital and technologies, represents a process of integration into dynamic and competitive value chains (SEBRAE, 2018). In this context, the analysis of the feasibility of internationalization guided by a structured framework is of significant importance.

The relevance of this study is based on the theories of internationalization that, according to Carneiro and Dib (2007), explore everything from the maximization of economic advantages to learning and building networks in the global scenario. The Uppsala Model, in particular, argues that internationalization should be viewed as an incremental, learning-based process (Johanson and Vahlne, 1977). This type of approach resonates with the agile and adaptive nature of startups.

The phenomenon of startups is characterized by their ability to scale and innovate, breaking traditional barriers and operating in global markets quickly and efficiently (SEBRAE, 2022). This reality imposes the need for a model that can map and guide the international expansion of these companies, ranging from the identification of opportunities to the analysis of costs and market strategies (BEGNOCHE, 2018). In addition, integration into collaborative innovation ecosystems offers startups an accelerated path to internationalization, where external demand can be an engine for exponential growth (CANDIDO, 2017).

Therefore, it seeks to deepen the understanding of internationalization mechanisms for startups, through a case study of a startup, applying a framework that consolidates critical steps and offers a strategic direction for the international expansion process.

IMPORTANT REFERENCE FOR THE THEME OF INTERNATIONALIZATION OF STARTUPS

THE INTERNATIONALIZATION OF COMPANIES AS A SUCCESS FACTOR

The set of operations carried out by small businesses between countries is called internationalization. The actions carried out jointly range from the exchange of goods and services or capital movement, technology transfers, technical cooperation, to even acting with productive or commercial operations (SEBRAE, 2018).

Revista ARACÊ
ISSN: 2358-2472

Another interesting definition of internationalization highlights that the form of expansion is a way to market a product or service abroad, developing an international network and, thus, increasing the company's visibility and revenue. This makes it possible for people to get to know the company outside the national market (SCHNEIDER, 2022).

Many entrepreneurs believe that there is a right time to internationalize, but in practice any company, of any size, is able to operate in the global market. This is the era of micromultinationals. Today, it is very easy to launch a global company, as there are several online tools that facilitate this, promoting your business to different countries (SEBRAE, 2019). The best way to boost a company's growth is through internationalization, that is, the increase in external demand stimulates production, which leads to an increase in scale, whether of products or services (SEBRAE, 2018).

To conduct the best practices for the internationalization of a business, it is necessary to know that there are different theories, depending on the focus and objective with the process, known as internationalization theories. Carneiro and Dib (2007) conducted a comparative study of six important theories of internationalization of companies. They explored questions of: how, why, what, when, where and how companies decide to internationalize. The theories analyzed included economic approaches, which focus on maximizing economic advantages, and behavioral approaches, which emphasize the importance of gradual learning and network building.

Economic theories, such as the Theory of Market Power and the Eclectic Paradigm, emphasize the search for competitive advantages and efficiency (CARNEIRO; DIB, 2007). On the other hand, behavioral theories, such as the Uppsala Model and Network Theory, focus on gradual learning and relationship building.

Among the theories observed, emphasis is given to the Uppsala Model, developed by Johanson and Vahlne (1977) because this model is based on the idea that internationalization is a gradual and incremental process, implemented as companies acquire knowledge and experience. At the heart of the Uppsala Model is the notion that internationalization is a learning process, which is in line with startups' proposal to improve themselves, although speed is an important requirement in this business model. In summary, although the proposal suggests caution in the expansion process, this should be observed as the form of entry of this type of organization into the foreign market. By following this approach, companies can make more informed and effective decisions when expanding their business internationally.

Revista ARACÊ
ISSN: 2358-2472

THE POTENTIAL OF STARTUPS

A startup is a new company that emerges to solve a market pain through an innovative solution, with a repeatable and scalable business model. This term comes from the English language and became popular in the 90s thanks to many companies in the segment in Silicon Valley (California). Their main characteristic is related to the business risk involved, especially for the venture capital market, but when they reach their peak, they are low-cost ventures that can generate a lot of profits. Some companies already solidified in the market and leaders in their segments, such as Google, Yahoo, and Ebay, are also considered startups (SEBRAE, 2022).

Technology-based startups that appear in the market also have technological and scientific support, this is due to the purpose of implementing and applying innovations in the market. As mentioned earlier, a very striking characteristic of these companies is their scalable model, which is nothing more than the one that organizes their business model in order to expand their operations through the growth in their number of customers, users, reach and/or revenue in an accelerated way, without having to increase their costs in the same proportion. These processes can be tested, established, and replicated easily, without losing functionality with the increase in the volume of operations (BEGNOCHE, 2018).

For startups, one of the best development alternatives is the collaborative environment, such as those offered within innovation ecosystems, since they provide the development of strategic partnerships and contribute to their scaling process (CANDIDO, 2017; DESIDERIO; POPADIUK, 2015; ETZKOWITZ; ZHOU, 2017).

For a startup to significantly achieve its scalability, its products and/or services must be easily replicated and have a global reach. Thus, internationalization becomes one of the most efficient ways to boost this accelerated growth, since external demand stimulates production. New markets can be explored, the increase in demand for their products/services and even the compensation of fixed costs (SEBRAE, 2018).

The emergence of startups is constant and fast, not even situations such as the restrictions of the Covid-19 pandemic affected this market in Brazil in 2021. According to the Brazilian Association of Startups, from 2015 to 2019, the number jumped from an average of 4,100 to 12,700 startups created, representing an increase of 207%. Studies show that in December 2021, there were more than 14 thousand startups distributed throughout 710 Brazilian municipalities (BÚSSOLA, 2021).

Revista ARACÊ
ISSN: 2358-2472

In this context, it is possible to say that a scalable technology business has the ability to reach millions of people at the same time and achieve revenue beyond expectations, without increasing its costs and expenses in such proportion. In the context of internationalization, it can also bring many gains to its home country and regional development.

CHARACTERISTICS OF STARTUP INTERNATIONALIZATION

As noted in the previous paragraphs, there are some general differences between traditional format companies and startups. Traditional companies will hardly be able to present scalable growth or even present an effective action plan in the face of market risks and uncertainties during their scalability, since they operate in solid markets with already defined competition. Startups, by themselves, already require a different way of thinking from the market. Therefore, they are defined as a business model that offers a service or product in a scalable, repeatable, innovative way, winning over even before customers, investors, or accelerators (SCHNEIDER, 2022).

Studies on internationalization are an important gap because different marketing strategies imply different costs, different dependencies on external resources, and different positions in the value chain, which can significantly affect the results of internationalization (COVIELLO, 2006).

Before starting this process, it is essential that the company analyzes its ability to supply the foreign market with its product or service and how strategic international expansion is for the business. Even in the case of exports, where the company has the minimum capacities and resources to ensure the continued development of its international activity. Its intensity and breadth must be evaluated according to the opportunities identified and the company's capabilities and resources (SEBRAE, 2018).

The main characteristic of internationalization in a company is the location of a unit of the same in another country, that is, it is necessary that the tangible and intangible assets are present in the country in which one wishes to internationalize (SANTOS; VALENCIA; DE LUCCA, 2013). This is not essentially necessary when it comes to business models such as startups, since many of them can internationalize without having companies located in the destination country.

The internationalization strategy can be influenced by other factors, such as: market size, local market growth, availability of qualified labor, access to markets, stable

Revista ARACÊ
ISSN: 2358-2472

environment for investment, cultural proximity, language, and search for global chains (SEBRAE, 2018). Therefore, it is essential that the startup has an action plan outlined so that the successes of its process are achieved.

CASE STUDY

This case study reports the process of analyzing the feasibility of internationalization of a startup, using a framework as a guide to verify the main criteria, optimizing the process for decision making of international expansion.

ABOUT THE STARTUP

Founded in May 2016 in Chapecó-SC, PackID S.A. is a pioneer in Brazil in offering real-time temperature and humidity monitoring solutions that integrate the entire distribution chain of perishable products. The startup emerged with the objective of solving quality problems and access to information along the distribution chain, initially using RFID technology to monitor quality parameters. After receiving support from the Synapse of Innovation V program and going through an incubation process at the Unochapecó Technological Incubator - Inctech, PackID developed prototypes and validated the monitoring solution, focusing on serving the entire food distribution chain.

The international validation came with the participation and victory in the AdMaCom competition in Berlin, where the startup adjusted its solution for more comprehensive monitoring, but always keeping the focus on traceability. The startup also stood out in national competitions and acceleration programs, such as *BioStartup Lab* and Inovativa Brasil, receiving significant investments that boosted the company's commercial and technological development. After overcoming challenges imposed by the pandemic and consolidating its solution in the food market, PackID also started to focus on the pharmaceutical sector, expanding its operations and customer base.

In 2021, the company, headquartered at the Pollen Science and Technology Park, maintained its growth and achieved a 270% increase in the number of customers at the end of the year, consolidating strategic partnerships for its expansion, both in the domestic market and in preparation for the first steps towards internationalization. The same growth was observed in 2022, also bringing the expansion of the team.

In 2023, PackID merged with SyOS, a startup that already operates in some countries abroad, marking an important step in its global expansion strategy. This union

Revista ARACÊ
ISSN: 2358-2472

promises to strengthen this market, aligning with its mission to ensure quality and reduce costs in the distribution chain of perishable products through process automation and data intelligence, aiming to become a reference in real-time monitoring in Latin America.

APPLICATION OF THE FRAMEWORK FOR FEASIBILITY ANALYSIS

To carry out the analysis of the feasibility of internationalization and definition of the target country, a framework developed with this objective was applied, which includes 6 main areas: opportunities and partners, market study, flight plan (essential activities and resources), pricing, cost structure and take-off (distribution and regulation).

Opportunities and partnerships

To begin the analysis of opportunities, we sought references and information on several programs, both unpublished and recurrent, as observed in Figure 1:

Figure 1 - Application of the framework in the topic Opportunities and Partnerships

Source: Prepared by the authors.

The first program mapped was Startup Outreach Brasil, also known as Start Out Brasil, founded in 2017 with the objective of collaborating with the insertion of Brazilian startups in the most promising innovation ecosystems in the world. It is a free program, which covers selection criteria for participation, and has already carried out 13 immersion cycles in different countries, aiming to help startups get to know these markets to expand

Revista ARACÊ
ISSN: 2358-2472

their business in these regions. The mission is subsidized for the selected ones, and the startup is only responsible for the travel costs such as travel, food and accommodation.

Another organization studied was the Brazilian Trade and Investment Promotion Agency (ApexBrasil), which aims to commercially promote local companies through export and enhancement of the Brazilian market abroad, carrying out different actions such as business roundtables, business connection platform, business missions, participation in international events and fairs, etc. The agency offers free of charge, in all regions of the country, an Export Qualification Program, called PEIEX, with the support of entities that execute the program, such as Universities, technology parks, research support foundations and others). There are 38 hours of program, and at the end, the company is contemplated with an export plan to guide its international insertion.

SEBRAE, a very active institution when it comes to business internationalization, also participates in actions aimed at the topic for the startup audience, as is the case of Startup Global, the largest startup internationalization program in Brazil, an initiative carried out by several actors, such as SEBRAE *Like a Boss*, *Get in the Ring program* and *Entrepreneurship World Cup*. It is a combination of initiatives, called a development track, which offers content and experience for startups to learn about international business opportunities. The program also provides content on the subject and exclusive mentoring for program participants.

In addition to the opportunities seen in Brazil, international initiatives that invest in emerging countries were also found, such as *Tech Emerge*, an initiative of the *International Finance Corporation* (IFC). The program aims to contribute to the acceleration of the adoption of innovation in emerging regions, stimulating the use and testing of technologies, products and services by connecting leading market companies with innovative businesses. In addition to financial support, IFC also provides dedicated consultants to contribute during all phases of the project, from field tests, participation in fairs, monitoring and intermediation between companies, in order to mitigate financial and operational risks, facilitating technology transfer and reducing adoption risks for local companies. One of the examples of the project is *TechEmerge - Sustainable Cooling – Latin America*, aimed at companies with innovative solutions in the cold chain that want to serve the markets of Mexico and Colombia, giving the opportunity for 20 companies to carry out subsidized pilot projects.

Revista ARACÊ
ISSN: 2358-2472

Regarding partnerships, institutions, companies or organizations that could collaborate throughout this process were mapped, having, in addition to the development options mentioned above, the company Refrimarket/Sefrio, UNC (*Universidad Nacional de Colombia*), *Universidad Santo Tomás* and ACAIRE (Colombian Refrigeration Association) as local partners, in addition to two fairs for connection *EmpreendeSUR* and FANYF, which take place annually.

Market Research

In market research, it is very important to analyze relevant data from the target country, competitors, market size, and business differentials.

The definition of the target country was carried out considering the options available in the Program and also analyzing the commercial characteristics of the country, defining Colombia as the best alternative. Colombia is the third most populous country in Latin America and 75% of its population lives in cities, where the demand for sustainable cooling is greatest. The sectors with the greatest potential are real estate development and management, retail, temperature-controlled logistics, and cold chains. Colombian cities, in addition to having more population, will have higher average temperatures and longer periods of high temperatures, increasing the likelihood of heat waves. In the short and medium term, the demand for refrigerated equipment is expected to increase by 62%, from 2.5 million units to more than 4 million units per year. Colombia will need innovative refrigeration solutions to deliver on its promise to eliminate the harmful fluorinated gases (HFCs) found in the most widely used refrigeration and air conditioning by 2030.

When evaluating the import and export data between Brazil and Colombia in 2021, it was possible to observe that the transit of exports and imports between Brazil and Colombia changed for the better, Figure 2 illustrates how these values were in this accumulated:

Revista ARACÊ
ISSN: 2358-2472

Figure 2 - What Brazil exported the most to Colombia in 2021

Source: Pollen Parque Observatory, 2022.

Comparing the economic movements between Brazil and Colombia, it is possible to notice an increase of 46.1% (forty-six point one percent) in exports in the accumulated of 2020/2021. A significant year-over-year increase for this same category year-to-date. Imports also grew by 53.1% (fifty-three point one percent), these are signs that trade between countries is recovering after the crisis caused by Covid-19 (COMEX START, 2020).

Another important market analysis is that of market size, showing that in 2020 the transport, pharmaceutical and food sectors represented a total of 92 thousand businesses. For the food sector, Colombia has 57,004 (fifty-seven thousand and four) companies, the largest number corresponds to companies that work with wholesale trade of food products, containing 10,921 (ten thousand nine hundred and twenty-one) companies in this activity, according to information collected by *the Geovisor Directorio de Empresas*.

In order to enrich the market study, information was also sought on the main competitors operating in Colombia, whether with direct or indirect competition. They are: *Full Gauge*, a Brazilian company with the largest presence in Latin America, *LRS* , a Colombian company, and five Mexican companies operating in the Colombian market, *Telemetriks, Rossbach, Biotempak, Daimod and Imometrics*. However, Table 1 manages to exemplify the differentials of the case study solution compared to competitors.

Revista ARACÊ
ISSN: 2358-2472

Table 1 - Comparison of the packID solution against the main competitors

Name	Real-time	International Coverage	Full chain	Integration via API	Traceability	Push, Email and Call Alerts
1 PackID	✓	✓	✓	✓	✓	✓
2 Full Gauge	✓	✓	X	✓	X	X
3 LRS	✓	✓	X	✓	X	X
4 Telemetry	✓	X	X	X	X	X

Source: Prepared by the authors.

From this analysis, it was possible to develop a matrix, using the concept of GE-McKinsey *matrix*, adapting it to the concept of competitiveness, together with the attractiveness axis, which evaluates aspects related to the purchasing power of consumers, number of competitors and potential customers, as shown in Figure 3.

Figure 3 - The adapted model, analyzing the strengths and attractiveness of the packID startup

Source: Prepared by the authors.

Finally, this information was compiled and included in step 2 of the framework application, as can be seen in Figure 4.

Revista ARACÊ
ISSN: 2358-2472

Figure 4 - Application of the framework in the topic Market study

Source: Prepared by the authors.

Plano de Voo

The Flight Plan involves essential strategies and actions that prepare a company to enter foreign markets. Initially, identifying effective channels, such as fairs and associations, and seeking sources of funding are crucial steps to establish a solid base abroad. To operationalize and finance the feasibility analysis of the internationalization process, it was necessary to search for partners who would collaborate on this front.

During the research on the topic of opportunities and partnerships, it was observed that the startup object of this case study met the criteria of some of the programs analyzed, thus triggering its registration so that, if contemplated, it could contribute and subsidize some stages of the study. The startup was approved in two of the programs. The first, *Sebrae Like a Boss*, contributed with intellectual contribution, courses and exclusive mentoring on the theme of internationalization. The second, a program, *Tech Emerge,* provided, in addition to intellectual support, also financial support for market study and application of pilot projects.

The partnership with local agents, essential for adapting and understanding the new market, along with the translation of software and apps, are measures that ensure effective communication with the target audience. With this, a local partner was sought and the selected company was *Refrimarket*, as shown in Figure 5:

Revista ARACÊ
ISSN: 2358-2472

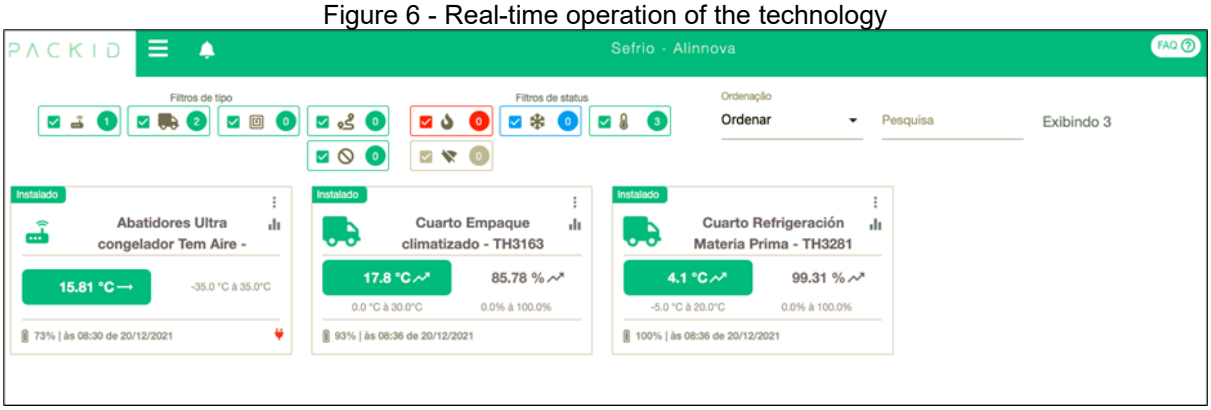
Figure 5 - Selected company in Colombia

Font: TechEmerge, 2023.

The translation of the platform was carried out into English and Spanish languages and together with the local partner, the application of pilot projects was defined. Submitting pilot samples, conducting tests, and validating pricing and selling approaches are all activities that provide valuable insights into market receptivity.

Refrimarket was responsible for the installation and operation, training of end users on the functionalities. Through Figure 6 it is possible to observe the operation in real time of the technology.

Figure 6 - Real-time operation of the technology



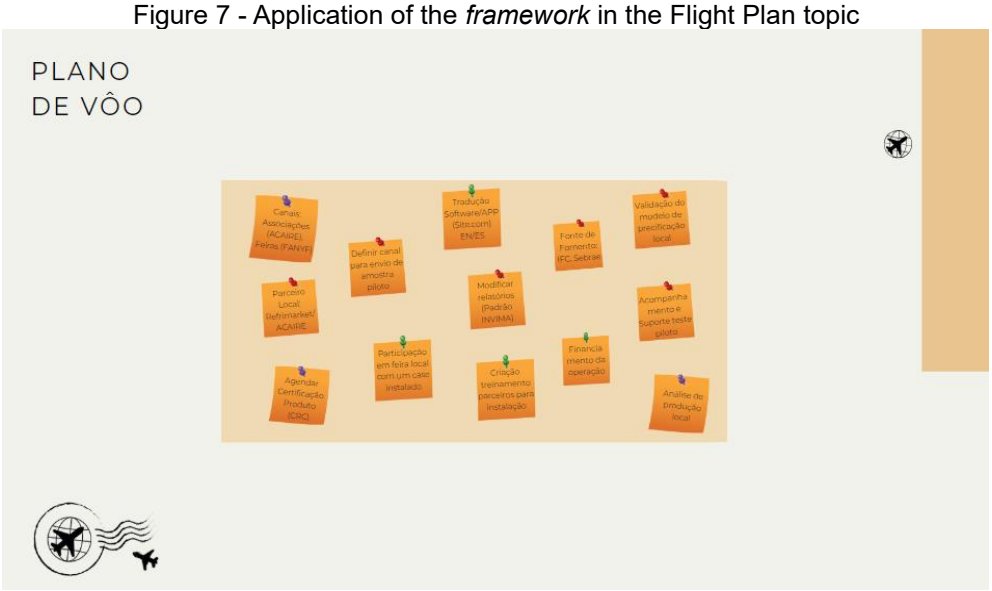
Source: Prepared by the authors.

Setting commission models and training local partners ensure proper brand representation. It is also known that certifying products according to local standards, such as the INVIMA standard, and modifying reports to meet specific requirements, are steps that highlight the importance of compliance and customization. Participation in fairs with

Revista ARACÊ
ISSN: 2358-2472

local cases, in addition to financing the operation and analyzing the feasibility of local production, are strategies that strengthen the international presence, promote the brand and optimize the supply chain, facilitating adaptation to the demands and opportunities of the foreign market. With this, the summary of the initiatives can be viewed in the *Framework* itself, as shown in Figure 7:

Figure 7 - Application of the *framework* in the Flight Plan topic



Source: Prepared by the authors.

Cost Structure

The Cost Structure stage is a vital component in the internationalization process, as it allows a clear view of the investments required for international expansion. During the application of the framework, a meticulous analysis of the costs involved was carried out to ensure a financial analysis that would sustain the operation.

The first point mapped was the payment of taxes, calculated at 1.58%, after gathering the necessary information and understanding the tax regimes of the target market, which allowed the optimization of tax obligations. In this process, it is also necessary to take into account non-tariff regulations. In this case, the need to certify the equipment in terms of connectivity was identified. Certification fees, in the amount of $800.00 (eight hundred dollars), in view of the collaboration between the Telecommunications Agencies of Brazil and Colombia, ensuring compliance with the required international standards. The entire analysis is carried out in the dollar currency, at a rate where $1.00 is equivalent to R$5.00.

Revista ARACÊ
ISSN: 2358-2472

In freight logistics, the possibility of air, land and sea modalities was raised, which requires strategic planning to choose the most efficient and economical option. In this case, air freight was chosen, as a pilot sample, in the Courier modality, a type of express freight, which refers to the shipment delivered door to door.

In this process, it was also planned to hire specialized services to serve this market, such as a bilingual Customer Service (CS) for $1,000.00 (one thousand dollars) per month, in addition to the translation of the platform, with an average cost of $2,000.00 (two thousand dollars) and the implementation of a support bot, with an estimated cost of $78 (seventy-eight dollars) per month, This indicates an investment in technology for operational efficiency, in addition to considering accessibility and user experience.

Participation in fairs, budgeted at $1,600.00 (one thousand six hundred dollars), opens doors for networking and direct negotiations, while the sales commission for partners, established between 8 and 10%, encourages sales performance. International travel, costing $2,400.00 (two thousand four hundred dollars), is crucial for immersion in the market and has been listed with a focus on building relationships.

Finally, other strategies can be considered an assertive investment, such as the registration for Sebrae's *Go To Market program* , in the average amount of $300.00 (three hundred dollars) and the hiring of an international strategy consultancy, one of the largest investments, estimated at $4,000.00 (four thousand dollars), which highlights the value of external specialization in adapting to the global business environment. On the other hand, the association with local entities for an average monthly fee of $200 (two hundred dollars), is a practice that can facilitate the insertion and understanding of the local business context. Each of these items was carefully considered in the startup's Cost Structure framework. The completion, shown in Figure 8, reflects not only the financial projection, but also the strategic decisions made to ensure a successful internationalization journey. By monitoring these costs and investments closely, it is possible to ensure rigorous and sustainable growth-oriented management of financial resources on the international scene.

Revista ARACÊ
ISSN: 2358-2472

Figure 8 - Application of the framework in the Cost Structure topic

Source: Prepared by the authors.

Pricing

Calculating pricing is essential to ensure the viability of the operation and sustainability of the business operating internationally. Considering that Brazil uses Reais (R$) and Colombia uses Colombian Pesos, it is necessary to find a common denominator. Currently, the dollar ($) is the strongest and most stable currency in the international economy, and is also the most used.

To ensure the competitiveness of the product to be exported, it is necessary to make a survey of all the possible costs that may be involved in this process: exchange rate variation, import taxes, port and customs services, production, logistics, commercial and advertising expenses, packaging, specialized support, local partner. It was based on the assumption of calculation based on the price list of the domestic market, such as costs of the sensor, transmitter, installation accessories, among others.

This value will serve as the basis for the first calculation, which includes:

- *SME = (SMI - CMI + DE) + % Impostos**
- Being: SME (Foreign Market Price); PMI (Domestic Market Price); CMI (Internal Market Components); DE (Export Expenses). *% Taxes (Calculated on the total amount).

The company's current business model is recurrence, paid through a monthly fee according to the number of sensors hired by the customer. In this study, the calculation for

Revista ARACÊ
ISSN: 2358-2472

10 units, with a minimum contract of 12 months, will always be considered, which are rules stipulated as the minimum viable for this operation. The entire calculation is carried out in the dollar currency, at a rate where $1.00 is equivalent to R$5.00, in view of being the most stable in the economy and in trade relations. Currently, the monthly value for renting a device starts at $28.00 (twenty-eight dollars), so the PMI for this calculation will be $280.00 (two hundred and eighty dollars).

The expenses with internal components for this operation have a monthly unit value of $8.00 (eight dollars), multiplied by 10 units, representing a CMI of $80.00 (eighty dollars).

In the Export Expenses (DE), freight and insurance costs will be considered, as well as import values and certifications.

In traditional large-scale export processes, the calculation of cost and freight is based on the concepts of INCOTERMs (international trade terms). However, for the case study, air shipping was chosen, quoting the services of the companies: DHL, Fedex and Correios. The most advantageous process was through the Post Office, which despite having a longer shipping time, had a value 5x cheaper than the other options, totaling $50.00 (fifty dollars) for sending 10 units to the city of Bogotá.

Another important data refers to Taxes. For this, it is necessary to have at hand the information on the business activity and the NCM (Mercosur Common Nomenclature) of the product to be exported, a "language" created for the identification of goods in international trade that make up the HS (Harmonized System). This number can be found through the Siscomex Single Portal. The description that comes closest to the service is *9032.90.10 - Printed circuits with electrical or electronic components, assembled*, considering that the equipment includes internal circuits for operationalizing the measurement of temperature and humidity.

For the analysis of export taxes, the business activity of the study company, which represents commerce and service, as well as the classification of the product, in this case considered as electronic circuit hardware, was considered, identifying that the only tax levied refers to the IRPJ/CSLL (Corporate Income Tax/Social Contribution on Net Income). Therefore, when it comes to the export of the product, there will be no incidence of taxes, not even Export Tax (IE), since it is not a harmful product. However, as the solution also contemplates the offer of service, the Corporate Income Tax (IRPJ), the Social Contribution on Net Income (CSLL) and the CPP (Employer's Social Security Contribution) are normally

Revista ARACÊ
ISSN: 2358-2472

taxed on receipt of revenue. Therefore, the percentage to be used is: 0.57% + 0.57% + 4.92% = 6.06%

Another important analysis is certifications, documents required for the operation of specific equipment in the destination country. In the case of Colombia, due to the cooperation between the countries, only a letter of consent is required with an approximate cost of $140.00 (one hundred and forty dollars). This value will be considered in the initial pricing calculation.

To receive the revenue amounts, the service of the Remessa Online Platform (https://www.remessaonline.com.br/) will be used, which has a service fee of 1.2% and IOF charge of 0.38%, totaling a percentage of 1.58% levied on the amount received.

With this, it is already possible to calculate the sale price abroad:

- *SME = (SMI - CMI + DE) + % Impostos*
- SME = $280.00 - $80.00 + $50.00 = ($250.00 + 1.58%) = $253.95

Therefore, the value in reais to be charged for this export is $253.95 (two hundred and fifty-three dollars, with ninety-five cents). From this amount, it was decided to include an increase in profit margin to make the operation viable and to contemplate any expenses not foreseen in the operation, in the total of 20%, reaching the following result:

- SME = $253.95 + 20% = $304.74.

Considering this calculation basis and its conversion to Colombian pesos, the value would be COP$1,184,314.11 (one million, one hundred and eighty-four thousand, three hundred and fourteen Colombian pesos and eleven cents) for 10 units of products, which would represent an approximate cost of COP$118,431.00 (one hundred and eighteen thousand, four hundred and thirty-one Colombian pesos) per monitored point.

When evaluating the value charged by the main competitor, which offers the service for a single annual price of COP$309,990.00 (three hundred and nine thousand, nine hundred and ninety Colombian pesos), the first impressions show that the export model of the service under current conditions will not present market adherence.

The information required for this step can be viewed in the framework application, as shown in Figure 9:

Revista ARACÊ
ISSN: 2358-2472

Figure 9 - Application of the framework in the Pricing topic

Source: Prepared by the authors.

Takeoff

At takeoff (a term used in the developed Framework), it is essential to analyze the distribution and logistics during this process, in addition to the local regulatory bodies, prepare for possible certifications, as well as the relationship and communication structure in the destination country. When talking about product, it is necessary to identify what are the necessary steps to export, whether the requirements are requested in Brazil or in the destination country, in this case Colombia.

The export process from Brazil involves the qualification of the company as an exporter with the Federal Revenue Service and SECINT (Special Secretariat for Foreign Trade and International Affairs), identification and contact with buyers, and issuance of a *Proforma* invoice based on the terms guiding international transactions, such as FOB (*Free on board*) or FCA (*Free carrier*)). After confirming the deal, the need for an Export License is verified, registering the export in SISCOMEX (Integrated Foreign Trade System) through the Single Export Declaration (DU-E), followed by customs clearance, issuance of fiscal, commercial and financial documents, and finalization with the closing of the export exchange (BRASIL, 2020).

In Colombia, the process begins with the National Registry of Exporters of Goods and Services, obtaining the Certificate of Origin for tariff benefits and access to tax incentives. Exports above $2,000 (two thousand dollars) require a Customs Intermediation

Revista ARACÊ
ISSN: 2358-2472

Company (SIA) for customs formalities, promoting a specific regulatory and documentary framework to facilitate foreign trade in both countries, highlighting the importance of complying with local and international requirements for exports (MINISTRY OF COMMERCE, INDUSTRY AND TOURISM OF COLOMBIA, 2020).

For the certification of food and medicines in Colombia, it is necessary to follow the standards of the National Institute of Drug and Food Surveillance (INVIMA) and resolutions of the *Ministry of Health and Social Protection*. Regulations include *Resolution* 1,160 of 2016 for medicines, which establishes manuals of good practice and inspection guides, and *Resolution 2674 of 2013* for food, which defines sanitary requirements for manufacture, storage, transportation, and marketing, including the maintenance of specific temperatures to prevent the proliferation of microorganisms. Both resolutions detail procedures to ensure the quality and safety of products, with an emphasis on proper temperature conservation during storage and transportation.

The approval of the equipment and means of transmission must be done by the *Comisión de Regulación de Comunicaciones* (CRC). The existence of a cooperation agreement between Anatel (National Telecommunications Agency - Brazil) and ANE (National Spectrum Agency - Colombia) was identified and according to the regulatory body CRC, as the equipment only sends data and not calls, the process is only to register to receive a letter that does not require certification. The cost is $700.00 (seven hundred dollars) and the estimated time for issuing the document is 2 weeks.

Regarding calibration, it is possible to calibrate in Brazil and validate it in the destination country as long as it is in the local language and the laboratory follows the standards of ISO 17.025.

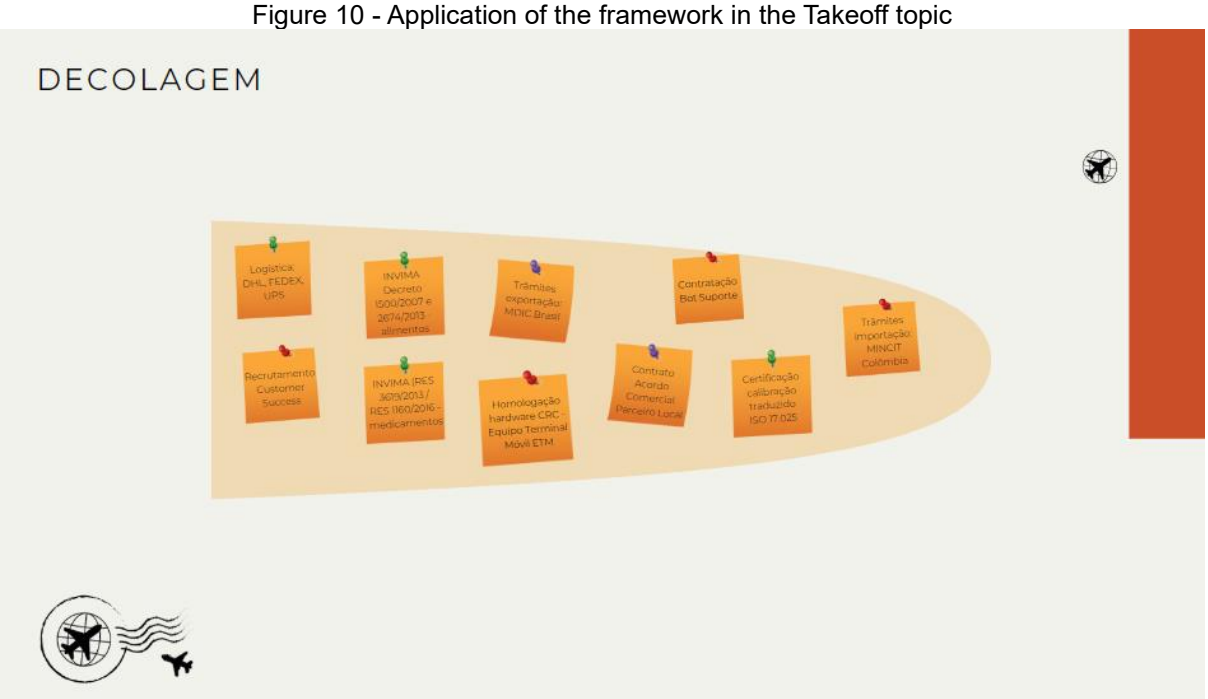
Regarding distribution channels, the correct choice is essential to ensure that products reach the target market in the best conditions and time, minimizing costs and maximizing profits. Companies such as DHL, FedEx, and UPS offer varied shipping options and logistics services that adapt to the specific needs of each exporter, including tracking solutions, fast delivery, and handling complex cargo. Carefully evaluating these options allows businesses to define the best value for money, considering factors such as delivery speed, freight costs, product safety, and geographic reach.

Finally, hiring bilingual customer support and using *chatbots* for support in multiple languages ensures effective and barrier-free communication with customers from different regions of the world, improving user experience and customer satisfaction. In addition, they

Revista ARACÊ
ISSN: 2358-2472

provide a more agile service available 24 hours a day, contributing to the construction of a positive brand reputation in a competitive global environment. These topics can be identified in the last step of the framework's application, as shown in Figure 10.

Figure 10 - Application of the framework in the Takeoff topic



Source: Prepared by the authors.

FINAL CONSIDERATIONS

The application of the framework for the analysis of the feasibility of internationalization of the startup in this case study proved to be an effective tool, filling an existing gap in the startup ecosystem and that can contribute to commercial growth through international expansion. The case study reinforces the critical need for a structured model to guide startups through the complexity of global expansion. This methodology not only provides a detailed roadmap for internationalization, but also underpins the creation of an essential knowledge space for deep analysis and business support.

The framework of the systematic framework, available through the link https://abrir.link/IGNuD, as well as its ebook guide https://abrir.link/dJPMh, demonstrated its usefulness in allowing the startup studied a detailed feasibility assessment, identification of strategic partners and opportunities, and efficient management of costs associated with entering new markets for correct pricing. At the same time, it has proven to be a vital tool when analyzing quantitative and qualitative data for market analysis, construction of a flight plan and subsequent execution, through the take-off stage.

Revista ARACÊ
ISSN: 2358-2472

In addition, the framework's approach to integrating internationalization theories and adapting to innovative business models highlights its relevance to complement other research, offering startups a means to navigate the global market in a more informed and confident way.

Finally, it is suggested as future research to complement the application of the framework by evaluating the political and social aspects that encompass internationalization, as well as the continuity after the take-off stage, during the commercialization process in the foreign country, since the tool aims to serve as a starting point for the internationalization of startups and the strengthening of ecosystems, and may, from its application, incorporate a continuous and in-depth research of the internationalization process.

Revista ARACÊ
ISSN: 2358-2472

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