Simplified Business Plan for planning and management - A proposal for the mariculture industry

Rodrigo de Souza Carneiro¹, Thiago Padovani Xavier², Alessandro Roberto Rocha³, Fernando Nascimento Zatta⁴, Wellington Gonçalves⁵

¹²,⁵Engineering and Technology Department, Federal University of Espírito Santo, Brazil.
³Institute of Life Sciences, Federal University of Juiz de Fora, Brazil.
⁴Center for Social and Applied Sciences, Mackenzie Presbyterian University, Brazil.

Received: 21 Jan 2021; Received in revised form: 03 Apr 2021; Accepted: 29 Apr 2021; Available online: 17 May 2021

©2021 The Author(s). Published by AI Publication. This is an open access article under the CC BY license (https://creativecommons.org/licenses/by/4.0/).

Keywords— Strategic objectives, Integrated business planning, Alignment, Risk management, Organization performance.

Abstract— Currently, the planning management of any company linked to the agricultural environment is directly related to the formation and development of market relations. Within this perspective, this work proposed the use of a simplified business plan with the reality of a small producer in aquaculture - production of aquatic organisms. Thus, after the implementation of the proposal, the benefits achieved were: the empirical demonstration of the theory of business plans; providing support for planning reproduction by other producers in this expanding market; and strategic gains for the entrepreneur, who now has a tool that enabled him to design medium and long-term scenarios. It is worth mentioning that this proposal, despite being based on the literature, allows the entrepreneur to review and parameterize it from new horizons. The results of this work can, therefore, help researchers, professionals and entrepreneurs to improve their practices and prescriptions, in addition to providing suggestions for new paths for the development of entrepreneurial methods.

I. INTRODUCTION

In the present competitive context, the absence of business planning is related to the expressive failure rate among small companies (Mazzarol & Rebound, 2020). This fact can be attributed to the tendency of restrictions in the informational and financial resources of these institutions, raising the urgency of aligning the allocation of resources to the strategic intent of their businesses (Grimmer et al., 2016). Reinforcing this understanding, Grimmer et al. (2018) reflect that the choice of a competitive strategy is one of the crucial business decisions, in order to optimize the distribution and integration of resources.

In this sense, according to Mazzarol (2001) and Mason and Stark (2004), the construction of an effective business plan consists of a support tool for decision making, in addition to helping corporate dialogue with external stakeholders, such as accountants, bankers and Providers.

However, small companies tend to exhibit lower levels of systematic data collection and statistical analysis, compared to larger companies (Mazzarol & Rebound, 2020). Supply chain power problems and relatively higher operating costs are also recurrent. Nevertheless, many of them are notoriously successful and are in outstanding positions to respond, through innovation, to new market opportunities.

The aquaculture market was chosen for its notorious and emerging importance. Defined as “the creation of fish, crustaceans and aquatic plants”, aquaculture leads the growth ranking among the sectors of world food...
production (Ahmed et al., 2019). Due to the rapid growth of the global human population, and the consequent increase in the demand for food, Kobayashi et al. (2015) and Ahmed and Thompson (2019) recommend the productive expansion of the activity, to balance supply chain management.

According to Tacon (2020), world aquaculture production was estimated at 111.95 million tons (Mt) in the year 2017. For comparative purposes, the activity exceeded wild catch fishing by 18.32 Mt, whose production was estimated at 93.63 Mt in the same period. The average annual growth rate of aquaculture is 6.13%, indicating market solidity and a trend of global appreciation in the aquatic organism sector (Tacon, 2020).

According to the Food & Agriculture Organization of the United Nations [FAO] (2021), the practice of Aquaculture differs from wild catch fisheries as it consists of the cultivation of aquatic organisms (fish, molluscs, crustaceans, aquatic plants, reptiles and amphibians). This implies interventions in the reproduction and growth of organisms, such as feeding and fattening, replacement after harvest and protection against predators, with the purpose of increasing production. In addition, wild-catch fishing is the exploitation of an aquatic resource as a common property, with or without appropriate licenses, while aquaculture must be in the possession of organizations such as companies and associations, adds the agency (FAO, 2021).

In Brazil, the number of aquatic farms was estimated at around 233,000 in 2017, as determined by Valenti et al. (2021) and originally published by the Brazilian Institute of Geography and Statistics [IBGE] (2020). In addition, these researchers cite that the volume produced exceeded 700 thousand tons, generating about U $ 1 billion in gross revenue in the mentioned exercise.

Despite representing 12% of the world aquaculture gross revenue (Tacon, 2020), Oysters, Scallops and Mussels are responsible for only 1.86% of the financial volume produced by Brazilian aquaculture (IBGE, 2020a). This discrepancy may be indicative of the untapped opportunity to commercialize mollusks originating in national cultivation.

At this juncture, a socioeconomic highlight is the predominant small scale on Oyster, Scallop and Mussels farms, of which 50% have an area less than 1 hectare and 92% less than 5 hectares (IBGEn, 2020), which reveals a field in which plans for the expansion of business in the sector can be implemented.

Hopp and Greene (2018) consider that, if the plans are synchronized directly with other related activities, the viability of the risk is more likely. In the opinion of these authors, the use of business plans in companies that use longitudinal data and, at the same time, control the development of their activities, is beneficial for planning short and medium term scenarios, but this result depends on the time invested in a project plan and the existence of synchrony between it and the other management activities.

Competitions and competitions, in terms of the market, are dimensions that accurately portray the dynamics of the business environment and, above all, interfere in the life cycle of organizations. Thus, according to McKenzie and Sansone (2019), business plans are being used progressively in developing countries, in an attempt to stimulate entrepreneurship. However, these authors point out that these competitions usually attract competitors with growth prospects higher than the average of companies, because they disregard the use of prior planning that can be adopted and updated during insertion in the segment.

There are many recent studies on the theme of mariculture / aquaculture (Safford et al., 2019, Brown et al., 2020, Ren & Zeng, 2021, Gangnery et al., 2021, Brugere et al., 2021, Wang et al., 2021, Salayo et al., 2021), however, there is no evidence in the literature that focuses on a simplified business plan for planning and management in the sector.

Considering the exposed context, the objective of this work was to carry out a case study, by proposing a simplified business plan, in a small production of Oysters, Mussels and Scallops on the Brazilian coast.

II. THEORETICAL REFERENCE

In order to adapt to the size of the business and facilitate its reproduction, the theoretical framework of this work followed the simplification of the standard developed by the Brazilian Service of Support to Micro and Small Companies [SEBRAE] (Biagio, 2013). This standard contains the following themes in its structure, which will be detailed in the course of this section: Market Analysis; Marketing plan; Operational plan; and Financial Plan.

In market analysis, understanding the behavior of customers and suppliers is essential. Depending on the discovery by Johnsen et al. (2006), studies on the relevance of interactions with customers have been carried out extensively since the 1970s.

Cooil et al. (2007), in the same line as Henriques and Matos (2015), emphasize that attention to the client's characteristics - such as age group, educational level, income and gender - is decisive in the strategic adequacy of the business. The effect of adapting products and services to the profile of customers can result in satisfaction and loyalty of these users, in addition to
influencing their consumption behaviors. Specifically, obtaining customer loyalty is the target to be achieved and one of the main rewards of this method (Wolter et al., 2017).

Parallel to taking advantage of this opportunity, in allusion to the SWOT Analysis, understanding the competition is a key aspect in the planning and management of an enterprise. As studied by Gur and Greckhamer (2018), competitors can be identified by evaluating potential customers about products and services offered. Therefore, if two companies have solutions that meet the same needs of this audience, they can be considered competitors with each other.

In order to meet the level of service expected by the customer, and to gain an advantage over the competition, the selection of suppliers is an important stage of the process. As described by Cengiza et al. (2017), this component of Supply Chain Management must consider quality, delivery, price and capacity as priority criteria in the decision process among possible suppliers. Thus, structured studies of: technical acceptability of material, gross price, discount rate, net price, special charges, freight charges, total cost to destination, payment terms, scheduling, acceptance of project terms and conditions are recommended, promised delivery date based on the premium, shipping weight and expiration date of the quote (Cengiza et al., 2017).

As studied by Chernev (2020), a company’s long-term and sustainable growth comes from planning that guides marketing activities. In summary, a company that does not have a growth-oriented strategy is more vulnerable to threats from its competitors, notes the author.

According to Marjanova et al. (2016), a marketing plan must contain marketing objectives, including product information, sales projection, profits and markets, promotional and advertising strategies, pricing policy, distribution channels, among others, with precise specification of deadlines and responsibilities.

The design of an adaptable and optimized layout is an important field of problems that has been investigated for several decades, say Herrera et al. (2018). The parameters for determining solutions can include the analysis of the value flow, the incorporation of external suppliers or even the technical improvement of the employee.

Another aspect with high influence, in determining operational capacity, is the production system chosen: pulled, pushed and hybrid (Pinheiro et al., 2019). The systems are distinguished from each other, especially in decisions regarding the volume and timing of production. The pulled system is based on the client’s request, mitigating excess risks, which implies a reduction in the quantity produced and, consequently, in the costs involved. The pushed systems are characterized by the planning and release of production orders under demand forecasts, in order to guarantee an increase in the availability of products to the customer (Pinheiro et al., 2019).

According to Mazzarol and Rebound (2020), the fundamentals of a plan and financial management are present in the balance sheet accounting reports, income statement for the year and the cash flow statement. Without proper financial management, a modest expansion of finance-based operations can collapse the company’s capital structure, even if sales increase. With the balance sheet report, short and long-term assets and liabilities are distinguished, providing the owner-manager with opportunities and restrictions for making assertive decisions, especially long-term ones such as debt.

Also, according to Mazzarol and Rebound (2020), the income statement for the year provides a breakdown of income and expenses for the accounting period, showing details of activities between the balance sheets. Its components make the entrepreneur capable of deriving several established performance metrics and, mainly, reacting to the results found.

The ability to monitor and predict cash flows is critical to the survival of a small business. By facilitating analyzes of the availability, sources and uses of business capital, it allows timely attention to deviations between the planned and realized flows. This operation can be performed by the cash flow report (Mazzarol & Rebound, 2020).

The growth and survival potentials of a small business depend on the owner-manager’s expertise in assessing organizational financial performance. Therefore, some other indicators are suggested to improve these assessments.

For Calabrô (2017), break-even analysis has a wide variety of uses as an auxiliary tool for business and project management. It is worth highlighting some notable applications of this analysis, according to Morano and Tajani (2017): the dimensioning of demand and supply of products.; the analysis and definitions of the price policy and its effects on sales; the influence of the financial structure of project costs on the feasibility of the initiative; the comparison and choice between the technical and financial alternatives, the analysis of the stability of the results, as well as of the investment variables, and the effects on the convenience of the operators in investing their resources.

Profitability is also decisive for the performance of a small company (Mazzarol & Rebound, 2020). With it, it is possible to convert the company’s value generation into a monitorable index, considering that it consists of the
capital earned from sales after deducting the corresponding costs. This metric is commonly used to compare the contribution of each product in the company.

In turn, El-Halwagi (2017) cites return on investment (ROI) as one of the recurring criteria in decisions about investments in new improvement projects or businesses. Each company must determine an ROI higher than the rate of inflation and interest associated with “safer” investments, to qualify it as viable. This metric weighs the expected return and the investments dedicated to a given action, being constantly indicated in the decision making about the allocation of resources.

Thus, in accordance with Miguel (2007), the Conceptual-Theoretical framework (Stage 1) was determined with the purpose of adapting to the market niche (micro and small companies), since the replicability of the SEBRAE business plan model is facilitated by the wide dissemination of information, compared to recent or sophisticated models.

Sequentially, there was the identification of a small company with potential for growth (Stage 2), whose owner was unaware of the method of building a business plan, but expressed interest in carrying it out. In compliance with the ethical precepts due, it was agreed to compartmentalize the study of the business (before and after) the existence of the simplified business plan.

In Stage 3, the AS IS and TO BE survey was carried out only for the first item (“Market Analysis”), in order to verify the quality of the information and, additionally, test procedures and adherence (pre-test).

Subsequently, corresponding to Stage 4, data were collected regarding all areas of the company, in order to conduct the intended business plan (test).

Stage 5 consisted of assessing the strengths and weaknesses in each area of the business (test). Thus, from the literature, we sought to build a robust planning, easily upgradable in electronic tools and self-explanatory, to the point of diagnosing and promoting the entrepreneur's market advances (final questionnaire).

III. METHODOLOGICAL APPROACH

The present work took place in an individual case study format at an Oyster, Scallop and Mussels farm, located in the state of Espírito Santo, Brazil.

In the understanding of Massis and Kotlar (2014), case studies are a research method that facilitates an in-depth investigation of a contemporary phenomenon in real life in its natural context. The case study research allows the exploration of the phenomenon under investigation, from a variety of perspectives, to obtain a balanced image in depth of the same event.

A proposal for the effective conduct of a case study, formulated by Miguel (2007), addressed the following steps: 1 - Definition of a Conceptual-Theoretical Structure; 2 - Planning of the Case (s); 3 - Conducting a Pilot Test; 4 - Data Collection; 5 - Data Analysis and; 6 - Generation of the Research Report.

Klaassen (2018) point out that the case study can, among other features, be used in situations where the main attributes of organizational and administrative processes, changes in general, international relations and business maturity are examined.

Analogous to Morgan et al. (2017) and Ridder (2017) illustrate that the face-to-face interview should be preceded by a research protocol, containing a data collection tool and the behavioral instructions for its application. Thus, the study design was traced; the strategy for carrying out the activities (pre-test, test and final questionnaire); type of data analysis implementation; ethical considerations and responsibilities.

This study considered the Likert scale in the interviews, whose planning methods were subjected to satisfaction assessment based on five points: 1 - Fully meets, 2 - partially meets, 3 - indifferent, 4 - does not partially meet and, 5 - does not meet totally).
The company's marketing consisted of the informal dissemination of products in the nautical environment, frequented by the work team. Lacking any visual identity, the producer promoted the products through photos of the harvests on social networks. There was no methodology for pricing the products.

The business plan caused a price that is automatically adjusted due to cost variations. The resulting price adjustment guarantees the coverage of production costs, still remaining below the significant portion of competitors. Standardized promotional strategies started to be routinely disseminated on official cultivation advertising channels.

With regard to the operational plan, the production system was given in the fully pushed model, leading to losses in the finished product, given its perishability. In addition, post-handling logistical operations consisted of harvesting, moving products, storing in freezers and offering them to potential customers.

The model proposed in the planning relates to a hybrid system, the handling part of which is carried out according to the pushed model, while the harvest, logistics and commercialization are carried out in the pulled model, including the delivery mode.

The company's financial analysis consisted of just two matrices: one for expenses and the other for earnings. Both did not have the capacity to discriminate the period of occurrence of the financial transaction, being informed only the accumulated values.

From the implementation of the business plan, the feeding of financial data and reports was standardized via Microsoft Excel (see financial indicators in Figure 2 - Financial Indicators Pt. 1, and Figure 3 - Financial Indicators Pt. 2).
The business plan, in its entirety, provided the owner-manager with the knowledge that it would be above its break-even point. With that, the security of the return of his effort also brought to the owner-manager the intangible gain of greater enthusiasm, decisive in the success of new ventures.

The business presented 47.2% of its revenue as a fixed cost; 30.9% as a variable cost, 0.0% as a financial cost and 21.1% as a result. Thus, the estimated payback time in a scenario without production expansions was 17 months. However, the low representativeness of variable costs suggests that increases in production may favor the owner-manager.

ACKNOWLEDGEMENTS

We thank the Operations Research Laboratory, Logistics and Transport (POLT) of the Federal University of Espirito Santo (UFES)/ University Center North of the Espirito Santo (CEUNES) by the academic and technical support in the design and development of this work.

REFERENCES

[1] Mazzarol, T., & Rebounds, S. (2020). The Entrepreneur. In Entrepreneurship and Innovation. Springer, Singapore.
[2] Grimmer, L., Miles, M. P., & Grimmer, M. (2016). The performance advantage of business planning for small and social retail enterprises in an economically disadvantaged region. European Journal of International Management, 10(4), 403-421.
[3] Grimmer, L., Grimmer, M., & Mortimer, G. (2018). The more things change the more they stay the same: A replicated study of small retail firm resources. Journal of Retailing and Consumer Services, 44, 54-63.
[4] Mazzarol, T. (2001). Do Formal Business Plans Really Matter?—An Exploratory Study of Small Business Owners in Australia. Small Enterprise Research, 9(1), 32-45.
[5] Mason, C., & Stark, M. (2004). What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and business angels. International Small Business Journal, 22(3), 227-248.
[6] Ahmed, N., Thompson, S., & Glaser, M. (2019). Global Aquaculture Productivity, Environmental Sustainability, and Climate Change Adaptability. Environmental Management, 63(3), 159-172.
[7] Kobayashi, M., Msangi, S., Batka, M., Vannucci, S., Dey, M. M., & Anderson, J. L. (2015). Fish to 2030: The Role and Opportunity for Aquaculture. Aquaculture Economics & Management, 19(3), 282-300.
[8] Ahmed, N., & Thompson, S. (2019). The blue dimensions of aquaculture: A global synthesis. Science of the Total Environment, 652, 851-861.
[9] Tacon, A. G. (2020). Trends in global aquaculture and aquafeed production: 2000–2017. Reviews in Fisheries Science & Aquaculture, 28(1), 43-56.
[10] FAO - Food & Agriculture Organization of the United Nations. 2021. Coordinating Working Party on Fishery Statistics (CWP). http://www.fao.org/cwp-on-fishery-statistics/handbook/aquaculture-statistics/en/ Accessed on: January 30, 2021.
[11] Valentí, W. C., Barros, H. P., Moraes-Valenti, P., Bueno, G. W., & Cavalli, R. O. (2021). Aquaculture in Brazil: past, present and future. Aquaculture Reports, 19, 100611.
[12] IBGE. Instituto Brasileiro de Geografia e Estatística. 2020a. Pesquisa da Pecuária Municipal 2017, 2018 and 2019.
conviction and customer-company identification. Journal of Retailing, 93(4), 458-476.

[28] Gur, F. A., & Greckhamer, T. (2019). Know thy enemy: A review and agenda for research on competitor identification. Journal of Management, 45(5), 2072-2100.

[29] Cengiz, A. E., Aytekin, O., Ozdemir, I., Kusan, H., & Cabuk, A. (2017). A multi-criteria decision model for construction material supplier selection. Procedia Engineering, 196, 294-301.

[30] Chernev, A. (2020). The marketing plan handbook. Cerebellum Press.

[31] Marjanova, T. J., Temjanovski, R., & Jovanovska, S. R. (2016). Formal Marketing Planning and Performance: The Case of Transitional Economy. In Business Challenges in the Changing Economic Landscape. Vol. 2. Springer, Cham.

[32] Herr, D., Reinhardt, J., Reina, G., Krüger, R., Ferrari, R. V., & Ertl, T. (2018). Immersive modular factory layout planning using augmented reality. Procedia CIRP, 72, 1112-1117.

[33] Pinheiro, N. M. G., Cleto, M. G., Zattar, I. C., & Muller, S. I. M. G. (2019). Performance evaluation of pulled, pushed and hybrid production through simulation: a case study. Brazilian Journal of Operations & Production Management, 16(4), 685-697.

[34] Calabrò, F. (2017, July). Local communities and management of cultural heritage of the inner areas. An application of break-even analysis. In International Conference on Computational Science and Its Applications. Springer, Cham.

[35] Morano, P., & Tajani, F. (2017). The break-even analysis applied to urban renewal investments: A model to evaluate the share of social housing financially sustainable for private investors. Habitat International, 59, 10-20.

[36] El-Halwagi, M. M. (2017). A return on investment metric for incorporating sustainability in process integration and improvement projects. Clean Technologies and Environmental Policy, 19(2), 611-617.

[37] Massis, A., & Kotlar, J. (2014). The case study method in business research: Guidelines for qualitative scholarship. Journal of Family Business Strategy, 5(1), 15-29.

[38] Miguel, P. A. C. (2007). Estudo de caso na engenharia de produção: estruturação e recomendações para sua condução. Production, 17(1), 216-229.

[39] Klaassen, R. G. (2018). Interdisciplinary education: a case study. European journal of engineering education, 43(6), 842-859.

[40] Morgan, S. J., Pullon, S. R., Macdonald, L. M., McKinlay, E. M., & Gray, B. V. (2017). Case study observational research: A framework for conducting case study research where observation data are the focus. Qualitative health research, 27(7), 1060-1068.

[41] Ridder, H. G. (2017). The theory contribution of case study research designs. Business Research, 10(2), 281-305.