

Lean start-up, entrepreneurship and remote orientation: The experience of action research in Manaus, Brazil

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Abstract

Purpose – Creating a new product or service promotes the status quo changes, seeking economic value and solving customer's urgent problems. Entrepreneurs play an important role in this changing process through start-ups and small and medium enterprises (SMEs), considered one of the leading forces driving an economy's innovative and competitive power. However, despite the importance of entrepreneurs, public policies to foster entrepreneurship ecosystems could be ineffective in emerging countries. Therefore, action research proposes the qualification of entrepreneurs for the structuring of new businesses through remote orientation, connecting the country's main economic centers to emerging areas.

Design/methodology/approach – The study is qualitative research comprising two phases. The first phase consisted of four-month action research, connecting two researchers and three groups of specialists (from São Paulo), with three groups of entrepreneurs (located in Manaus in the Amazon region), through a remote orientation in entrepreneurship, lean start-up, lean product and process development (LPPD). The second phase, conducted by a third researcher, regards a case study grounded on interviews and data collection with the entrepreneurs to capture the outcomes of the remote orientation process.

Findings – The remote orientation helped shorten the geographical distance of Amazonas to approach the integration of business, research and knowledge exchange of such distinct areas in the same country. If a remote orientation program was established as public policy, it could enact subsequent cycles of the lean start-up model. Furthermore, the remote orientation could be an alternative to compose the training subsystem in the entrepreneurship ecosystem proposed by Isenberg (2011). On the other hand, a remote orientation could fail to shorten the distance of human values and beliefs, which cannot be neglected when facing a rich territory like the Amazon.

Research limitations/implications – Because of the chosen research approach, a qualitative and exploratory study based on a combination of action research, interviews and case studies, the results may lack generalizability. However, further studies can replicate the remote orientation process conducted in the region of Manaus – Amazon, to obtain distinct results regarding the advantages, disadvantages and effectiveness of remote orientation as entrepreneurship ecosystem's human capital dimension development.

Practical implications – The outcomes of this research have the potential to start discussions regarding the adoption of remote orientation as a public policy to develop entrepreneurship skills in emerging regions, not only in Brazil but worldwide. The Brazilian case could be a relevant benchmark due to the large territory and economic and social disparities impacting education and entrepreneurship.

Social implications – Through start-ups and SMEs, entrepreneurship has innovation potential and is the most solid way to bring economic development. For emerging countries, it can be real game-changer in the



economic order. The development of entrepreneurship skills through this remote orientation experience can help reduce the economic and social gaps in countries with relevant disparities like Brazil and other emerging countries.

Originality/value – This paper fulfills an identified need to “move the needle of entrepreneurship in the right direction” (Isenberg, 2010) by creating local solutions for global challenges. Policymakers and leaders need to continue the experiment and learn how to improve the entrepreneurship ecosystem. In this sense, the action research approach, combined with the remote orientation, proposes an alternative to promote changes in how human capital dimension can be developed in this challenging ecosystem.

Keywords Remote orientation, Entrepreneurship, Action research, Lean start-up, Lean product and process development, Human capital development

Paper type Research paper

1. Introduction

Governments worldwide consider entrepreneurship as one of the most critical drivers to reaching sustainable economic growth and the key variable to promoting the real “game change” in the economic order. Start-ups have a close relationship with entrepreneurship. According to [Ries \(2012\)](#), a start-up is “a human institution designed to create a new product or service under extreme uncertainty conditions.” Creating a new product or service meets the entrepreneur’s status quo’s challenges: seeking economic value and solving customers’ urgent problems. Other concepts like the one published in the European Startup Monitor (ESM) by [Kollman, Stöckmann, Hensellek, and Kensbock \(2016, p. 15\)](#) define three characteristics of start-ups: younger than ten years; feature (highly) innovative technologies and (or) business models; and have (strive for) significant employee and (or) sales growth. Additionally, the definition differentiates start-ups from small to medium-sized enterprises (SMEs), which are not promoting a substantial growth perspective ([Kollman et al., 2016](#)), though start-ups can be turned into SMEs during their development cycle.

Despite the importance of entrepreneurs and start-ups in developing the Brazilian economy, public policies to foster sustainable entrepreneurship ecosystems are ineffective. For example, [Arruda, Nogueira, and Costa \(2013\)](#) have identified the regulatory framework, market conditions and access to finance as some of the institutional constraints, while [Junior, Autio, Morini, Gimenez, and Dionisio \(2016\)](#) considered the lack of interaction and cooperation between educational institutions and entrepreneurs.

In the Brazilian case, the Amazon region presents the additional difficulties of large distances between the institutions that integrate or can integrate the ecosystem and the place where entrepreneurs interact and intend to build their businesses. This lack of integration is one of the barriers that should be overcome by the actors of an ecosystem, as suggested by [Arruda et al. \(2013\)](#), [Junior et al. \(2016\)](#) and [Isenberg \(2010, 2011\)](#). However, developing ecosystems cannot be a pursuit of “Silicon Valley ideal model”: instead, ecosystems should be shaped around local conditions, competitive advantages and specificities ([Isenberg, 2010](#)). Moreover, studies regarding non-matured entrepreneurial ecosystems, especially in emerging economies, remain under-theorized and have weak theoretical grounding, making it challenging to provide inputs and guidance to the policy-making actors in emerging economies ([Cao & Shi, 2021](#)).

Given this situation, the initial motivation of the present research is to experiment with entrepreneurs from the city of Manaus, in the Brazilian Amazon, to contribute to the answer to the initial question: *How can remote orientation for entrepreneurs based on a structured method of entrepreneurship impact the formation of the region’s ecosystem?*

The research design involves the impact on the local entrepreneurship ecosystem using reports of an experiment carried out by three entrepreneurs in the second semester of 2020. All three were located in Manaus, State of Amazonas, Brazil, and were going

through the process of structuring their businesses: the first (E1) intended to launch Amazon's Biojewels; the second entrepreneur group (E2) aimed to launch a vegetal oil extracted from the Murumuru plant (*Astrocaryum murumuru*); and the third entrepreneur group (E3) proposed the production and sales of a food supplement based on microalgae.

The experiment is distinct because the orientation of the three groups was conducted remotely and because of the possibility of connecting specialists and students from *Universidade de São Paulo* (University of São Paulo) to researchers-entrepreneurs from the National Institute for Research in the Amazon (INPA), overcoming distances and providing mentorship on business structuring.

2. Theoretical background

2.1 Ecosystem for entrepreneurship, start-ups and particularities for emerging and regional markets

Moore (1993) pioneered the term "ecosystem" when defining the business ecosystem as its external environment. Entrepreneurial ecosystems are vital since they reduce a nation's economic gap (Stam & van de Ven, 2018). However, despite such importance, entrepreneurship and its ecosystem are most understudied in developing countries because scholars and practitioners assumed that "entrepreneurship is the same the world over" (Lingelbach, de la Viña, & Asel, 2005); however, understanding entrepreneurial ecosystems in emerging economies is imminent for both entrepreneurship scholars and policymakers (Cao & Shi, 2021, p. 76).

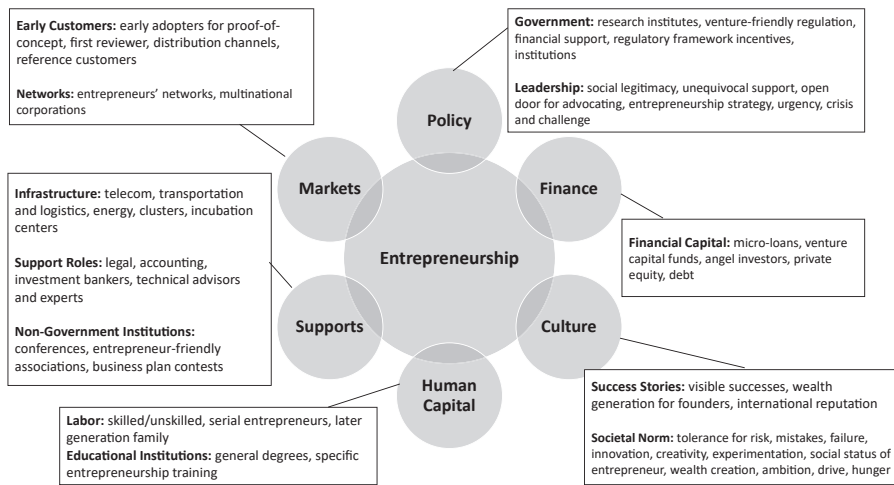
For example, the works of Teece (2007) on the relationship between the dynamic capabilities of the enterprise and entrepreneurial ability; and of Bahrami and Evans (1995), who consider that regardless of the size of the company, its location or context, companies can be flexible if the organizational system is aligned with a "rapid-change, maneuver" practice, are among the most cited works regarding entrepreneurial ecosystems and give the necessary attention to regional differences.

The study of the particularities of emerging economies' entrepreneurial ecosystems conducted by Cao and Shi (2021) pointed out three constraints or barriers: the presence of institutional voids, resource scarcities and structural gaps.

Isenberg (2010), when prescribing "how to create an entrepreneurship ecosystem," mentions that actors should not emulate Silicon Valley and instead need to strongly shape the ecosystem around local conditions. "The most difficult, yet crucial, thing for a government is to tailor the suit to fit its own local entrepreneurship dimension style (. . .) and leaders can and must foster homegrown solutions (. . .) based on the realities of their own circumstances (. . .)" (Isenberg, 2010, p. 4).

Isenberg (2011) proposes six "Domains of the Entrepreneurship Ecosystem": (i) policy, (ii) finance, (iii) culture, (iv) supports, (v) human capital and (vi) markets, gathered from entrepreneurs' perceptions, which impact their decisions and success (Figure 1).

"Policy" regards the role of government, which includes a clear regulatory framework and venture-friendly legislation (e.g. intellectual protection laws, contract enforcement), unbureaucratic processes (to start a business, less paperwork and procedures), financial incentives (tax incentives) and the existence of public research and investment institutes. "Finance" is the domain that touches the availability of money to fund the start-ups. These sources can come from private equity, angel investors, micro-loans, debt, venture capital funds, seed capitals, to name a few. "Culture" represents the characteristics of a group regarding their appetite for risk, ambitiousness, the relevance of social status, the importance of reputation and generation of wealth. 'Supports' encompasses the public and private institutions that provide the necessary stimulus to start-ups' growth, like lawyers,



Source(s): Adapted from Isenberg (2011)

Figure 1.
Domains of the
entrepreneurship
ecosystem

incubators, accelerators, as well as the functions required to establish a company, for example, accountants and lawyers. 'Markets' regard the available audience ready to acquire products and services and provide reviews and feedback on them. The market also includes the network of firms or entrepreneurs that can disseminate the product or service. Finally, 'human capital' refers to the available human resources and the respective academic and professional background, soft and hard skill levels, which, in turn, include the degree of training in entrepreneurship.

This research focus on the 'human capital' aspects, based on the proposition that the lack of knowledge, especially related to the lean start-up and lean development, means that entrepreneurs are unable to see all the domains of the ecosystem proposed by Isenberg (2011), leading them to ineffectively spending resources. Lean start-up is defined by its pioneering practitioner and disseminator Eric Ries as "a new approach to creating continuous innovation" (Ries, 2012, p. 4), and he adds further in his leading-edge text that the lean start-up is "the application of lean thinking to the innovation process" (Ries, 2012, p. 5). Ries focuses on innovation because start-ups offer new products and business models by constantly dialoguing with their consumers to find possible repeatable and scalable business gaps. According to Blank (2013), one of the main differences between a start-up and an existing company is that, while the traditional company only executes a business model, the start-up looks for new business models.

It is possible to suggest that the human capital aspect explored in the research can be related to the institutional voids, resource scarcities and structural gaps proposed by Cao and Shi (2021). In this context, the difficulties in emerging regional centers – like Manaus, characterized by the absence of specialists and a feeble market for technical support in business modeling – can be compensated by extra support from institutional cooperation like the partnership between INPA and *Universidade de São Paulo*.

2.2 Entrepreneurship in Manaus region and remote orientation

As previously discussed, Isenberg's proposed model is not fully applicable to some emerging markets such as Manaus. These entrepreneurs are 'encapsulated' in the human capital domain since this would be the most (and only) existent and reliable domain for the

entrepreneur in that market. Therefore, human capital is isolated from other domains of the ecosystem (Figure 1), despite being one of the weaknesses in the entrepreneurial ecosystem in Brazil (Junior *et al.*, 2016). Bluntly put, from these entrepreneurs' standpoint, there is no awareness of an ecosystem existence.

In this sense, the research of Marvel, Davis, and Sproul (2016) brings a relevant contribution. Their findings show relatively few works regarding the early stages of entrepreneurship, despite the theoretical emphasis on opportunity recognition and venture creation in this field. Marvel *et al.* (2016) focus on the human capital approach to enhance their understanding of the variables related to the entrepreneurship opportunity to develop this idea.

Human capital (domain) exercises a relevant influence on entrepreneurship's stage of 'opportunity recognition' – the conscious realization that an idea may be transformed into a business concept that adds value (Marvel *et al.*, 2016); 'venture emergence' – a gradual and an iterative process, in which nascent entrepreneurs continuously evaluate the prospects of their opportunities (Dimov, 2010); and 'venture outcomes' – results of the venture, like growth in sales and profitability (Marvel *et al.*, 2016).

Therefore, an effective mentoring process is required considering the importance of human capital's influence on entrepreneurship. The work of Deakins, Graham, Sullivan, and Whittam (1998) evidenced that the entrepreneurs consider mentoring as the most important source of advice – 69% of entrepreneurs mentioned having an "excellent relationship with their adviser," and 43% reported that "the mentoring relationship had made a substantial difference on the ability to achieve objectives."

However, in the pandemic context, the face-to-face mentoring process met barriers, requiring mentors and mentees to look for new alternative interactions, like remote orientation and interactive distance learning. For Stokes (2001, p. 322), "The enormous advantage of interactive distance learning approaches is the flexible nature of delivery which suits busy time schedules and ad hoc questioning, and reflects the kind of informal, on-the-job approach to learning (...)." Furthermore, in a vast country like Brazil, with significant disparities in opportunities, the integration of businesses, research and knowledge exchange could be facilitated with remote orientation and distance learning solutions.

Considering the initial research question and the reflections that followed in the light of the theoretical foundation of the entrepreneurship ecosystem, pointing to the particular fragility in the formation of human capital, the basic question was transformed into a more objective proposition to guide the experiment:

P1. Can remote orientation qualify entrepreneurs to structuring a business, avoiding wasting time and resources?

Then, depending on the proposition, there would be a need to define the conceptual basis by which entrepreneurs would be guided. As a matter of research opportunity, described in detail in the Methodology section, the lean start-up orientation model, established in the literature and entrepreneurship practice, was chosen as the conceptual framework to conduct the orientation.

Considering the above proposition, the research will be framed based on the particularities of entrepreneurship in Manaus. Thus, the action research method combined will the conduction of a case study on three groups of entrepreneurs will explore the importance of remote orientation in developing the human capital domain of entrepreneurship.

3. Methodology

This work is based on two-phase qualitative research, comprising an action research, which promoted the remote orientation experiment for the initial structuring of the proposal of local

entrepreneurs, followed by a case study, grounded on a set of interviews and data collection with the entrepreneurs after four months of the experiment in which the cases were structured. The case study aims to evaluate the experiment's results with the necessary distance and without the interference of the researchers who provided the orientation. Three distinct researchers worked throughout the two phases: advisor researchers in action research (A and B), and evaluation case study researcher (C). Previous planning consisted of building a team of specialists in entrepreneurship, lean start-up, lean product and process development, and active learning. Researchers 'A' and 'B', respectively located in São Paulo and Manaus, were in charge of selecting the team of specialists from among graduate students (MBA, master's and PhD students).

Each of the teams led by Researcher 'A' and Researcher 'B' had different work scopes. While the former structured a team to utilize lean start-up models to mentor, remotely, the entrepreneurs in Manaus, the latter selected groups of local entrepreneurs with some relationship with INPA and *Universidade Federal do Amazonas* (Federal University of Amazonas) to work in the experiment. First, the researchers interacted with the three entrepreneurs to support them in constructing value proposals, identifying personas and stakeholders, validating proposals, pivoting and preparing the handover to the operational phase, as proposed by Cooper and Vaskovits (2010). Next, Researcher 'C' proceeded with the case study, interviewing the three entrepreneurs to capture their perceptions regarding the mentors' support during the start-ups' creation, gather pieces of evidence of remote orientation impact and find opportunities to transform the experience into a more robust project. Finally, a questionnaire will gather entrepreneurs' perceptions regarding the importance of ecosystem dimensions in their business.

3.1 Phase 1: conduction of an action research

In general, action research is appropriate to unfold actions over time in a given group, understand how and why their action can improve the work system and understand the improvement process to learn from it (Coghlan & Brannick, 2001). It can generate theory through practice, influencing social changes (Brydon-Miller, Greenwood & Maguire, 2003).

In this first phase, three entrepreneurs were mentored through the project team assigned by Researcher 'A'. Researcher 'B' selected the entrepreneur groups in Manaus area and those with a relationship with INPA and *Universidade Federal do Amazonas*. In addition, selected projects received the mentoring of graduate students from *Universidade de São Paulo*.

The first entrepreneur group (E1), "Biojoias da Amazônia" (Amazon's Biojewels), has the objective of offering a product that represents the valorization of local culture through the pillars of sustainability and the culture of the Amazon, favoring the economic and social well-being of the communities where each unique piece is produced. The second entrepreneur group (E2) aims to launch a vegetal oil extracted from the Murumuru plant (*Astrocaryum murumuru*), adopting sustainable organic extraction, using nanotechnology to improve product performance and redesigning the value chain to integrate the local community in a more inclusive manner. Finally, the third selected entrepreneur group (E3) proposes producing and commercializing a new food supplement based on microalgae from regional raw materials, aiming at athletes' niche market.

All projects were in the same development stage, named 'ideation' in the start-up literature (Ries, 2012; Torres Junior & Gama, 2020). Entrepreneurs were stimulated to detect opportunities to model regional businesses and establish an initial proposal, making efforts to start the implementation and operation of the businesses. However, without further structuring, these efforts would lead to failure and waste of resources (Torres Junior & Gama, 2020). E1, E2 and E3 entrepreneurship were representative cases of the local scene in which the entrepreneurs had technical but insufficient knowledge about business structuring.

It characterizes incomplete human capital domain development from Isenberg's (2011) entrepreneurship framework.

The action research aims to simultaneously contribute to both people's practical concerns in an immediate problematic situation and further goals of social science. Therefore, the action research would give the groups the hypothesis's assessment and signal the need to move toward a minimum viable product (MVP) or pivot to another hypothesis, avoiding the waste of resources on formatted ideas with a low probability of success. The MVP was synthesized in a business model to highlight the launching strategy.

3.2 Phase 2: *conduction of case study*

Semi-structured interviews took place with the group of entrepreneurs to gather the descriptions of the phenomena – the results of remote orientation regarding entrepreneurship. Each interview took around 90 minutes and aimed to catch the perceptions of entrepreneurs regarding the effectiveness of remote orientation, feelings about their knowledge regarding entrepreneurship and start-up concepts and their opinion about the perspectives after the orientation period. The objective was to evaluate the perception and knowledge demonstrated by the entrepreneurs about the entrepreneurial action applied to their reality. Therefore, there was no goal of evaluating the lean start-up model as an object. Instead, the objective was to evaluate whether remote orientation promoted changes in the qualification of human capital using a well-established model in the case study of lean start-up. Interviews were recorded and further analyzed independently by Researchers 'B' and 'C'. Additionally, documentation produced during the remote orientation was obtained, such as business model canvas, A3 sheet and slide decks used in pitches. This documentation is essential to compare and spot differences in the orientation approach received by each group of entrepreneurs.

Qualitative data obtained from the transcripts of the recorded interviews were organized and coded, creating categories. Categories, in turn, formed the themes used to create reflections of researchers' interpretation of patterns across data gathered from entrepreneurs. Qualitative analysis inevitably involves subjective choices and, therefore, the research documented the procedures in detail so that a clear audit trail is provided.

The examination will support the purpose of this study, which is to understand the encapsulation of Isenberg's human capital domain in entrepreneurship and to sustain our proposition (*P1 – Can remote orientation qualify entrepreneurs to structuring a business, avoiding the waste of time and resources?*).

4. Data gathering and analysis

In this section, each entrepreneur group's proposal is presented through a brief explanation of their business models.

- (1) E1 (Biojewels project): It consisted of an initiative to intensify indigenous entrepreneurship that uses seeds of various native plants to produce jewels. The entrepreneur group observed that the variety and richness of the material used to craft the Biojewels was underexplored. Entrepreneur's main concern regards the trade-off between the sustainable/ecological aura of the production and scaling it up.
- (2) E2 (Murumuru plant oil): The group proposes a solution to the low effectiveness of an extraction-based cooperative with low productivity and lack of clarity in exploiting its resources, acting in a non-standard way in the market at the behest of local businesses. Like E1, the main challenge involved the production scaling-up with the lowest impact on the sustainable handling and local community beliefs.

- (3) E3 (microalgae): Knowing Amazon microalgae's high nutritional potential, this group intended to create farms to supply raw material to the cosmetic and food supplement industry. The main challenge in this project involved the entrepreneur's unfamiliarity in preparing a convincing rationale for investors.

As previously described, the three projects were at the same stage of conception, the so-called 'ideation', in which entrepreneurs, as a result of their research with INPA, detected opportunities to model regional business and establish an initial proposal. However, entrepreneurs were trying to implement and operate without further business structuring, which was leading to failures. These were representative cases of the local reality, in which entrepreneurs have technical knowledge (of the product and production), but insufficient knowledge about business structuring and characterizing incomplete human capital dimension development from the perspective of [Isenberg's \(2011\)](#) ecosystem proposal.

5. Results

In this first phase of the research, there is evidence that entrepreneurs' proposals were superficial and generic, presenting a high potential for failure. However, proposals became more assertive and robust during the remote orientation process, resulting in data-driven modeling and validation of hypothesis in the experiment and launching of MVP. The data below compares the entrepreneurs' proposals before and after the remote orientation process.

(1) E1 (Biojewels):

- **Before remote orientation:** Structuring a cooperative with local producers to sell Biojewels.
- **After remote orientation:** Create certification of origin and production with producers to strengthen image.

(2) E2 (Murumuru plant oil)

- **Before remote orientation:** Buy new equipment for the extraction cooperative.
- **After remote orientation:** Standardize the extraction and production processes for further investment evaluation.

(3) E3 (microalgae)

- **Before remote orientation** :Create or structure farms for microalgae production.
- **After remote orientation:** Develop the production standard to supply the existing demand in the cosmetics industry.

In this first phase, the researchers conclude that the entrepreneur groups had little knowledge on assessing the value and had difficulties identifying and aligning customers and stakeholders' needs, corroborating with [Marvel *et al.*'s \(2016\)](#) idea of opportunity recognition, which is a part of the human capital domain in the diagram proposed by [Isenberg \(2011\)](#). All participants (E1, E2 and E3) made relevant changes in the business model after the remote orientation. The lack of training in the conscious realization that an idea may be transformed into a business concept, which can be validated and adapted continuously, as [Dimov \(2010\)](#) proposed, creates barriers to developing the human capital dimension.

Action research assessment is complemented by the information captured during the semi-structured interviews and the applied questionnaire conducted in the second phase of

this research. For example, E3 was surprised about *how the business model and concept and the target consumer market changed so quickly and frequently during the orientation process. Now I could understand the concept of idea validation.* For E2, *the orientation process allowed the group to foresee the business from a holistic perspective because the group was solely focused on the operations and production chain.*

As for the pre-step of the action research, mentors and entrepreneurs reflected on *why the project is necessary and desirable* and *what are the forces (economic, political, social and technical) driving the need to act.* The understanding of the purpose and context by the group is unanimous. Despite the great potential of Amazon's region due to its biodiversity and supply of natural resources, entrepreneurs face barriers to starting a business. Due to the difficulties in starting a sustainable business, *the local community has fewer opportunities than more developed regions in Brazil*, as commented by E1. Therefore, the Amazon region urges a new look beyond a mere raw material supplier from the rest of the world.

The final and complementary pre-step involves the understanding of the action research rationale. The group understood that action research is the most appropriate methodology because, according to E1, *there is a need for mentors, who hold the entrepreneurship and start-up knowledge, to know the social values and culture of Amazon people; and for the mentees, there is a demand to improve the knowledge level about business to successfully launch their ideas in the market.* In other words, action research will foster collaborative knowledge development and will strengthen the sustainable entrepreneurship models. Advancing to the six main steps, we obtained the following results.

5.1 Data gathering

In typical action research, data come from active involvement, observation, intervention and researcher participation in day-to-day activities. However, this research is based on a remote orientation approach which requires adaptations to be made on that process. Therefore, mentors gathered data from online interviews, remote observation of the production process and observing pictures of the product or process taken by the entrepreneurs. In addition, researchers held four virtual meetings with the entire group of entrepreneurs, and three to four additional meetings were held between each group of entrepreneurs and researchers. Each meeting lasted two to three hours, from September to December 2020. In the intervals between meetings, researchers guided the entrepreneurs groups in collecting data and on facts to build and evaluate the hypothesis of the projects' value and analyzed them together.

The remote orientation procedure was evident in the process involving 'E2' and mentors to explain the harvest, transportation and oil extraction process of *Astrocaryum murumuru*. The remote observation allowed mentors to understand the hurdles to harvest (only harvesting what falls on the ground is allowed); to transport (harvesting area can be 2 miles, more than 3 kilometers, far from the dispatch area, in a closed forest, meaning that transportation is done by human force); and to extract oil (not the most efficient machines and devices available, and unstable supply of electricity).

On the other hand, still in E2 case, the entrepreneurs realized that it would be useless to buy new equipment (initial idea) if these craftworks were not standardized. Each member performed differently, and there was disagreement about what could be mechanized or what should remain artisanal. Also, the mentors showed, through videos, applications of specific devices in the forestry activity whose execution would not harm the intended natural and artisanal harvest.

5.2 Data feedback

Mentors and entrepreneurs analyzed the data collected from the sessions and the product value validation process, transforming them into a business concept. Finally, mentors

adapted the product and idea according to their view on how the products can have a higher success rate in the most promising markets in Brazil and the world. These ideas and findings were then shared with entrepreneurs in Amazonas using business tools and templates, such as the A3 sheet and business model canvas. The data below demonstrates the change in obtaining primary market data sources.

(1) **E1 (Biojewels)**

- **Before remote orientation:** General sales data in the researched market based on Internet sales exploration.
- **After remote orientation:** Data from distributors of ecological and natural products in the southeast region and for export.

(2) **E2 (Murumuru plant oil)**

- **Before remote orientation:** Historical data of the coop's sales to local intermediaries.
- **After remote orientation:** Data on national trade, sources and uses were obtained in a study by EMBRAPA (Brazilian public agricultural research corporation).

(3) **E3 (microalgae)**

- **Before remote orientation:** Historical sales data from local producers.
- **After remote orientation:** Cosmetic industry demand data obtained indirectly, through advertised products information.

During the interviews, entrepreneurs reported not having a business background; most of them have a background in biological studies, education and engineering. Therefore, the data feedback was necessary for these entrepreneurs to contact business management tools first. According to E1, *due to my academic background in non-business-related majors, the market vision was too narrow*, and for E3, *I was not aware of most of the market data sources used in the business model canvas. Actually, the business model canvas was a novelty for me*. Finally, according to E2, *most approaches were a novelty for the group*. These findings corroborate the importance of constant dialogue of the business model with the market demand to find possible scalable business gaps as preconized by the lean start-up model (Ries, 2012; Torres Junior & Gama, 2020) and pieces of evidence of model's contribution to entrepreneurs, through the remote orientation process.

5.3 Data analysis

Using a collaborative approach, building on the idea that entrepreneurs are the ones who best understand the Amazon values, local restrictions and potential, mentors and mentees discussed the ideas created in the previous steps. This collaborative analysis and understanding of data were more evident in the microalgae business than in others. However, the definition of the product took longer in this business. According to 'E3', *it was challenging to match the concept of a product with good penetration in the market and a product that can be produced sustainably, aligned with our values*.

5.4 Action planning

Action planning consisted of a joint activity where entrepreneurs and mentors created a work agenda to deliver a solid business plan. In this phase, participants set up the communication management plan, fixed the follow-up meeting dates and established the project's milestones

and each part's responsibility to complete the task. Based on our interviews, E1 and E3 expressed a clear understanding of the importance of action planning, whereas E2 had no such precise planning – unfortunately it was not possible to assess if the mentors' explanation was flawed. This fact shows that the experiment with remote orientation focused only on the first phase – structuring the idea – despite having impacted groups E1 and E3; in the case of E2, it required extended remote orientation to the following phases to deal with emerging issues that still needed to be monitored by mentors.

Based on the interviews, business culture and values were the most challenging aspect in all three cases. Entrepreneurship and business concepts encountered barriers regarding *how different cultures deal with business and do business. Speed, approach, philosophy, holistic view and respect for the traditions are variables that we can learn*, as mentioned by E1. The data below compare these perspective changes in planning of actions before and after the remote orientation process:

(1) **E1 (Biojewels)**

- **Before remote orientation:** Must respect the time of traditional people for the collection of seeds.
- **After remote orientation:** People's time can be planned together with them and put on a schedule.

(2) **E2 (Murumuru plant oil)**

- **Before remote orientation:-** Buying equipment can distort the tradition and culture of the cooperative members.
- **After remote orientation:-** The way in which the culture of the people performs the extraction can be helped by friendly equipment and devices without aggression to nature.

(3) **E3 (microalgae)**

- **Before remote orientation:** Farms with microalgae activities already exist, and they know the business.
- **After remote orientation** - Microalgae are cultivated on different scales and purposes, and current growers want new purposes that require adaptations.

The results of this phase strengthen Isenberg's proposal that other governments and countries should not emulate the Silicon Valley entrepreneurship model and instead the ecosystem should be shaped around local conditions (Isenberg, 2010). The Amazon region has its own culture, beliefs, traditions and a strong connection with its people's roots. Therefore, *aligning the mainstream ideas of business models with these cultural aspects is a challenge for entrepreneurs in the Amazon region*, as mentioned by E2.

5.5 Implementation

Entrepreneurs and mentors built the concept papers of their respective businesses (A3 concept paper) and slide decks to use in the pitch. Although the tangible outcome was very similar among the three businesses, the content and approach varied significantly. For example, while E1 and E3 focused on aspects like product vision, key product attributes, customer segments, competitors and strategies to launch the MVP and pivoting, E2 focused excessively on the technical aspects of the product and the production chain.

These results are connected with information captured during our interviews. E1, working with Amazon's Biojewels, stated that *I honestly had many difficulties understanding*

these concepts of entrepreneurship because my field of study is education and teaching, not business. In this sense, E1 mentioned that *it was very fruitful to absorb the critical concepts of starting a business despite the short length of the remote orientation.* On the other hand, unlike E1, it was explicit that E2 found *some difficulties in incorporating the foundations of entrepreneurship* during the interview. The semi-structured interview script was designed to stimulate entrepreneurship groups to explain the business start-up process, assuming that the remote orientation contributed to collaborative growth and development.

Thus, interviews demonstrated the difficulty found during the action research regarding the disconnection of the technical ideas from viability in an ecosystem, demonstrating the little knowledge of entrepreneurship in [Isenberg's \(2011\)](#) human capital dimension.

5.6 Evaluation

Evaluation is key to the learning process in action research. It involves reflecting on the outcomes and reviewing the process to implement, if necessary, adjustments in the new development cycle. All projects were submitted to the mentors and then to the program's leadership, researchers 'A' and 'B'. Additionally, the final session of the remote orientation program was dedicated to presenting the groups' results and establishing an agenda for the next steps.

The evaluation step was distinct among the three groups based on the evidence collected during the interview. E1 suggested, *as an improvement point, extending the orientation length and strengthening follow-up actions because, after the program's final session, there was no contact from mentors to check on the progress of implementation.* As for E2, it was difficult to establish an agenda after the final session because *the group did not fix the next steps with the mentors, and some members from E3 did not understand "what to do next."* Finally, E3 reported that *communication with mentors is still occurring occasionally to check on progress and support data preparation and reporting.*

The analysis of the action research (phase 1) and the interviews (phase 2) of this research will shed light on the effectiveness of the remote orientation in qualifying entrepreneurs in structuring a business, avoiding the waste of time and resources, as proposed in our [P1](#). Conclusions and suggestions for further studies are described in the following section.

6. Conclusions

From the pieces of evidence gathered in the research, as well as by analyzing the documentation produced, like business plans, slide decks and concept papers, it is possible to suggest that the action research in the context of remote orientation succeeded in achieving positive results and facing the challenges raised by [Stokes \(2001\)](#). The experiment allowed entrepreneurs to avoid following "wrong business paths," bringing together local entrepreneurs and academy specialists (researchers), as evidenced in the interview topics covered and before and after findings. This evidence helps in reducing the challenges of resource scarcities related to the knowledge gap.

The action research used the lean start-up development approach for business structuring. Although it did not aim to evaluate this particular method, the study revealed that a feature present in this model should be strongly considered in remote applications: orientation based on short cycles of development and experimentation, alongside the gradual filling of the development plan, as facts and data are collected and discussed between entrepreneurs and researchers.

Remote guidance was carried out until the end of the first validation cycle (concerning the validation of the value hypothesis in Lean start-up), being interrupted at this stage as planned in the experimentation. This interruption aimed to collect entrepreneurs' perceptions in this cycle.

Furthermore, the remote orientation, through the flexible nature of the delivery suiting busy time schedules and on-the-job approach to learning, helped shorten the geographical distance of Amazonas region, to approach the integration of business, research and knowledge exchange of such distinct areas in the same country.

The social contribution of this research is in the experimental findings favorable to the adoption of public policies of remote orientation connecting specialists and entrepreneurs between regions of the country before starting the business (in the ideation stage). A mentoring network would avoid businesses without proper initial structuring, losing resources and frustrating local entrepreneurs. The guidance network would also work as the beginning of an ecosystem in development from the human capital dimension, as evidenced by Isenberg (2010) and pointed out as a challenge by Cao and Shi (2021).

On the other hand, the remote orientation faced certain challenges. During the interviews, it was explicit the frequent use of the term *value* by E1, E2 and E3, sustaining that the “doing business in Amazon” culture is unique and should not be neglected. Thus, remote orientation has two sides: it could shorten the time and geographic distances but fails to shorten the distance of human values and beliefs, confidence and trust, to name a few.

For such a rich territory like Amazon, beliefs and culture cannot be neglected. Therefore, we strongly recommend that further studies involving entrepreneurship and start-ups in emerging markets and peculiar regions like Amazon need to include culture-specialized areas of evaluation, going beyond the prescription of traditional business manuals, as Isenberg (2010) proposed.

Finally, the formation of an entrepreneur ecosystem in more distant regions could start with programs similar to this study, which allow an initial experiment to survey local needs, vocations and peculiarities, based on an experimentation approach, low investment and constant evaluation cycles, as prescribed by Ries (2012) and Torres Junior and Gama (2020).

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Further reading

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