



ENTREPRENEURSHIP IN **BIOECONOMY**

LEARNING WITH THE MARKET



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LEARNING WITH THE MARKET

Support Service to Micro and Small Companies in the State of Rio de Janeiro
(Sebrae / RJ)

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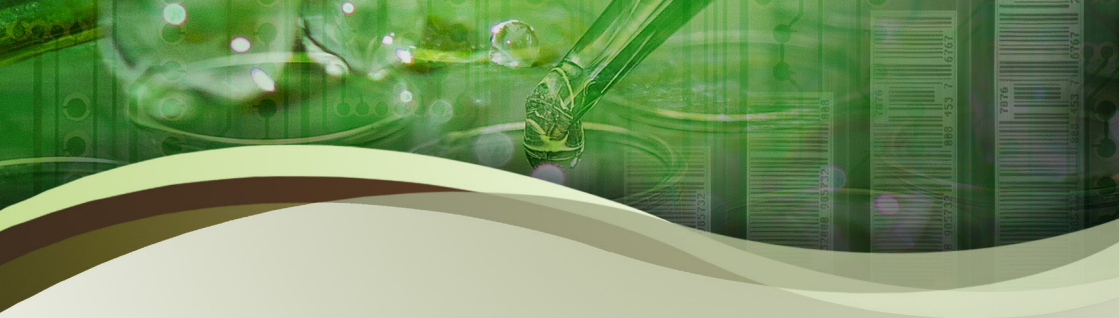
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PREFACE

The State of Rio de Janeiro has a natural talent to Bioeconomy. Our conditions are excellent and promising. We have here at least three technology parks, 19 universities, the same number of incubators and 26 institutes of research and development. It is not only that. We have the greatest number of companies of this field in the country, amounting 993.391 businesses. There is also here one of greatest concentrations of PhD per inhabitant. We have 63 under graduation courses connected to life sciences, which provides constant renewal of market. Furthermore, we can also rely on five centers of financial institutions: National Bank of Economic and Social Development (BNDES), Funding Body of Studies and Projects (Finep), State Agency of Development (AGeRio), Carlos Chagas Foundation to Support Research of State of Rio de Janeiro (Faperj) and Brazilian Association of Private Equity and Venture Capital (ABVCAP).

The bioeconomy has to be faced and well handled as an excellent opportunity of growth of our state. It generates wealth, income distribution, jobs, knowledge, sustainability and, fundamentally, solutions and products to our population. It is rather important

operation fields, such as food safety, reduction of environmental impact, waste management, clean energy, climate changes, among others. In the moment of a historical crisis, it is a new way to leverage our economy.

In January 2016, aware of trends and new opportunities that the market always provide, the Support Service to Micro and Small Companies in the State of Rio de Janeiro (Sebrae / RJ), through its Coordination of Companies of Technological Basis and under Management of Strategic Programs and Development Board, prepared an important work exclusively related Bioeconomy. It was conceived there the project "Bioeconomics: Innovation and Sustainability in Productive Chains". The main objectives are providing access to innovation and new technologies, increase competition and generation of business of assisted companies, improve business management and also encourage the entrepreneurship of technological basis in academic environment.

There are great challenges. In addition to encourage MPE to work with emerging technologies that involve using biological processes and/or new organic matters, we want to support the development of an entrepreneurship network of technological basis through factoring to create biostartups that present innovative solutions.

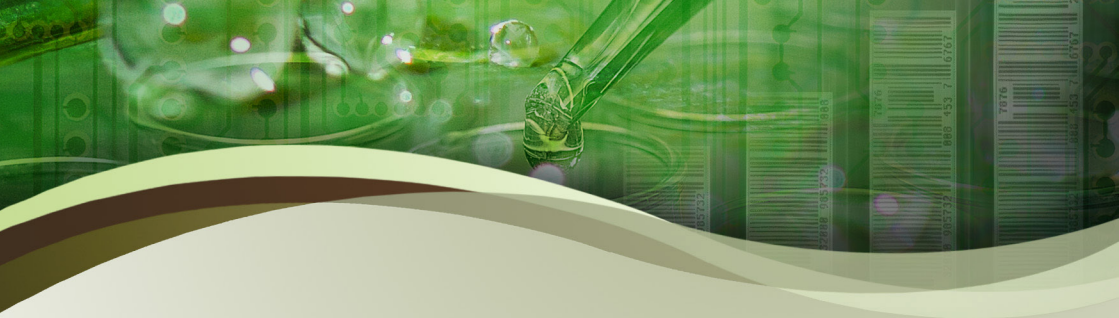
According to Organization for Economic Cooperation and Development (OECD), the Bioeconomy moves in world market around two trillion euros and generates around 22 million jobs. These are huge figures and it encourages us to invest in the sector even more. The MPE of our State need to improve their managements, acquire new technologies, undertake and innovate due to all those opportunities. The Brazilian Support Service to Micro and Small Companies (Sebrae) is aware of its responsibility and role in this situation: To foster the integration of this knowledge network, calling agents to work together towards the development of Bioeconomy of State of Rio de Janeiro.

The eleven successful cases you find in this book are only a summary of the work that has been carried out, indicating that results have shown up and are rather consistent. The Bioeconomy is a natural way to develop our State and we do not have any doubt about it. Good reading!

Evandro Peçanha

Development Director of Sebrae/RJ





PRESENTATION

It is required courage to undertake and nobody doubt it. But is it enough to have a good idea to be successful in business? Certainly not. The successful cases we see in this country teach us that lots of work is required. Belief, persistence and humbleness too. Learning with your mistakes is essential, but there is no doubt that innovation is always an excellent beginning towards this business success that so many people want, but not everyone obtain.

This book has come to you bringing nine successful cases of biostartups carefully selected by the area of Technological Basis of Sebrae/RJ. They are entrepreneurs who truly believe their ideas, work a lot to make them feasible and start to reap the benefits. In common, they led from dream to reality innovative, sustainable ideas and certainly this is the reason why they are achieving success in the business world. As of next pages, you will know a little about history and fight of biostartups Healthfy, Instituto Libertas, Kit Hospitalar, LeishNano, Mancha/Zebu, Marajaca, SuperAção, Nucleário and Viveiro Lua Nova.

The history of couple Giselle Felix and Rafael Palma is inspiring and it opens this group of successful cases. They are producing a game

of health, which will be distributed worldwide by a Dutch company. The United Nations (UN) is also interested in the product and asked Healthfy, the couple's company, to be registered with its system of providers. The starting point of this history, whose success is only beginning was the dissatisfaction of Giselle for not working in her education area, Physiotherapy. She worked in trade, until the day she let her entrepreneur side speak louder. Her husband was with her in this enterprise.

Then, you will know Instituto Libertas. Through an environmental action of impact, grounded on education and with entrepreneur action, the company is making a difference and becoming popular. The biostartup collects waste of kitchen oil and, although this work is still in the beginning, the results already give an idea of its social importance. On average, Libertas collects on a monthly basis, nowadays, six thousand liters of kitchen oil that was already used, an amount that would cause considerable harm if it had been thrown in the waters of sea, river or lagoon: 150 millions of liters would be contaminated in each month of year. The dedication of founder and president of Libertas, the teacher, poet, writer and consultant Sidney Oliveira is encouraging.

Kit Hospitalar also has a plenty of merits, which makes it stand out in this scenery of biostartups. It developed a national solution to identify and clean hidden blood, present in hospitals, clinics and dental offices. There is a huge social importance of this work by microbiologist Anderson Fragoso dos Santos, PhD in Biochemistry and post PhD in Biotechnology. The hidden blood in hospitals is one of main causes of hospital-acquired infection which kill, according to National Biosafety Association (ANBio) more than 100 thousand people a year in Brazil. The Kit Hospitalar brings a spray that identifies hidden blood and also a bio detergent made from agriculture-industrial waste, which clean this hidden blood. Until then, this technology was imported.

Still in this area specifically related to human health, it also stands out the project "Development of a Nanotechnological Implant to Treat Leishmaniosis", included in bid of Foundation to Support Research of

State of Rio de Janeiro (Faperj) to fund and that participated in a course offered by Sebrae/RJ to qualify the projects to this bid. Such project is coordinated by biodoctor, with under graduation degree by University of Sao Paulo (USP) and master's degree, PhD and post PhD in the area of Parasitology and Immunology, Doctor Bartira Rossi Bergmann, who has carried out extensive research about leishmaniosis for over 20 years. It is not difficult to realize the social reach of this work: Parasitic disease, transmitted by a fly, leishmaniosis can infect in a visceral way, in other words, to be transmitted to deep organs, such as spleen, liver and bone marrow. Such disease has been present in 90 tropical countries and Brazil is the only one that has all forms of the disease - cutaneous and visceral. Doctor Bartira and her team developed a medication that can be applied in a simpler way, in a single dose.

The group of young partners of startups Mancha / Zebu also bring interesting lessons, such as business restlessness as fuel to entrepreneurship. Firstly, they created Zebu, which is devoted to development and manufacture of alternative items to traditional media, which do not pollute the environment. They are flyers made of bamboo leave and clean stencil (without using ink) to urban interventions and a number of other handcrafted items, which are rather popular. Even the International Federation of Football (FIFA) Zebu has already assisted at the time of World Cup in Brazil. But those youths are restless, love challenges and realized that organic ink, ecologic and non toxic, produced by them from vegetable extracts could be excellent business . They created Mancha and are providing such ink to the market, especially for children use.

Perhaps you have never heard of jackfruit meat. But it is actually a dish made with the meat of fruit, which is has been particularly popular among vegetarians and vegans. It is a growing and promising market. The biostartup Marajaca realized this opportunity and was a pioneer, providing the product ready to be consumed. It's partners, the History student Catherine Calais Assafrão Fischer and Biotechnology student João Vitor dos Anjos Reis are vegetarians and found out in their own meals a way of earning money with an innovative, sustainable product

and excellent market perspectives.

The website SuperAção by designer Gabriela Besser, assists patients with cancer, providing them information and, mostly, support. She calls them “superadores” (overcomers) and are assisted by “angels” and “archangels”, all of them are volunteers. After lots of effort, the website is a reality and is already active with Brazilian patients who live in the United States, France and Australia, among other countries. There are even two Portuguese citizens who live in their country and use the website. Gabriela formats the project to negotiate it with great hospitals. The starting point of this innovative entrepreneurship story? “I was disgusted with the world and decided to meditate. It was a call of the soul. I had different ideas, which overlapped and become a website”, she tells.

It closes this list of successful cases the entrepreneurship stories of two finalists of “Environmental Challenge: Innovations and entrepreneurship in forest restoration” by WWF-Brazil, fostered by World Wide Fund for Nature (WWF) –with support of Sebrae, Ministry of Environment and Chico Mendes Institute to Conserve Biodiversity (ICMBio), National Park of Tijuca and Pact to Restore Atlantic Forest and carried out by Impact Hub. They are Viveiro Lua Nova and Nucleário (Fractal Núcleos de Inovações).

The Nucleário (Fractal Núcleos de Inovações) has two partners who were born and raised in Lumiar, a small district of Nova Friburgo, whose population is five thousand inhabitants, at most. There is untouched Atlantic Forest there, exuberant, rich and inspiring the brothers Bruno and Pedro Pagnoncelli, who developed Nucleário, a planting system to large degraded areas, with minimum maintenance and maximum efficiency. The product has already received different international awards and will be determinant in reforestation work in Brazil.

The Viveiro Lua Nova, of Miguel Pereira, is a very rich example of how sustainability can improve business. Everything started when economist Alexandre Magno Firmo Alves used his retirement and available time

to undertake in his summer rural property, in the city located at state of Rio de Janeiro. Alexandre observed that there were many reforestation areas around the region, called both property caretakers of his condominium to help him, rented land nearby, planted 20 thousand trees of eucalyptus, waited for five months until they grew and sold all of them in only five days. What would be only a post-retirement occupation became business full of entrepreneurship, circular economy, sustainability, innovation and impact in the own economy of the city.

Those nine reports shown here and followed by two other fundamental successful cases so that more and more successful cases happen. It is the entrepreneurship work that University of State of Rio de Janeiro (UERJ) and Duque de Caxias campus of Federal University of Rio de Janeiro (UFRJ) are carrying out in a new and assertive way. Both universities are connecting academic area and the market, encouraging entrepreneurship, innovation and sustainability in Bioeconomy.

While the production of this e-book was made final, it was held in Sao Paulo, in May 24th 2018, during Hospitalar fair, the Sebrae Challenge Like a Doctor, held by National Sebrae, with participation of 20 Brazilian startups specialists in solutions to Health area. The competition took place during two days and the assessing group had investors, doctors and executives who chose the first, second and third places. To our pride and joy, the three winner biostartups are supported by Sebrae/RJ, through Management of Great Enterprises and Coordination of Technological Basis, and not coincidentally are here, with their respective successful cases: Portal SuperAção, Kit Hospitalar and Healthfy.

Great reading. May such reports bring inspiration and teachings and become an example that undertake and innovate is more than an option: It is a commitment with yourself.

BIOSTARTUPS



HEALTHFY

The wish of every entrepreneur is opening his/her own business and be successful in the market, getting space for his/her product or service. Most of them are satisfied with this objective, but there are people who have higher ambitions. They are entrepreneurs who do not think about barriers, borders and look at the horizon with the fixed idea of taking over the world. It is the case of couple Giselle Felix and Rafael Palma, entrepreneurs of health area, who created Healthfy Análise de Dados de Saúde Ltda. They produced a game, that encourages healthy habits and are working every day to see their product in cellphones of Brazilians, Americans, French, Israelis, Australians, Japanese, in other words, citizens of the world.

This successful history started around 2007. Giselle worked with trade, although she was physiotherapist and dreamed about working in her professional area. She decided to attend the qualification course of Esthetics at National Service of Commercial Learning (Senac), started to get some jobs in the area of home care and in two months she already earned more money with her freelancer activity than she got with her trade job. Her entrepreneur talent predominated, she left her old job and, together with her husband, who back then was a Telecommunication engineer and worked in the area, wrote a business plan that she called meuspa.com.br.

“We prepared a business plan with the idea of providing home spa and physiotherapy to natural persons and legal entities. We wanted to do something consistent, so we approached Sebrae, which is a reference for micro and small companies (MPE). I looked for them, asked for help and we ended up inside Empretec. Our business plan was good and Sebrae helped a lot. We have basically discussed something crucial: How to carry out the plan? It was not enough to be good, it was required to be possible”, claims Giselle.

At that moment, Rafael became influenced by the “entrepreneurship bug”. He was delighted with what he learned and decided to devote himself to this new enterprise with his wife.



“It was seven days of immersion. We arrived in the morning and there was no time to leave. In this immersion of Empretec, we validate our skills, realize our limitations, develop skills and correct deficiencies. It was sensational. It was better than my academic education. I got a plenty of theoretical basis about my work area at the college, but there was nothing about entrepreneurship education. I found out competencies that I could not imagine I had, such as persuasion and leadership capacity”, states Rafael.

The engineer left his job, invested all money of labor agreement termination to purchase equipment, uniforms and infrastructure, attended Massage course and devoted himself to meuspa.com.br, together with his wife and partner. In a short time they got a kiosk in a commercial building at Avenida Chile, rented a room downtown Rio de Janeiro, where they made a small clinic and started to work with companies, in addition to enter into agreements with hotels to assist their hosts. They had 35 employees registered with employment booklets, until 2011, when two new things changed everything: Giselle was pregnant with her first child and Rafael started to work in his area after having received a great invitation. In 2015, the crisis arrived in the country and it also impacted Meuspa, which at the time no longer had “com.br”.

“Our structure was heavy. The costs were high and the demand was not the same. We kept the work with companies, I got pregnant with my second child, wanted to take care of them and started to manage the office from home. Rafael lost his job due to economic crisis. He had an education as Coach, returned to Meuspa. After that, we decided it was time to innovate”, remembers Giselle.

Those were difficult times. The companies dismissed employees and no longer wanted to spend money with health, which virtually bankrupted

the business of Rafael and Giselle in 2016. It was actually needed to think about something new, that could make a difference. Before Healthfy, itself, the couple created a project called Vila Carpe Diem, a long-permanence space to elderly people, which has the architect Therezinha Dias as partner. Although they even got two premiums -Premium CSul of Urban Quality, of Brazilian Union to Quality (UBQ), and finalist of an international competition of startups, the Aging 2.0, Chapter Rio de Janeiro - it was with Healthfy that the dream of taking over the world started to be a reality and the entrepreneurs focused all efforts to create a game about health.



“In May 2017 we participated of Hackathon Hacking Health, and Sebrae / RJ was one of its developers. We were among the three finalists. Our game is a digital solution to corporate health, which uses gaming health behaviors in practice to engage cooperators in a healthy lifestyle, thus, assisting companies to reduce absenteeism and increase productivity. In this Hackathon, we were in third place and got the course Biostartup of Sebrae / RJ. We both participated and refined the objective of project there. Sebrae helped us to deepen our proposal, showed us how to accomplish objectives. It also made excellent contributions in technological matter. The startup model is innovative by itself. It helped us to update our entire business” Giselle.

After finishing the Biostartup course, the couple was invited to participate in a qualification, using a pilot methodology, which helped to define even more the pitch of Healthfy.

“The course brought us objectivity. It improved our project, shaped the proposal and trained us to submit it to investors. Then, we participated in a pre-acceleration program of Founder Institute, of Silicon Valley, but with attendance in Rio de Janeiro”, says Rafael.

The couple was invited through LinkedIn and then participated in

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Hackathon Hack 4Health, of Everis, in October 2017 in São Paulo, during the event Healthcare Innovation Show. National Sebrae was present, loved the proposal of Healthfy and Sebrae/RJ invited Rafael and Giselle to present their proposal at the space of institution, during the event. “We were in the first place at Hackathon and got an incubation of DigitalLab of Everis, in São Paulo. In the beginning of 2018, the game has effectively started to be produced. We also participated in mentoring in marketing, held by Sebrae”, states Rafael.

The dream of taking over the world was becoming real. In the beginning of December 2017, for instance, they established a partnership with Spectator, a Dutch company of videotechnology, to distribute the solution in global scale. As of this distribution, the game can be internationally sold. It is not only that. In a round of business held by Sebrae, during National Foment, an event held in Brasília, in November 28th and 29th, Giselle and Rafael talked to analysts of United Nations, who asked them to fill in the registration of provider of entity. It can seem only an initial action, as no other negotiation was conducted, but the representatives of United Nations were delighted with the solution and textually said that it fits “like a glove” to their demands in global public health. In other words, the doors of the entity, opened up to Giselle and Rafael. In National Foment, they could also contact renowned hospitals of the entire country, potential great clients of their product.



“We really think about a global spread of tool, reaching billions of people. Actually, those were words that I have heard from United Nations itself. They encouraged us to be ambitious. And the support we received from Sebrae / RJ is crucial. It has helped us in this enterprise, transforming me from an amateur entrepreneur

to a qualified entrepreneur to face any challenge on a global scale”, defines Rafael.

Giselle agrees with him. And highlights the partnership with Sebrae/RJ: “With Sebrae / RJ supporting us, we could and will be able to be better and better. It is as if it was our arms, our support. We feel welcome by the entire team. They are qualified people, willing to help us in this event, that is still in the beginning. Actually, Sebrae has been crucial, a real partner. We have worked a lot, but we would not have reached this level without this support”, says Giselle, emphasizing that Healthfy is making the registration of trademark and its website with the consultancy of Sebraetec¹.

1 Consultancy Services in Innovation and Technology.

BIOTRACK

Those entrepreneurs participated in the following actions promoted by Sebrae²:

QUALIFICATION

Course Biostartup

Empretec

CHALLENGE

Hackathon Hacking Health

MARKET

Consultancies

National Foment

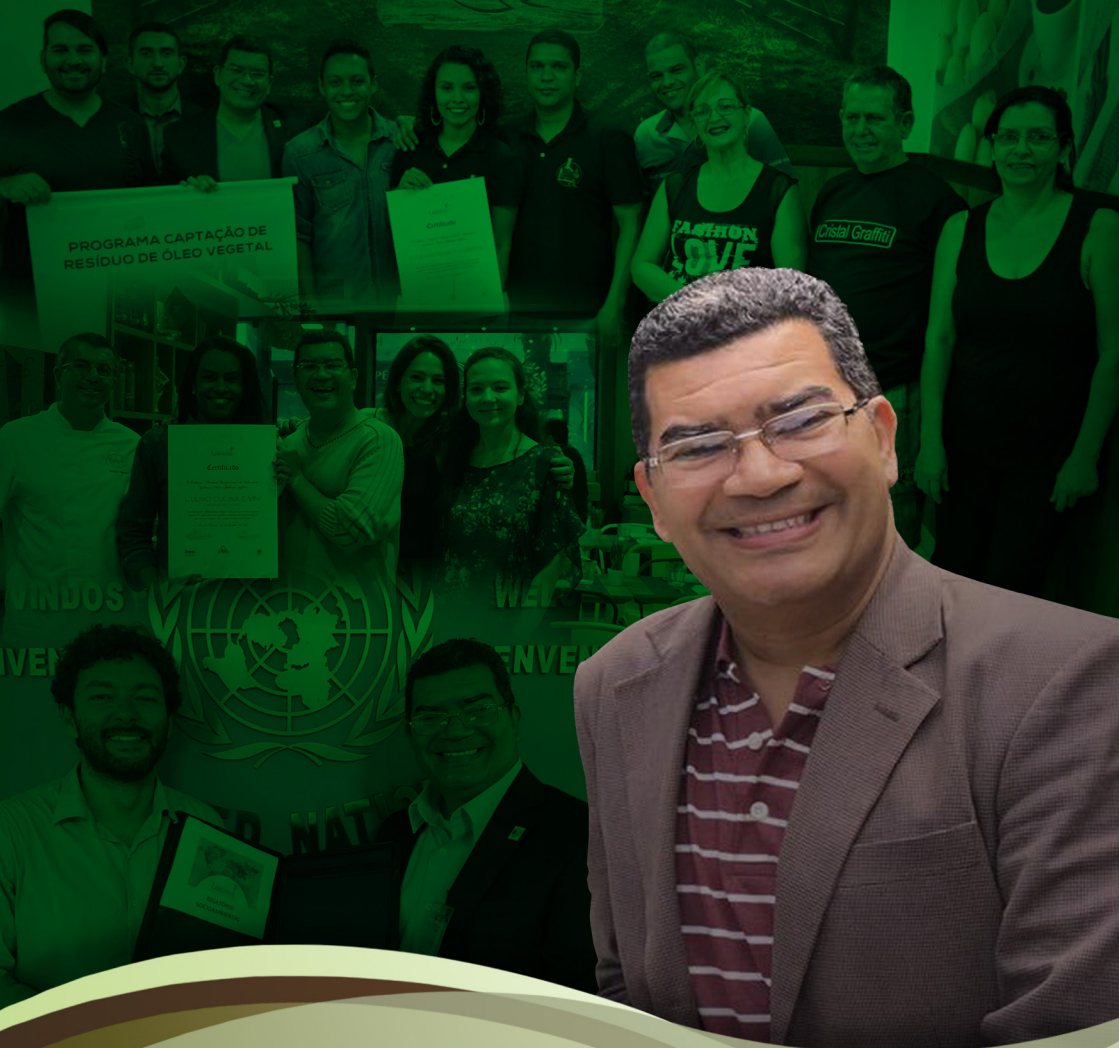
Healthcare Innovation Show

Challenge Sebrae Like a Doctor

A QUESTION TO BE DISCUSSED IN CLASSROOM:

Which are the entrepreneur characteristics developed by Healthfy? Mention, at least, three and describe why they were crucial to the success of company.

² Actions promoted by Sebrae or made feasible in an indirect way by the entity as co-performer, supporter, sponsor or participant.



INSTITUTO LIBERTAS

The sustainability actions usually need to be followed by educative steps so they can actually happen. When both of them are side by side, the chances of success of initiative increase considerably. But, to consolidate the idea, put it into practice, make it feasible, it is required something else: Entrepreneurship. Those are the three columns of business of Libertas - International Institute of Education, Culture and Environment. By means of an environmental action of impact, grounded on education and with entrepreneur action, Libertas is making a difference and becoming popular. Its business? Collecting waste of kitchen oil, which no longer pollutes seas, lakes and rivers, is recycled and reused.

The figures seem modest, but they are not. On average, Libertas collects on a monthly basis, 06 thousand liters of kitchen oil already used. This amount would cause considerable harm if it were thrown in water of sea, river or lake: 150 millions of liters would be contaminated in each month of year. The figures are supported by the own Brazilian Association of Vegetable Oil Industries (ABIOVE), upon assuring that one liter of waste of kitchen oil contaminate at least 25 thousand liters of water. Libertas already has four employees, over 120 partners, among restaurants, snack bars, schools, bars and hotels, has established different new partnerships, is about to open other fronts in other parts of city and even abroad and works every day to exponentially increase its figures. There is market. Willingness too.

“We have opened new fronts, with new partners, which makes us very happy. We believe we are on the right track. We have the support of Sebrae / RJ, which opens doors and gives us lots of assistance. Our work is serious, broad, educative, relevant and socially responsible. We have a future and are working hard for it. We want a sustainable business and that makes a difference”, claims the founder and president of Libertas, the teacher, poet, writer and consultant Sidney Oliveira.

Actually, this successful history started some years before the foundation of Libertas itself. With an under graduation in Languages

at UFRJ (Portuguese and Latin), graduation in Education and master's degree in Assessment at Cesgranrio Foundation, the citizen of Duque de Caxias, Sidney Oliveira, 46 years old, was a teacher at Elementary School, High School and University for 12 years until he found out that his mission in traditional teaching was accomplished. In 2008, already no longer a teacher, he started to provide his consultancy services in Education and his first client via outsourced companies was Vale. He taught in different cities of the country and even in Paraguay, arranged programs, worked with consultancies and in 2010 he was called to help formatting the so-called "Environmental Attitude of Vale". He was devoted to this task for a full year and found out there a turning point in his life:

"This environmental program changed my life. It was an awarded program (International Premium Amcham – Valor Econômico Newspaper) that I helped to create since the beginning. I participated in its conception and design. I have never been involved with environmental education. I studied the theme carefully, devoted myself to National Policy of Environmental Education, studied the entire history of environmental movement since 1970 until nowadays and I fell in love with it. More than that, I discovered myself. I realized that this is what I wanted to my life: To work with both environment and education" states Sidney, who is a PhD student in Education Sciences at University of Rosario, Argentina.

Sidney decided to undertake, as he wanted independence and freedom to work with his own projects. His last day of work at Vale was December 22, 2010. Exactly one week later, we wrote in the morning a farewell letter and he received in the afternoon a phone call of his accountant, informing that Libertas was legally organized. The beginning was nearly nerve-racking: Absolutely no client, although Sidney produced and sent many projects. To survive, he needed to provide more consultancies in Education, although it was not his intention.

“I did not want to invest in me as a product. I wanted to invest in Libertas. We had a worldwide vision. Therefore, it is part of our DNA to be international. I made financial investments with my reserves, to deal with accounting matters, purchase computers, data show, etc. We wanted to make programs focused on corporations. The beginning was very difficult”, he says.



It was only in 2012 that Libertas started to effectively produce and get money. The company became a partner of Secretary of Culture of Duque de Caxias. There were many remarkable projects such as, for instance, the presentation of orchestra of Yale University (USA) and a concert by pianist Artur Moreira Lima at Duque de Caxias, everything with production of Libertas. The work brought visibility, some money, but it was over in 2014, after the mayor changed. Once again, Sidney had no clients or perspectives. His intuition told him it was necessary to work with sustainability. But, how?

“In the beginning of Libertas, we contacted the company Missões Rio Óleo, from Duque de Caxias, which handles oil waste and resell the recycled product. They wanted us to collect used kitchen oil, but we were not interested in this idea at that moment. I decided to approach them again and we established this partnership. Libertas would collect and sell to them the used kitchen oil. It was a way to start earning some money”, states Sidney.

As of 2015, Libertas started to collect the waste in a limited way. The first sale, remembers president Sidney, earned only R\$ 30,00. It was not even enough to pay for the fuel used in the collection. However, Sidney understood there was an excellent opportunity to work with the environment, education and entrepreneurship. He looked for

partnerships and started to prepare educative lectures about the subject. More than that, restaurants, bars, hotels, snack bars and other commercial facilities received a certificate by State Institute of Environment (Inea) that the waste was being collected in a proper way. Sidney also created a certificate issued by the Institute itself. The business started to grow.

In March 2018 the income of company with collection of waste of kitchen oil amounted R\$ 9 thousand a month, on average. Sure, it is not much, but it already assures jobs to four people and the continuation of project. And Sidney has a plenty of reasons to fully believe in this business. For instance, FTD publishing house established a partnership with Libertas to take the work to the countryside of state. Sidney has already scheduled meetings with City Halls of Arraial do Cabo and Cabo Frio to discuss the implementation of collection in such cities. A Portuguese businessman, married to a friend of Sidney, was also interested and made available a store in Lisbon to start the business there. Sidney has scheduled a trip to talk to him and internationalize Libertas.

“We have obtained lots of visibility with some actions. One of them was collecting oil used at Rock in Rio. We made the same in Rio`s season of Cirque du Soleil and Réveillon of Copacabana in 2017. Our work was rather disclosed on such occasions”, he says.

One of milestones of history of Libertas, according to its founder and president, is the support by Sebrae / RJ. After collecting over seven thousand liters of oil at Rock in Rio (over 177 million liters of uncontaminated water), Sidney was invited to attend the course Biostartup offered by the entity. The result could not have been better, believes the businessman:

“The course was sensational. I could broaden my horizons of work, how to develop it better, how to expand it in a sustainable way. I was deeply involved with administrative matters, communication, client



service, marketing and started to have a new view about my company. Actually, I had a very romantic, naive and innocent view of my business. I studied the market, threats to business, my strong points, thus, Sebrae/RJ opened up my eyes. Then, I attended another course, where I could deepen all this knowledge. I remember until now a consultant saying to me: “Sidney, Libertas is not a NGO. It is a company. Understand it”. Sebrae/ RJ provided me with a technical view of business that I would never have”, he claims.

Actually, it provided even more. Through the entity, Sidney participated in Hackathon NanoBio by UFRJ of Xerém as a member of assessment group. He says it was a great experience and there was lots of learning. He also participated in the event ColaborAmérica, an international event held in 2017, at Pier Mauá in Rio de Janeiro, where it was discussed new economic approaches to the planet -Libertas submitted his project to participants of event. And more: Through Sebrae / RJ, Sidney could access a number of gastronomy places, enabling new partnerships and promising contacts. He even participated in a gastronomic fair at Duque de Caxias, held by Sebrae / RJ, with his own stand and many contacts.

“O Sebrae/RJ has been crucial to my business. Firstly, because it instructs me and makes me feel secure with its instructions. It guides me, provokes me, questions me, and constantly makes me think. Moreover, it is a real “bridge”, so I can obtain new clients and partners. My contact with gastronomic centers in Rio comes from Sebrae / RJ. And arrive in a place indicated by the entity demonstrates that we are not adventurers. It is a guarantee”, he assures.

What about the future? The future is here and now. Libertas has already built a prototype of its own application, to disclose its business, inform about collection of waste, provide educative tips and promote the “collectometer”, in other words, how much waste was already collected

and how much water was not contaminated due to this collection. The possibility of creating the Portuguese branch of Libertas, headquartered in Lisbon, is a fact. The partnership with other cities of State of Rio de Janeiro are about to take place. The horizon is endless.



“I want Libertas to become a reference in collecting waste of kitchen oil of Rio de Janeiro. To say the last. I want to do it in a serious way, without uncommitted exchanges, but with an educative proposal to the environment. Thus, I want to help to eliminate pollution from the waters of Rio de Janeiro. The water matter is very serious worldwide. Most rivers of our State are polluted. But I also want to work at the national level. I want to set up branches in other states, but only after the work in Rio becomes more concrete. We can also provide consultancy, to recreate this work in other places”, claims Sidney, stating that Libertas will also create the “Movement Rio of Clean Waters - I am In”, a broad educative action about sustainability and preservation of waters that he says will have a great impact. There will be more good things soon.

BIOTRACK

Those entrepreneurs participated in the following actions promoted by Sebrae³:

QUALIFICATION

Course Biostartup

CHALLENGE

Hackathon Hacking Health

MARKET

Consultancies

ColaborAmérica

Gastronomic Fair

Green Rio

A QUESTION TO BE DISCUSSED IN CLASSROOM:

The work of Libertas to collect waste of kitchen oil is a reality. Which other steps it needs to take to establish more profitable partnerships?

Which attitudes Libertas must have?

How can it be possible to prepare a strategy to collect waste to Libertas, involving natural persons?

³ Actions promoted by Sebrae or made feasible in an indirect way by the entity as co-performer, supporter, sponsor or participant.



KIT HOSPITALAR

The figures about hospital-acquired infection in Brazil are scary. The ministry of Health does not provide official data, but studies by National Association of Biosafety (ANBio) assure that 100 thousand people die every year due to infections. More than that, according to the entity, 80% of hospitals, on average, do not make the proper control. The rate of hospital-acquired infection ranges from 14% to 19%, and it can reach, depending on the unit, 88.3% and the World Health Organization (WHO), on the other hand, estimates that hospital-acquired infections occur in 14% of hospitalized patients in the country. To give an idea of the seriousness of problem, it must be mentioned that 33.547 people, among drivers, pedestrians, motorcycle riders and cyclists passed away in traffic accidents, throughout the country, during 2016. And 56.325 Brazilian citizens were victims of homicide in 2012 (most recent data). In other words, respectively, one third and 45% less than the number of deaths due to hospital-acquired infection.

The good news is that there are people working hard to change this situation. With entrepreneurship, innovation and fighting against all obstacles that the Brazilian university historically produces, such as, for instance, lack of resources. It is the case of microbiologist Anderson Fragoso dos Santos, PhD in Biochemistry and post PhD in Biotechnology, who leads a work that can help a lot to change this perverse situation of deaths by hospital-acquired infection in Brazil. Doctor Anderson and his team are developing a bio detergent made from agricultural-industrial waste that cleans hidden blood in hospitals.

“The hospital-acquired infections are acquired from some pathogenic microorganism, such as bacteria that cause diseases. They come from different sources, such as expired air conditioning filters, inadequate cleaning of hospital environment, hands that were not properly washed and contamination by hidden blood. Blood is the most common thing in hospitals, of course, and the environment is clean, but there is always hidden blood, in other words, the one that is not visible to our eyes. That hidden blood is still there and it is a cultivation mean of pathogenic microorganisms. It is required to identify and eliminate it”, explains Doctor Anderson.

The hidden blood matter is a worldwide problem. But there are traditional products in the market that carry out this task. Firstly, it is used a spray, whose single function is identifying the presence of hidden blood at the place. The police also uses it in its investigations. Such spray was imported up to the moment when professor Claudio Lopes, of UFRJ developed in the beginning of 2000s a new technology, Luminol, five to ten times cheaper and, even better, the most sensitive from the market, in other words, with more capacity to identify hidden blood. But it is not enough to identify the hidden blood, it is required to eliminate it. Therefore, it is used an enzymatic bio detergent, which is expensive and whose enzymes to produce it are imported. At this point, Doctor Anderson and his team enter the history:

“We developed at the laboratory of Federal University of Rio de Janeiro (UFRJ), an enzymatic bio detergent that is quite cheap and much more efficient, produced from agricultural-industrial waste. We use organic waste to produce the product. And Brazil is one of the greatest agricultural-industrial producers in the world, in other words, our raw material is abundant and extremely cheap. Thus, we have developed a prototype of bio detergent”, announces the microbiologist.

In addition to researcher, Doctor Anderson is a born entrepreneur. From his work, he decided he needed to leave the academy and produce the bio detergent in large scale, thus, being able to interfere with gigantic figures of deaths due to hospital-acquired infection. One of his first steps was taking up a MBA in Entrepreneurship and



Management of New Businesses, at Getulio Vargas Foundation (FGV) to assist the creation of what is currently called Kit Hospitalar, which brings Luminol and bio detergent and seek partners for this entrepreneurship.



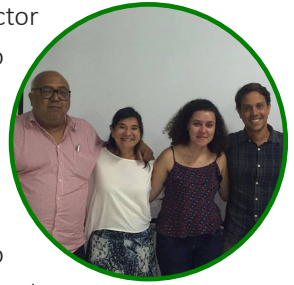
“My PhD thesis in 2014 was exactly about the production of enzymes from agricultural-industrial waste. Professor Claudio approached us, proposing the creation of an enzyme to bio detergent and we made it at Laboratory of Microbial Biotechnology (LaBIM), with the professor Denise Freire. Luminol has been even assigned to the police of State of Rio de Janeiro. About the bio detergent, we have a ready prototype and we are at the stage of arranging the degrees of process. We want a partner to use the enzymes in the production of product. We intend to sell the enzymes to such partner, so that he produces the bio detergent and sell to the market. We provide the formulation and they pack, label and sell. But we would keep the industrial secret. This is what Coca-Cola does”, he clarifies.

The MBA of Getúlio Vargas Foundation was made after the PhD and gave to Doctor Anderson the certainty that it was required to create a startup to develop Kit Hospitalar, so that it could become an escalating business. He participated in an acceleration program by InovAtiva Brasil⁴ and then in a second acceleration program, this time specifically in the Health area, of Biominas Foundation. That is when Sebrae / RJ showed up to stay, according to microbiologist.

“I was invited to participate in the course Biostartup at Sebrae / RJ. Even with all knowledge I had acquired, this course helped a lot to shape the business I intend to have. I already had a business model, but Sebrae/RJ helped to deepen it. I implemented exchanges, inclusions, such as, for instance, to increase my contact network with ecosystem of health in the State”, he says.

⁴ Program of acceleration in large scale to innovative business of any sector and place of Brazil provided by Ministry of Industry, Foreign Trade and Services (MDIC) and Brazilian Service of Support to Micro and Small Companies (Sebrae), with operation by Foundation Reference Centers in Innovative Technologies (CERTI).

The partnership between Sebrae / RJ and Doctor Anderson and his team was not only limited to the course. The entity took him to National Foment in Brasília, and provided all support. There, Doctor Anderson could participate in the workshop about sales to public agencies and a business round, which enabled him to submit his project to the United Nations and Clinics Hospital of São Paulo, the greatest public hospital of Latin America, a worldwide reference and a prospective great client. He also talked to the Air Force and Brazilian Army, all of them rather interested in Kit Hospitalar.



“The United Nations asked me to be registered with them, so we could talk later. I am totally interested in Clinics Hospital. I am rather grateful to Sebrae / RJ, which believes our project and assists us, providing expertise, which only this entity has. Our major purpose is saving lives, from innovation and a totally national technology and of low cost. We want to find a partner company, which can pack, label and sell Kit Hospitalar worldwide. And Sebrae / RJ will help us to get there. Our operation market is very big, even if we only consider Brazil. In our country, there are over 300 thousand healthcare services, both public and private, in addition to many dental offices and plastic surgery clinics. We have an innovative and feasible product. Now it is time to work”, he states.

The Kit Hospitalar is a feasible reality and lots of work and dedication support this successful history. Everyone who is involved in this project, truly believe it. Doctor Anderson is excited and knows there is still a lot to be done. He believes his dream is about to be a reality: To enable the production of Kit nationally and in a large scale, positively interfering with the reduction of number of deaths due to hospital-acquired infection in Brazil.

BIOTRACK

Those entrepreneurs participated in the following actions promoted by Sebrae⁵:

QUALIFICATION

Course Biostartup

InovAtiva Brasil

Biostartup Lab

MARKET

Consultancies

National Foment

Challenge Sebrae Like a Doctor

A QUESTION TO BE DISCUSSED IN CLASSROOM:

The Kit Hospitalar is a reality.

Which steps the startup needs to take to establish a solid and competitive partnership?

Which attitudes the entrepreneur must have?

Prepare a strategy of insertion in the market/commercialization to the product Kit Hospitalar.

⁵ Actions promoted by Sebrae or made feasible in an indirect way by the entity as co-performer, supporter, sponsor or participant.



LEISHNANO

The leishmaniosis is a parasitic disease, transmitted by a fly, which reproduces in forests, known as sand fly, which causes ulcer of skin at the pricked place and, depending on the parasite, it can infect in a visceral way, in other words, to be transmitted to deep organs, such as spleen, liver and bone marrow. The cutaneous leishmaniosis does not kill, but it can cause a number of deformities on the skin, and the visceral way is fatal and 90% of untreated children die, according to official statistics. The leishmaniosis is found in 90 tropical countries, including Brazil (which is actually the only country that has all forms of the disease- cutaneous and visceral) and is considered by World Health Organization (WHO) a neglected disease. In other words, it is a disease that mostly affects the poorest citizens, who live far from the biggest cities and are left behind by pharmaceutical industry, which does not see there good financial opportunities. The WHO estimates that there are 12 million infected people worldwide.

There is a cure to the disease, but treatment is very difficult. They are injections that must be administered on a daily basis for 30 consecutive days, but cause many side effects, attacking especially liver, kidneys and even the heart. Such treatment is justified in case of visceral leishmaniosis, which are fatal, but it is not always worth it in case of cutaneous leishmaniosis. There is another problem that directly impacts the treatment worldwide: Usually, patients live very far from the biggest cities and there is simply no condition to stay for an entire month in a city with limited medical structure in order to receive the injections. Think about an indigenous person of Kaxinawá ethnicity, who lives in Jordão, a city 640 km distant from Rio Branco, at Acre. How can he receive treatment? It is a medical and social problem. How can it be solved?

A biodoctor, with under graduation degree by University of Sao Paulo (USP), master`s degree, PhD and post PhD in the area of Parasitology and Immunology, Doctor Bartira Rossi Bergmann, who has carried out extensive research about leishmaniosis for over 20 years. She knows very well how this question must be answered. She leads the project “Development of a Nanotechnological Implant to Treat Leishmaniosis”, registered in a Bid by Faperj to funding and participated in the course Biostartup run by Sebrae/RJ to qualify the projects to the Bid.

“The person often needs to travel eight, ten hours in a canoe to go to the closest city and receive treatment, but he could not stay there for an entire month. It is required to afford accommodations, food and it is expensive. The cutaneous leishmaniosis is limited to skin and it often does not provide more than three ulcers. The conventional treatment has significant side effects. Thus, many people do not receive treatment and simply live with the ulcer on skin. This is not good. It was required to think about medication and how it could be applied in a simpler way, in a single dose, and that it handled the treatment”, explains Doctor Bartira.

It was what she did. The scientist started to devote herself to the project of a new treatment to leishmaniosis. In the first moment, she isolated a molecule of a plant of family of pepper, called Chalcona, which was subsequently synthesized in laboratory. The tests indicated that it is up to 60 times more potent than traditional medicines that are currently used. And it is not only that: The created medicine can be injected under the skin as an implant made of biodegradable microspheres, being slowly released.

“Firstly, we tested the medicine through skin injections at the place of injuries, but, despite solving the problem of side effects, the necessity of frequent injections remained. It was when I thought about the implant. What if I could implant the medicine to be slowly absorbed by the patient? Thus, it would solve the problem of 20 or 30 injections in circulation, one a day. Then, it was required to have an implant under the patient’s skin and this is what we did. Since 2007, we have developed an implant of microspheres of controlled release of medicine made of Chalcona, to treat leishmaniosis with a single dosis”, she reports.

The project “Development of a Nanotechnological Implant to Treat Leishmaniosis”, is rather advanced. It was conducted all tests in cells and mice and nowadays the challenge is creating the medicine itself, in other words, the way it will be administered in humans, via implant. At this moment, Doctor Bartira and her team are getting ready to create the

so-called pilot batch of medicine, so they can start the tests in humans and have already received information from National Agency of Sanitary Surveillance (Anvisa) about the required requisites.

In 2016, she and the partners, the pharmacist Ariane de Jesus Sousa Batista and engineer José Rodrigo Bergmann, opened the startup LeishNano, after having participated in a course about the development of startups at Biominas, held in partnership with Sebrae/MG, for three months. It was an experience that opened up the mind of both scientists, reinforced with the course held by Sebrae / RJ directed to Bid by Faperj.

“I did not even want to attend, as it would not really be easy to travel to Belo Horizonte every week for three months. But I decided to attend the presentation of course and fell in love with it. It was crucial for us to create LeishNano, which will provide us support to go to the market. It is required to leave the benches of university`s laboratory and Sebrae taught it to us. The course by Sebrae / RJ was not new to me, but it brought lots of contributions to our startup. The main one is that Sebrae / RJ has played a very important, crucial role at the Biotechnology area. Rio de Janeiro has four university centers of excellence in Healthcare area and three public laboratories. This shows all potential of State. We have a great demand in Biotechnology area, but the researches do not know how to leave the university and enter the market. Sebrae / RJ will be crucial in this work, it has a very important mission and the institution knows what to do to help us”, believes Doctor Bartira.

The partner of Doctor Bartira, Doctor Ariane, believes that Sebrae/RJ will be a “bridge” between researches and market.

“Many researchers that participated in the course provided by Sebrae /RJ have never had contact with most of used terms, not even the concepts. How to organize the business? How to prepare a business plan? Is it worth it to launch the product in the market? How to do it?

We are researchers, scientists, we are not entrepreneurs. Sebrae/RJ will help to remove those researches from laboratory benches because such researches can generate improvements to the population and this is sensational. The provided course was very important to everyone, without doubt, and I think that Sebrae/RJ must broaden this work, creating a “bridge” between ourselves and the market”, claims she.

The doctors Bartira and Ariane think that LeishNano has an even greater potential than developing a new treatment to leishmaniosis. The idea is using the disease as a model, but pave the way to use the implant to other diseases. An example would be the treatment of schizophrenia, as the patient often refuses to take the daily medicines, which would be reduced to only one implant. The same would be applicable to cancer, which could improve a lot the heavy current treatment.

“We want to lead the national market in the area of creation of implants of controlled release of medicines to different diseases. Those implants already exist in the United States, but they are very expensive to us. It is required to create a national production. Our dream is providing relief to leishmaniosis patients, absorb students of university, increasing the work field in scientific research. We also want to open a new creation front of implants to different diseases, facilitating the treatment and, thus, improving the achieved results. We rely on Sebrae/RJ in such enterprise”, states Doctor Bartira.

BIOTRACK

Those entrepreneurs participated in the following actions promoted by Sebrae⁶:

QUALIFICATION

Course Biostartup

A QUESTION TO BE DISCUSSED IN CLASSROOM:

How LeishNano can obtain investors to broaden its research and launch its product in the market?

⁶ Actions promoted by Sebrae or made feasible in an indirect way by the entity as co-performer, supporter, sponsor or participant.



MANCHA/ZEBU

Exactly seven years ago, three students of under graduation course in Design of Pontifical Catholic University of Rio de Janeiro (PUC-Rio) have gathered together to develop a project of sixth semester called “Social-environmental Use and Impacts”. Being interested in environmental and sustainability matter, they developed sustainable medias – alternative items to the media that did not pollute the environment. They created flyers made of bamboo leaves, clean stencil (without using ink) to urban interventions and a number of other handcrafted items that used ecological extracts, among them organic ink developed from vegetable pigments, ready to be applied over paper, cloth and wool.

Thus, those students were undertaking and creating an innovative, sustainable and different product. It was obvious that they finished with honors the under graduation course of PUC-Rio, decided to face the market together, but they soon realized that they would not progress very much in the publicity world. They preferred to evolve to provision of design services, from a different work focused on sustainability. They decided to work with alternative and ecological items and also partnerships. They created Zebu, a design company and were cofounders in 2013, of Goma, a network entrepreneurship association that occupies three warehouses downtown Rio de Janeiro, with over 90 people and 40 companies from different sectors, working together.

The businesses went well. At the time of World Cup, for instance, with partners of MateriaBrasil and Terravixta, they were called by International Federation of Football (FIFA) to produce 45 thousand souvenirs-one folder with stadiums of tournament in pop-up, in other words, with 3D folders. They also designed and produced, in partnership with Estúdio Guanabara and MateriaBrasil, furniture to the NGO Onda Verde, located at Tinguá, Nova Iguaçu (RJ). They were even certified in 2004, by Sistema B (companies that generate social and environmental benefits to the world), enlarged the company to six partners, created CNPJ (Corporate Taxpayers` Register and matured more and more their social-environmental and innovative work.

“We found our way. We were the second company certified by Sistema B at Rio de Janeiro. We are proud of it. We also entered the Network CE100, of Ellen McArthur Foundation, from England, which arrived in Brazil in 2015, interested to spread the idea of circular economy, in detriment of linear economy. The idea is reusing the products increasing their life cycle, reusing them and throwing them away only in the last stage. We participated in workshops of business network and partnerships with them”, says the designer Helena de Oliveira Assis Pereira, one of partners of Zebu.



The history of Zebu could stop here. The company found its space in the market, income was growing, as well as compliments to the work carried out. But, in addition to, let`s say, different designers, the partners realized they were entrepreneurs. They wanted more. And they realized that the organic ink they produced, from vegetable extracts, could become a product of large commercial scale. A success of sales. More than that, a success of sales that could benefit its users and spread the idea of reusing, sustainability, respect to the environment. They created a new company, Mancha, only to work this idea.

“Zebu is still very much alive. It operates to construct trademarks and communication projects with productive social-environmental values, development of products that observe the biological cycle of planet and with interventions that improve the urban mean. But we also decided to work with organic, non-toxic, biodegradable ink, developed from vegetables. An alternative ink to traditional ink. Mancha was created only to develop the ink and trade it”, explains Helena.

The organic ink has been manufactured for hundred of years, it is not really something new. But the organic ink by Mancha is produced

from waste of food productions, which is abundant raw material in Brazil and extremely cheap: Cocoa, saffron, urucum, beet, açaí palm, Helena says that the ink was used in handcrafted items, especially printed materials, but the partners realized that it could provide great business opportunities: Using the organic ink in daily life, especially Child Education.

“The ink provides freedom of expression, it is not toxic and has educative character, as it is produced from nature extracts. We decided to invest in the idea to use the product especially to Child Education”, states the designer.

In October 2016, the group participated in a strict selection process and became part of incubator of Instituto Alberto Luiz Coimbra of Graduation and Research in Engineering of Federal University of Rio de Janeiro (Coppe / UFRJ). They shared there many mentoring in classroom and participated in Hackathon of Sustainability held by Sebrae/RJ in partnership with Technological Park of UFRJ, being in first place with the creation of a project of a socialization area and environmental education. There, Helena and her partners became close to Sebrae/ RJ, which was one of mentors at Hackathon. And, due to the victory, they won the course Biostartup of the entity.



“I attended the course and the greatest benefits are partnerships and exchange of ideas with other entrepreneurs of Bioeconomy area. But we have also learned to use better the tools to apply in business models, which was rather useful and important. I used new knowledge, such as Canvas tool in new works. The course of Sebrae/ RJ is rather informative. The entity knows this area very well. I have friends who used Sebraetec and were extremely satisfied”, attests Helena.

Helena and her partners participated in a business round held by Sebrae/RJ with sponsor companies through Tax on Services (ISS). She claims she did not do business, but found a favorable environment and gained experience.

“Sebrae/RJ opens doors. It is rounds of business and events that gather together those who want to sell and buy. Those who wants to invest and receive investment. Sebrae/RJ can certainly potentialize us, also via Sebraetec. We want to deepen this partnership”, she says.

What about the non-toxic and ecological ink?

“In November 2017, we launched a collective funding to sell the first batch of ink of Mancha. Our goal was reaching R\$ 50 thousand and we had over 250 supporters. The people who received samples of the ink will give us feedback, which will be used in our research. We want to produce in large scale, obtain the required certificates to commercialization and reach a broader audience, especially in Child Education. With the ink, we will promote environmental education among children, stimulate family agriculture and, therefore, we are seeking investors. We want to sell it all over Brazil. We believe it will be required one year of research and work, lots of work to accomplish our objectives. We want to sell the product, but we will continue researching the pigment for other uses, such as textile and graphic market, mostly. We will make the non-toxic and ecological ink a reality in the market”, claims Helena.



BIOTRACK

Those entrepreneurs participated in the following actions promoted by Sebrae⁷:

QUALIFICATION

Course Biostartup

CHALLENGE

Hackathon of sustainability

MARKET

Business Round

Green Rio

CONSULTANCY

Sebraetec

A QUESTION TO BE DISCUSSED IN CLASSROOM:

Mancha will use the production of first batch of non-toxic and ecological ink to get impressions from users and then it will be able to correct eventual failures.

Which aspects favor and limit the launch of ecological ink in Brazilian market?

⁷ Actions promoted by Sebrae or made feasible in an indirect way by the entity as co-performer, supporter, sponsor or participant.



MARAJACA

The opportunity of entrepreneurship and innovation can be rather close to us, in our own daily lives, but it can go unnoticed. This is definitively not the case of history student Catherine Calais Assafrão Fischer and Biotechnology student João Vitor dos Anjos Reis. Vegetarians, they found out in their own meals a way of earning money with an innovative, sustainable product and with excellent perspectives in the market: Jackfruit meat.

Well, perhaps you have never heard about jackfruit meat. It can even seem weird to connect one thing to each other, but it is an extremely healthy dish and really delicious. Vegetarians have certainly already tasted it, like it a lot. But a good, specialized restaurant is required so the dish can be properly appreciated. Cooked still green, the jackfruit has a similar texture to shredded chicken meat. And it provides many nutrients that benefit the health, such as iron, potassium, manganese, vitamin C and calcium, in addition to have lots of fibers.

“Jackfruit is a tropical fruit that can be cultivated everywhere. There is a jackfruit tree everywhere. When the fruit is still green, its marrow does not have smell or taste, which enables to prepare it with any type of seasoning, with lots of possibilities. For instance, if it is shredded, it can replace the soy meat, which is not really sustainable. The problem is that preparing jackfruit meat is rather complicated. Therefore, people usually only eat them in vegetarian restaurants and pay expensive prices for it”, explains Joao Vitor, 24 years old, student of UFRJ.

And where does it start this history of entrepreneurship and innovation? Like many others, it started with lack of money. Catherine and Vitor had been introduced to jackfruit meat by a friend, loved their combination with tomato sauce or shoyo sauce and wanted to repeat the experience. But where the shredded jackfruit meat could be purchased to prepare the meal? The first observation is that, to eat this dish, it would be required to find a vegetarian restaurant because it cannot be found

any place that sells the green marrow of shredded fruit, so the dish can be prepared. They did not have much money and could not afford attending vegetarian restaurants. The alternative was preparing the meal themselves. So, the adoptive brothers had an idea.

“We wanted to prepare jackfruit meat to avoid paying expensive prices in vegetarian restaurants. But we soon realized no one sold the shredded marrow of fruit, ready to be prepared. We decided to make the jackfruit meat ourselves and we understood why nobody provides the product to be sold: It is required lots of work. You have to reap the jackfruit, still green, in its own tree, which is hard work. Then, you have to clean the fruit, which has a very strong lime, that glues onto the knife, in the sink, everywhere. It can only be cleaned with detergent, after lots of scrubbing. Well, after all this work, it is required to separate the marrow, cook it in a pressure cooker and shred it, so it can be prepared later. The jackfruit is a huge, heavy fruit and it is better to use all marrow because it has to be still green, which means it cannot be cooked just a little. Actually, it is easy to understand why nobody sells it”, explains Catherine, 24 years old, who is also a student at UFRJ.



This first contact of both vegetarian students with jackfruit meat happened in 2014. They learned how to prepare the product, were delighted with the discovery and learning and tasted different seasonings, but it was such hard work that they did not adopt the jackfruit meat in their daily meals. However, the financial crisis worsened, money was getting scarce and they both decided to try to earn some money with the recipe in June 2016. The first obstacle was purchasing a pressure cooker of 20 liters, so they could produce a greater amount of jackfruit meat. It was required to obtain around R\$ 360,00 and they decided to sell jackfruit meat pastry at UFRJ. They quickly got the money and bought the pan

in August.

“To make the jackfruit meat in a pressure cook of 4.5 liters is a problem. You have to use it many times, clean, wash. So, it was crucial to have at least one pan with capacity for 20 liters. We started to produce the shredded jackfruit meat, ready to be prepared, in packages of 250 grams. We disclosed the product by Facebook. In September, we participated for the first time in a vegetarian fair in Vegborá, in Vila Isabel, at Rio de Janeiro. We took 57 packages and quickly sold everything. What caught our attention is that enrollments to the fair were closed. There was already a waiting line, but the organizers accepted our participation because our product was new. It was a success. They even enrolled us on the following fair, in October. We innovated once again and created the “jackfruit-codfish croquette”, a typical codfish croquette made with jackfruit meat. In November, in another season of fair, we got the premium of best delicacy”, claims João Vitor.

The siblings work at their own house kitchen in Duque de Caxias and still use social networks and fairs to disclose and sell their innovative product. They are already trading circa 150 packages of 250 grams a month, and charging R\$ 9.00 per package. They created Marajaca, an informal company, printed adhesive tags. The acceptance is better and better, the market is full of possibilities, but how can they grow? How to increase production and sell the product? How to regularize the company and be able to sell to restaurants and specialized stores in vegetarian products?

It did not take long to get an answer. The director of Biotechnology center of UFRJ in Xerém, Herbert Guedes, held with Sebrae/RJ a Bios-tartup course and promoted a bid among students to select 15 projects. It was required that enrolled works were made in pairs by students of Biotechnology under graduation course.

“He was my professor and I soon knew about the bid. It was everything we needed, but the other member of my pair - Catherine - was not a Biotechnology student. I looked for professor Herbert, talked about

Marajaca and, although she was a History student, he allowed our enrollment. We were selected. The course broadened the horizons of Marajaca. A world we could not imagine. It was a startup course, towards

Biotechnology and Bioeconomy, in other words, everything we needed. We learned how to prepare a business model, organize the production, what it takes to grow in a sustainable way. So, we learned all stages to transform the idea in solid business”, states João Vitor.

Catherine says even more. She believes that the course provided by Sebrae/RJ surpassed the concepts acquired in classroom.



“We learned many new things, but I would highlight the opportunity of exchanging with other projects, contacts, teachers, managers of Sebrae/RJ. Such exchange of experiences is really valuable and it is only possible in a course like this. Sebrae / RJ opened many doors to us. Upon participating in the course, we realized we were already a startup, but in an informal way. We have everything to become stable and grow. And Sebrae / RJ provided us with those tools and knowledge.”

Our project is solid, new, sustainable. We have something rather concrete, our idea is already validated, there is interest of market. Now we are going to strengthen our product. Participating in the course by Sebrae/RJ was crucial to us”, claims Catherine.

For instance, it was through the course that Marajaca is taking another step towards its solidification. João Vitor and Catherine were invited to participate in a meeting with an accelerator, which was interested in their idea. Such meeting generated a second meeting and a concrete and official proposal, which has been analyzed by the siblings: The accelerator proposed to work with Marajaca for three months, providing instructions, contacts, attract investors, charging 10% of profits

for 24 months. The initial objective is producing 40 packages on a daily basis, regularize the company, produce in an industrial kitchen, purchase machines (including creating a machine to shred the jackfruit, as there is nothing similar in the market), hire a nutritionist and a food engineer to produce the required “manual of good practices” and start selling to vegetarian stores and restaurants.



“I want to highlight the sustainability of trading the jackfruit meat, as it comes from a tree that grows in a wild and organic way. Its life cycle and growth are fast and they do not require agricultural techniques, being possible to easily reap it. Thus, we have low-cost production, with a great possibility of financial return. We are surveying costs of the entire production process, defining priorities, following the steps learned in the course by Sebrae / RJ. “

A long time ago, when we started Marajaca, we have already accessed the website of institution, to know how a company like ours could become regular. We could not imagine that we would soon be taking part in a startup course provided by Sebrae/RJ itself. Our history will be actually told before and after this course”, says João Vitor, adding that.

“The Marajaca name is a pun with the words maharaja and jackfruit (the fruit is originally from India) and the challenge is obtaining a better use of the entire fruit, by creating new products. They can certainly rely on Sebrae/RJ in such enterprise.”



BIOTRACK

The entrepreneurs participated in the following actions promoted by Sebrae :

QUALIFICATION

Course Biostartup

Startup Day

MARKET

Green Rio

A QUESTION TO BE DISCUSSED IN CLASSROOM:

Which strategies need to be adopted by Marajaca to grow and have its space in the market? Mention at least three and talk about them.



SUPERAÇÃO

Very sensible, spiritualized and interested in the human soul, the designer Gabriela Besser slowly changed her professional area until she found her real path: Work with what she calls “the cure to human suffering”. She studied Biomedicine at Federal University of Rio de Janeiro (UFRJ) until she quit her studies in the penultimate semester and started to work with 3D design for eight years until she could no longer work in closed offices and in the competitive publicity field, got an education in coaching and ericksorian hypnosis, took up many courses in energetic therapy, such as Reiki and Bach flower remedies until she found out her real talent: To be an entrepreneur. But not an ordinary entrepreneur, who is satisfied with a business that provides her with enough income to live well. Gabriela is ambitious and does not see limits ahead of her. She is absolutely innovative.

Her entrepreneurship and innovation history started after deep meditation due to a crisis in life, feeling bad about the world. While she meditated, she received many ideas, which overlapped until she had a great and definitive idea: To create SuperAção Website.

“I was disgusted with the world and decided to meditate. It was a call of the soul. I had different ideas, which overlapped and become a website. I wanted to have a website where people diagnosed with cancer, chemical dependency, Alzheimer, eating disorders, among others could find information, be assisted and feel supported. A website that would be national reference. I thought about adding testimonies of people who had already lived and overcame pain, having a network where people who passed through the same situation could support each other, have access to institutions, reliable information, everything the patient needed to find in a single platform”, she says.

Gabriela wrote the project, talked with those who wanted to listen to her, found two supporters who were real mentors to her, joined a therapist. She spread the project as much as she could until she was inside a

pre acceleration process of Social Good Brasillab, where she stayed for four months to make the SuperAção Website become real. It was in this process that she created the “SuperAção Angels” methodology, which ended up making a huge difference in the project. The methodology works as follows: Those who overcame cancer and faced the fears and chal-

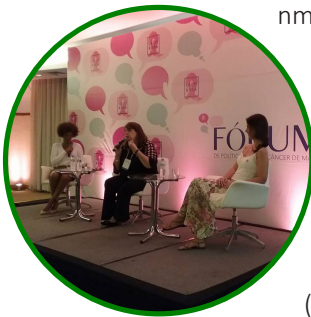


lenges of treatment (Angel) can help up to three people who are passing through the same problem at this moment (SuperaDor), upon supervision of a healthcare professional (Archangel) and support of Website. At the end of treatment, the person who was assisted can also become an Angel and retribute providing to somebody else the love he/she received. The initiative since the beginning of project had surprising effects to hope of living and resilience of overcomers in the treatment. She claims she got inspired by the film “Pay It Forward”. The network grows in a geometrical way, as each Angel can help up to three people and most of them wish to retribute the support at the end of treatment.

“I also decided to focus the project in only one subject, seeking depth. I have chosen to work with patients with cancer and created my first group in 2014, still using the platform of Facebook. I created a landing page (website with only one page), only for enrollments. In September that year, we already had around 42 patients and around 20 “angels”. We were around 60 people”, she remembers, claiming that over 500 projects were enrolled to Social Good, being among the six finalists.

The Website started to be really popular. Needing more Archangels to

increase the network, Gabriela placed an advertisement in Facebook itself and in two groups of coaches, in a Friday afternoon, called volunteer psychologists to the role of Archangels. On Sunday morning, she already had 95 enrollments. On the following Wednesday there were over 120 interested people. It gave her certainty that the Website was feasible, there would always be interested people, and they would not be only the Superadores [Supporters], who would benefit from the project, but also Angels and Archangels. With so much support, she could increase her team, delegate functions, be devoted to create a robust website and open a Corporate Taxpayers Register (CNPJ), firstly as Non Government Organization (NGO) to make new projects feasible.



Gabriela and her website participated in 2015 of World Skills Digital Challenge, the greatest global competition of skills held in Sao Paulo and her NGO was chosen as one of five related to technology to participate in a Hackathon. She obtained there the support of College of Computer Science and Administration of Sao Paulo (FIAP), one of greatest private colleges of technology of the country, which selected its best student to assign him to the project, starting to build an application to the Website. Gabriela left the 3D design work which she still kept, so she could support herself. She decided to dedicate herself full time to SuperAção Website.

“We had many problems to build the application, which was only 70% ready. We would try to obtain funding via crowdfunding when I received an e-mail saying that I had been approved to participate in Hacking Health, in May 2017. I had great mentors there, also by Sebrae, and we got the second place”, she reports.

The participation in Hacking Health created a very special and durable relationship with Sebrae/RJ. As a premium, Gabriela won the course Biostartup held by Sebrae / RJ. She claims that she learned a lot and the institution ended up opening doors that she consider crucial to the

advancement SuperAção Website.

“We made a full review of the project, improving it. We could model a validation of Website, with tools we learned in the course. Another crucial point was the relationship with investors and clients. I learned a lot. This course was very important”, believes Gabriela.

Sebrae/RJ supported Gabriela and took her to Fomenta Sebrae, in Brasília, where she and other entrepreneurs could learn how to relate with clients of government area, including a round of business. Gabriela assures that the results were fantastic.

“The networking was incredible. The most important is that I got to talk to the innovation area of Clinics Hospital of São Paulo, which loved the Website. They are creating a innovation area, want to accelerate projects and we are already talking about it. This door that Sebrae/RJ opened to me is priceless. I have also talked to the United Nations, which asked me to fill in their registration, but there is nothing concrete yet. Actually, the networking was sensational, also among participants”.



The SuperAção Website was selected to participate in InovAtiva Brasil, an acceleration process partner of Sebrae and it also stood out there: From 956 enrolled ones, the project was among the 106 that made a final pitch and, even more, it was selected among those as highlights in healthcare area. The InovAtiva gave as premium the acceleration of Facebook Start, but the greatest premium of all was the received support and new mentors that the project got: “Upon questioning by

the assessment group, rather than questions, all of them attempted to give me tips to help the project. At the end, among the professionals of assessment group, we got four new mentors, who have made lots of difference to the project”, she tells.



The website accounted at the end of 2017, 114 impacted lives, among Superadores [Supporters], Angels and Archangels. In three years of project, over 100 people a year were positively impacted by the organization. There are patients from 18 states of the country and Brazilians who live in the United States, France, Italy, Sweden and Australia.

There are even two Portuguese citizens who live in their country. Gabriela assures that there is an increase in quality of life of Superadores [Supporters], greater adhesion to treatment, more resilience and hope and there are reports of people who decided not to leave the treatment or even do not commit suicide due to the support they found in the project. According to internal researches, over half of Superadores [Supporters] want to become Angels when they are cured, retributing the received support. The network grows in geometric progression, there are daily enrollments and a waiting line with over 200 supporters, in addition to Angels and Archangels.

The solution? The application, which will be ready as of July 2018 to be initially used in hospitals and current participants of network, enabling its growth in 2019.

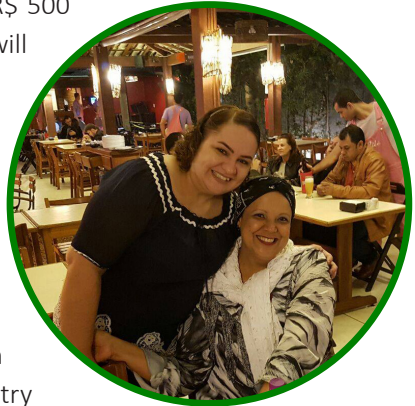
“The application solves our problems because the management, which is manual nowadays, can become fully automated. We follow up each participant of network. We do not have inactive or unsupported users and have instructions and procedures to all problems that can occur such as, for instance, an Angel have a relapse. With the application, we can go from 50 patients to 10 thousand or even more”, she states.

In addition to solve the growth problem, the platform enables our first business model already expected, with a different humanization to oncological hospitals and clinics and optimization of their assistance to patient. The app will be a SaaS (Software as a Service) with whitelabel, and then the platform can be sold to hospitals. There are already negotiations with a number of great networks of hospitals from Rio and São Paulo.

With the platform, we calculated together with our mentors that the hospital could increase the productivity four times of browser nurses and there would be a great gain to the virtual team. To support 2 thousand patients a year in a hospital, there could be savings to the team of up to R\$ 500 thousand, plus benefits of new service, reduction of unnecessary hospitalizations, among others.

Gabriela devotes herself full time to the Website, but she cannot even earn R\$ 500 a month to her expenses. This will certainly change in a radical way.

“We want to be a network of different pathologies. We want the Website to become a great worldwide network, providing emotional support and supplementary health to those who need it. And the platform can be traded throughout the country and worldwide. The year 2018 started very well. The conversation with Clinics Hospital evolved and we have advanced negotiations to establish a partnership”, she says.



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The SuperAção Website was invited to participate in Hospitalar 2018, where it won the Sebrae challenge Like a Doctor. As a premium, it will

be in the finals of Case, the greatest event of startups of the country, which will occur in November this year. Furthermore, it was selected among other 264 projects of the entire country to be accelerated by Rede Mulher Empreendedora [Entrepreneur Woman Network], which has been of great help.

“One of mentors we got in InovAtiva works internationally with technology to hospitals and nowadays he has been admitted as partner of startup. We have already taken a great step forward with him: We remodeled the application to better handle the necessities of hospitals, helping them to adjust to new international guidelines to Comprehensive Cancer Centers (oncologic centers of reference), adopted by National Agency of Health (ANS) through OncoRede, in 2017 and implementation of so-called Browser Nurses. In the new format, the platform enables the hospital to assist more patients with the same infrastructure and more quality.



About the support by Sebrae/RJ, Gabriela does not mince words:

“Sebrae/RJ generates an incredible networking between startups and clients. It takes us where we need to go. Firstly, it gave me generous support to validate the project. Then, great opportunities upon taking me to Fomenta Sebrae. Finally, it opened me doors in over five hospitals and with two great investors with the premium Like a Doctor. It was an unique opportunity to success of Website and it can be responsible for making it grow. I am very grateful. And, as if it was not enough, a highlight point is the great generosity that the entire team of Sebrae has with the entrepreneurs At Fomenta, the employees in charge took care of us all the time, checking if everyone was well upon each movement the group made. Sebrae/RJ teaches us how to earn money, sell, validate the idea, attack investors and all those items are crucial. The attention and care that Sebrae/RJ provides us

give us strength to keep going ahead, believing the project”, claims Gabriela, who is creating a commercial CNPJ to be able to generate participations to partners. Finally, SuperAção Website will have a great future. It is destiny.



BIOTRACK

This entrepreneur participated in the following actions promoted by Sebrae :

QUALIFICATION COURSE

Biostartup

Hacking Health

MARKET

National Foment

Initiative Embrapii – Sebrae

Challenge Sebrae Like a Doctor

A QUESTION TO BE DISCUSSED IN CLASSROOM:

The SuperAção Website has already started working abroad. Some of its patients are Brazilian citizens who live in the United States, France, Italy and even two Portuguese citizens, residing in Portugal, enrolled themselves. Is the internationalization of website positive or negative? Why?

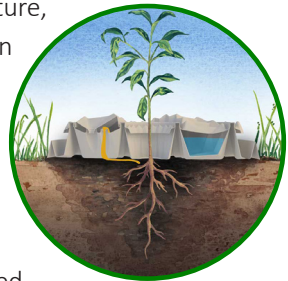
ENVIRONMENTAL CHALLENGE



NUCLEÁRIO

The brothers and designers Bruno and Pedro Pagnoncelli were born in Lumiar, fifth district of the city of Nova Friburgo, a small city in the mountains of Rio de Janeiro. Both of them were raised at the foot of Atlantic Forest, that was still untouched, among beckoning rivers and waterfalls, a delicate flora formed by orchids and bromeliads and a fauna of monkeys, tamanduas, agoutis and squirrels, among many others, amounting almost 4.700 animal and vegetal species, 19 of them being exclusive of that area. In other words, they were raised in a lost paradise, with 5% of what remains of a very rich and abundant forest.

Above all, they learned to respect and love nature, to defend it, to plant and reap and only use it in a sustainable way and preserve it. At the end of his under graduation course in Industrial Design at Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Bruno, the eldest brother, decided in his project of course



conclusion to develop a design project focused on forest restoration, when Nucleário showed up- a system of forest planting to degraded areas of hard access. His idea was providing to degraded areas a chance of being reforested in a much more efficient way and, perhaps, in a more promising future, to help increasing the forest area of Atlantic Forest.

“Nascer e crescer na Mata Atlântica foi um privilégio. Resolvi focar meu projeto em técnicas de reflorestamento. Hoje, essa atividade é feita de forma muito lenta e ineficiente. Estudei profundamente sobre reflorestamento, técnicas agrícolas, reestruturação florestal, e busquei aplicar meus conhecimentos adquiridos no curso para desenvolver um sistema de plantio para grandes áreas degradadas, com um mínimo de manutenção e o máximo de eficiência”, conta Bruno.

His project has certainly a huge social-environmental usefulness. According to a document called “Atlantic Forest Pact”, prepared by NGO Pacto pela Restauração da Mata Atlântica, at least 17 million hectares of potential areas to forest restructure of Atlantic Forest have been unproductive and abandoned. Such area corresponds to the size of Uruguay. Furthermore, the current reforestation processes work with average loss of 30% of planted trees. Bruno focused his studies in this reality and main difficulties faced in reforestation activity: Mountainous terrain, high rate of sunstroke, degraded soil, difficult access and long drought periods. This is how the Núcleário project was born.

“Firstly, I created a concept: An industrial product to leverage this large-scale planting, capable of solving the reforestation demand in a more efficient way. An innovator, cheap, feasible product to be used in large scale. Then, I studied the subject, product and developed prototypes. Núcleário is a biodiversity nucleus, pre scheduled to grow. In other words, each capsule of produced biodegradable plastic, upon involving a tree, works as a kind of nursery. Its main functions are accumulating rain water at drought period, prevent the invading pasture (brachiaria) reach the tree and even protect cutting ants”, he explains.



At this point, Pedro, the younger brother and also a student at PUC-Rio, joined Bruno to deepen the project. They both realized they had a promising business in their hands and, even more, a real and deep contribution to the environment. The project of Núcleário was sent to different international competitions of design, accumulating important premiums, such as, for instance, the first Brazilian project to win the German competition BraunPrize in 2012, in Sustainability category.

There were 2.399 competitors of 73 countries. It also stood out at Red Dot 2012, in Singapore, Idea Internacional, in Boston, Idea Brasil, in São Paulo, and Green Dot, in California.

The first step towards Bioeconomy was opening Fractal Núcleos de Inovações Ltda., a MPE of both brothers. The second, urgent one, was patenting the innovative technology. It is when Sebrae / RJ shows up, supporting the brothers.

“Sebrae / RJ arrived at exact time. It was urgent to patent the product because after it is disclosed there is only one year to do so. Friends indicated us and we knew Technology Network, which provided subsidies of 70% to Invention Patent (IP). It is a process that lasts from three to four months. Sebrae / RJ gave us subvention of 80% of costs and also indicated us a patents office to help us with the entire process, which is not simple at all. It was an office that had expertise in our field. They understood our type of project. We are in contact with them until nowadays”, says Pedro, the youngest brother.



With so many premiums and with Nucleário duly patented in Brazil, the duo started handling the bids of economic subvention. Try attempted with Foundation Carlos Chagas Filho of Support to Research of State of Rio de Janeiro (Faperj) and Founder of Studies and Projects (Finep) in 2014 and they were not successful, but they were selected on the following year. The bid (Tecnova) provided up to R\$ 400 thousand to the development of innovative products, Fractal was approved for R\$ 350 thousand and after a cut by State Government, this amount reached R\$ 265 thousand, but up to the moment they only paid R\$ 72 thousand.

Due to lack of money and support, the work with Nucleário was “frozen”, the designers dedicated themselves to other projects of company until Fractal was invited by Sebrae/RJ to participate in 2015 of a program to innovation startups, a program to qualify business, with mentoring in the financial, marketing and business areas. On the following year, they were chosen by Bid of Senai/Sesi Inovação – an initiative by National Service of Industrial Learning (Senai) and Social service of Industry (Sesi) to promote an innovation culture in companies and increase productivity of Brazilian industry. Nucleário returned in good shape and, after four variations of prototype, it obtained the Minimum Feasible Product (MVP). In other words, Nucleário is a reality nowadays.



“We learned a lot at the course of Sebrae / RJ.

We knew basic tools to make the strategic planning and used them to Nucleário and all projects of Fractal. In the first semester of 2017, both brothers participated in InovAtiva Brasil. They passed in all stages and stood out. Then, they participated in a competition held by Biomimicry Institute, of California, related to the subject of climate changes. Nucleário was among the six first projects worldwide, providing to Pagnoncelli brothers on-site mentoring in the United States focused on Biomimicry and Business. They were also among the eight finalists of Environmental Challenge WWF, fostered by World Wide Fund for Nature (WWF) with the support of Sebrae, Ministry of Environment and Chico Mendes Institute of Biodiversity Conservation (ICMBio), National Park of Tijuca and Pact to Restore the Atlantic Forest and carried out by Impact Hub.

Having the MVP of Nucleário, it is time to produce. Fractal is producing 500 units of product, some of them already ordered by clients, to go to the field itself. Considering the future, they intend to grow the product, making Nucleário a standard technique of reforestation planting in Brazil. They even dream to make this technology international.

“Brazil has a gigantic market. If we get this market it will already be a great advancement. But we also consider other biomas around the world and imagine a line of products of Nucleário, with variations adjusted to other realities”, says Bruno, making it clear that his dreams are not limited to the Atlantic Forest.

Therefore, his brother and he rely on the support of Sebrae / RJ, which they consider a crucial partner:



“Sebrae / RJ is an institution that we trust, and it truly supports micro and small companies. It is crucial to have its support, especially within this situation of our country. It is very difficult to undertake an enterprise. Relying on an institution whose expertise is exactly this one is something crucial. Sebrae / RJ arrived at the right time, when we needed to patent Nucleário. We could have missed the deadline if we did not have the support of Sebrae / RJ, we do not have any doubt about it. And we know there is much more to absorb in this partnership”, believes Pedro, claiming that the participation in fairs, like Green Rio and AgriShow is one of challenges that the company has to expand its business.

BIOTRACK

The entrepreneurs participated in the following actions promoted by Sebrae :

QUALIFICATION

InovAtiva Brasil

CHALLENGE

Environmental Challenge WWF

TECHNOLOGY

Sebraetec

MARKET

Consultancy

A QUESTION TO BE DISCUSSED IN CLASSROOM:

“Brazil has a huge market”, states Bruno. In other words, there is a market that needs an innovative and sustainable product, such as awarded Nucleário. The equation seems rather simple: It is enough to join both of them. But how is it possible to build a “bridge” that is safe enough so that the product reaches the final consumer? Which strategies fractal needs to devise to accomplish its objectives?



VIVEIRO LUA NOVA

After so many years devoted to private enterprises, finally retired, the economist Alexandre Magno Firmo Alves used his free time to undertake. And he did not in real property at Miguel Pereira, which for almost 30 years was his summer house and now it could headquarter a good business: Planting eucalyptus. Alexandre observed that there were many reforestation areas around the region, he called both property caretakers of his condominium-the brothers Valdemir and Valdenir dos Santos Silva –, rented the land of 500 square meters nearby his property, planted 20 thousand trees of eucalyptus, waited for five months until they grew sufficiently and sold all of them in only five days.

UExcellent business, right? It was exactly what Alexandre thought, decided to increase the production to 50 thousand trees. However, before doing so, he decided to study the subject a little deeper, as he would be taking a more definitive step to a small business and he realized he was using inadequate techniques. The economist felt it was good business, had some money to invest, his entrepreneurship talent was strong and, therefore, he decided to approach an agronomic engineer, Eduardo Roberto Wagner, owner of a small store of ornamental plants in the city itself. They talked and decided to become partners.

This is how it started the history of Viveiro Lua Nova, dedicated to reforestation trees - local eucalyptus and Atlantic Forest trees. Although it has a peculiar history, almost homemade, due to the entrepreneurship talent of partners and its wish to innovate, Viveiro Lua Nova has made history, growing in a sustainable way and creating new processes that have positively impacted the own chain of region. They are new techniques that are making a difference in the reforestation process itself. An excellent example of Bioeconomy: Promising, profitable, sustainable business and generating innovation.

“I talked to Eduardo, cleared up doubts about my studies and we became partners. While we talked we decided not to be limited to eucalyptus only and we added native plants. We rented the rest of neighbor`s land and got an area of 30 thousand square meters. We have also decided to work with clients to that were active in reforestation and compensation. I invested a lot in equipment, such as tractors, greenhouses, infrastructure works, roads and in September 8th 2013, after a night with a beautiful moon, it was born and registered Viveiro Lua Nova”, claims Alexandre.

The business produces 300 thousand native trees and 20 thousand trees of clonal eucalyptus a year. It also produced on a weekly basis 400 boxed of Italian tomato (600 grams each one) and cherry (300 grams). There are six registered employees, in addition to four partners. And Eduardo e Alexandre, only they both, opened Viveiro Lua Nova Indústria e Comércio Ltda. to be able to trade other products, in addition to trees. Yes, because the business is beyond reforestation trees and it includes tomatoes, which are cultivated to generate income at off-season periods.

“Our company is a countryside producer, not a commercial company. Our first attitude was planting cherry and Italian tomatoes in a greenhouse because there is a period in the year without no income whatsoever and investments do not stop. Therefore, we opened the commercial company. There are eight months of planting until it is traded the trees of native species of Atlantic Forest. We have even started by buying and selling tomatoes, but we soon decided to also produce them”, says Eduardo.



Viveiro Lua Nova has invested a lot in sustainable solutions, such as gathering rain water and solar energy. The installed photovoltaic plates, for instance, supply at least two thirds of monthly consumption of

electric power of the place. But it is in innovation where the company has stood out more. The main one is creating a biodegradable pipe to accommodate and transport the trees.



“The trees can be produced in different ways. The oldest ones are those placed in black plastic bags and plastic pipes. The bags are totally non ecologically friendly and the plastic pipes are too burdensome. It is required to collect, check the amount, wash, sterilize and it ends up interfering a lot with the price of tree. What if I sell 10 thousand trees to a region that is over 100 kilometers far from the company?

I would have to get the pipes, spend time and than another two-way trip. Thinking about it, we created a biodegradable cardboard pipe. There is a Danish solution in the market, using film. They sell the machine that produces the pipe, which is expensive. We researched the subject very carefully. We ended up creating a cardboard pipe that lasts eight months, from the seed until the tree grows, get traded and planted. The used cardboard is made of leftover boxes and packages of long neck beer. They are low-end papers, which were thrown away. This makes the process even more ecological and sustainable. The solution is excellent to us and the client, the plant grows with the pipe directly in the soil, without wasting time”, explains the agronomic engineer. He understands that this way, in addition to provide a sustainable product, he is encouraging the circular economy, in other words, with total use of components.

The cardboard pipe-which intends to change the way trees are sold- is not the only innovation by Viveiro Lua Nova. It is only one of them. Alexandre says that the company decided to request a free course of National System of Countryside Learning (Senar) about collection the seed, arranging two classrooms with 15 people from the outskirts of Miguel Pereira.



The seeds were purchased in the market, but then they started to be collected, moving the local economy, generating income and, of course, bringing down the costs of company. The partners also approached the Brazilian Company of Agriculture-Livestock Research (Embrapa) looking for new technologies to improve production and ended up making a deep research about the subject of fungi and bacteria.

“The fungus is associated with the root, it creates a kind of web and, thus, the plant absorbs more nutrients from the earth. Nowadays we have stronger trees and more resistant to drought and pests. We have started to develop the fungi at the company. Another innovation was placing hydrogel in the pipe, when it is used in planting to withhold water. Before that, it was required to plant the tree and place hydrogel. Nowadays this stage is eliminated, as hydrogel is already inside the pipe. We save another stage in planting, aggregating value to our product. “It is an economy of raw material and time that makes all difference”, explains Eduardo.



It is not only that. The company spent lots of money purchasing the substrate. If the bag of 25 kilos was expensive in the second semester of 2017, let alone the money spent with a truck with 40 cubic meters of substrate. Alexandre and Eduardo observed at Paty do Alferes, a neighbor city, has a big production of tomatoes in greenhouse, whose plantations mandatorily require an exchange of substrate in every eight months. That raw material is no longer useful to plant tomatoes in greenhouse, but it can be used to plant trees of native forest. Result: The company start purchasing this substrate from tomato producers of the region, reducing the cost a lot, improving again the market of region and, of course, being copied by everyone. The cost of bag with 25 kilos was reduced in 75% and it was merely because the demand inflated the price. More encouragement to

circula economy, encouraging it in the region.

Even more. In the autumn and winter planting trees is in hibernation state, which hinders the production in the period. Lua Nova developed greenhouses with heaters, bring a result that is considered fantastic by its partners. There are eight sowing places of 25 meters x 1.5 meter, with at least 16 heaters. What took one month to sprout at this period, now takes one week.

“We will have more greenhouses because we have started to produce all year long. And the next step will be using lamps in the winter to photosynthesis. We are studying it very carefully”, says Eduardo.

Those are the main innovations. Due to them, in July 2017, the company won the Premium of Good Environmental Practices, fostered by Committee of Medium Paraiba. Encouraged by the Committee, Lua Nova was enrolled

at Environmental Premium WWF, fostered by World Wide Fund for Nature (WWF), with the support of Sebrae, Ministry of Environment and Chico Mendes Institute of Biodiversity Conservation (ICMbio), National Park of Tijuca and Pact to Restore the Atlantic Forest and carried out by Impact Hub. The Challenge had 132 enrolled projects at national level and Viveiro was among the eight selected ones. Lua Nova had the opportunity of participating in a group immersion process, for three days, with other finalists, mentors and consultants, which enable to exchange experiences to improve practices and broadening the contacts network. There was a contact there that will certainly have good consequences.

“Sebrae / RJ is a company that has entrepreneurship and innovation as



expertise. Having its support will certainly be very important. We have an innovative product and need support to launch it in the market, in great scale. We developed an entire technology, sustainable, ecologic, cheap and want to spread it. Sebrae / RJ will certainly help us with it, as its contact network is rather big. It knows how to do it. Everything we have done so far was by ourselves, with our own resources”, emphasizes Alexandre.

His partner, the agronomic engineer Eduardo, agrees. And he expects a better future:



“Sebrae / RJ can support us with companies that work with reforestation, Environment Secretariats, reforestation institutes and public agencies. It has expertise in this subject. We have technology. We want to have a better relationship with the market, as our

solutions are good to everyone. Participating in Sebraetec, for instance, can help us a lot. And, with the support of Sebrae / RJ, we can participate in fairs, such as Green Rio, potentializing contacts and partnerships, he concludes.

BIOTRACK

The entrepreneurs participated in the following action promoted by Sebrae :

CHALLENGE

Environmental Premium WWF

A QUESTION TO BE DISCUSSED IN CLASSROOM:

Viveiro Lua Nova has an innovative, sustainable product and its is ready to make it available to the market. But it needs to define how to reach its target audience. Propose a market strategy that enables better disclosure -and consequent sale -of product by Lua Nova.

UNIVERSITIES



UERJ

UNIVERSITY OF STATE OF RIO DE JANEIRO

Exactly 25 years ago, the University of State of Rio de Janeiro (UERJ) has continuously working to create an innovation policy and help spread it throughout the State. Since 1992, the institution is devoted to the subject, a work that was deepened with the creation, in 2000, of Intellectual Property Program and Technology Transference (PITT) to, in a first moment, discuss and organize the matter of copyrights and then create the Department of Innovation – InovUerj. This date was celebrated properly: In October 2017, within the National Week of Science, Technology and Innovation, UERJ held, with the support of Sebrae/RJ, the First Round of Business to License Software.

It is not only a first round of business, which would already be very important to the institution. Actually, it is the first time UERJ presents itself socially to make a transference of technology. A qualified UERJ, with a strong innovation policy, with integrated and attested agreements by its own office to transfer technology. In other words, this First Round of Business to License Software takes cutting-edge technology, produced by the university, to the streets.

“We are all extremely proud. This first Round simply concluded 25 years of intense work with innovation, intellectual property and transference of technology. This is the role of university. I do not want to discuss anymore, I want to act. I want to interact with the market. Therefore, UERJ has a consolidated innovation policy. We got to leverage a new culture of innovation and intellectual property and now it is time to work so we can be involved with the society. The First Round of Business was the first big step”, claimed Marinilza Bruno de Carvalho, director of InovUerj and coordinator of event.

UERJ has, according to professor Marinilza, at least 47 softwares already duly registered at National Institute of Intellectual Property (INPI) and

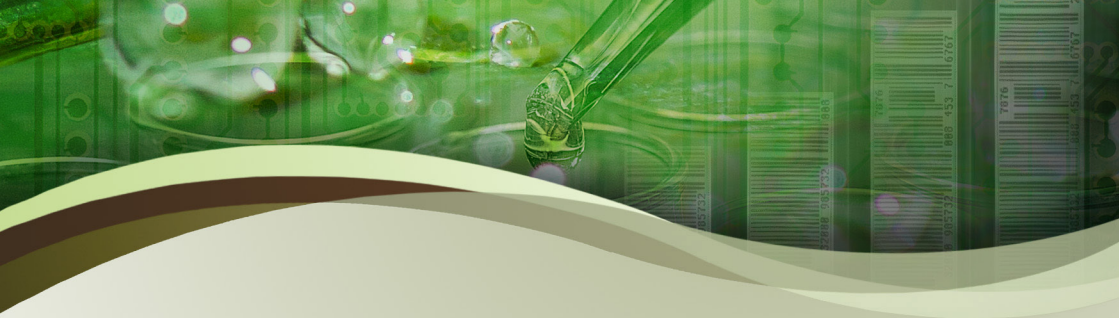


ready to be negotiated. Out of that, 13 of them were chosen to participate in the event for having a greater market demand. There are six softwares related to Healthcare area, two to Geology and Environment, one for Civil Construction, one for Communication and Tourism and three for Management and Quality Control. Its creators had the opportunity of personally submit its solutions in the event.

Over 60 people participated in the Round, among market members, researchers, students of university and representatives of government institutions. According to Marinilza, the Round can open doors to subsequent negotiations and it has already happened in this first event, which was held in the laboratory of innovation management of Institute of Mathematics and Statistics (IME) at UERJ itself and it was also supported by National Council of Scientific and Technological Development (CNPq).

“Prill Tecnologia, a computer company, was at the event and it wants to represent and sell the softwares related to health. It is not an exclusive agreement, but they will represent such tools and will attempt to sell them to the market. They have even scheduled a meeting with Sírío Libanês Hospital in São Paulo to present them. And it is not only it. A civil construction company was rather interested in the software that helps and controls the definition of dosage of high-performance concrete. They will talk to the author of software. And Sebrae was so excited with the work that it will negotiate with us the arrangement of new classrooms of Course Biostartup to our personnel. The professors were excited with this possibility because it is exactly what they need, the expertise by Sebrae: To teach how to manage the business itself”, claims the coordinator of First Round.

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STATEMENTS

The professor Alexandra Monteiro is Coordinator of Technological Development Unit Telehealth Laboratory. She attended the first Round with two softwares: Integrated System of E-Diagnostics in Health (Siedis) and Support System to Decision in Child Dehydration. The first one is a web system, with application version, to send digital exams to remote opinion by a specialist. The second one also has an application version and is used to send data of children diagnosed with dehydration. She emphasized that UERJ has history and tradition in innovation and entrepreneurship and, therefore, it is essential that it actively participate in activities, such as this Business Round held by Sebrae/RJ.

“Telessaúde UERJ started its activities in 2003, it operates both at national and international level, develops digital products for health purposes and educational materials, such as on line courses, but it had never got close to the market. The Business Round was exceptional, because it enabled to exchange information with strategic companies and with possibility of negotiation”, she believes.



The professor thinks that UERJ also benefited a lot from carrying out the event.

“UERJ was pioneer in different sectors. To use technologies for health purposes, for instance, in addition to pioneer, it is one of groups that support the National Program Telehealth Brazil networks, of Ministry of Health, to support the strengthening of Single System of Health (SUS). The Round of Business provides visibility and competitiveness to researchers present their innovative products and internally foster the development of human resources already with proper profile to the market. Thus, such initiative strengthen the relationship teaching-research-extension, highlighting the professional improvement to operate in the market. The recognition, visibility and negotiation of products developed by the university cause a direct impact in motivation of set of involved agents, as well as those that are being educated, such as the under graduation students”, states the professor.

Participate in a Course of Biostartup held by Sebrae to qualify the involved parties to create startups and take their products to the market is a possibility that has total support of the professor.

“I find it exceptional and I already make the team of Telehealth UERJ available to contribute and actively participate in this enterprise. In the scope of our mission, it is expected the qualification and professional refreshment through the Extension Program Telemedicine and Telehealth UERJ and Graduation Program in Telemedicine and Telehealth- Professional Master’s Degree course, through which we could even start some type of partnership





to create startups for health purposes. Digital health is nowadays one of main growing markets and, thus, with opportunities for business. The creation of startups for this purpose is something totally within the demand of market”, she claims.

To professor Maria Isabel de Castro de Souza, Coordinator of Teleodontology Nucleous of Odontology College of UERJ (FOUERJ), the participation in the First Round of Business was an unique experience to learn how knowledge and academic products can be introduced to the market. She believes that not only researches benefited a lot with such participation, but also UERJ, which was strengthened after the event.

“I believe that to UERJ the importance of participating in this event is the development of entrepreneur sense, which can be spread among both students and professors, adjusting their realities to labor and professional markets. It is important to highlight that it was the first event and it was held in harsh scenery. So, we can say it was a great victory in all senses. This type of movement takes a certain time to be absorbed by the academy, but it is always necessary to start it. It was a milestone so that this type of initiative inside the university space gets consolidated”, she claimed, who participated with software named “Clicktrauma” created to help with diagnosis and clinical operation in traumatology of teeth.

As she stood out in the Round, Sebrae/RJ invited professor Maria Isabel to participate in VIII National Foment in Brasília, and, thus, she had the opportunity of being in the main event of government purchases of Brazil. The event had many workshops of public purchases and business rounds and the professor could show her application to representatives of hospitals and government as well. Maria Isabel is the one who is more excited to Sebrae/RJ arrange a classroom of Biostartup to the group.

“I believe it is very important this structure is made available to as many people as possible. To undertake and innovate with expertise are tools to progress in all areas of knowledge”, concluded the professor.

A QUESTION TO BE DISCUSSED IN CLASSROOM:

UERJ held its first round of business to transfer technology. Therefore, it has a strong innovation policy, carefully developed within the last 25 years. But the university thinks it does not have the experience to “sell itself”. How can it be solved?



UFRJ

FEDERAL UNIVERSITY OF RIO DE JANEIRO

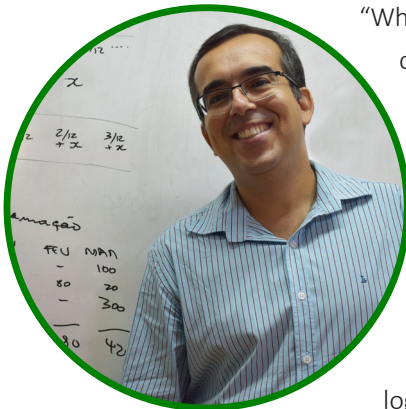
In 2008, within an expansion process that took place on a national level, fostered by Federal Government, Federal University of Rio de Janeiro (UFRJ) got another campus, located at the city of Duque de Caxias, more specifically in Xerém, in an area provided by local City Hall, behind the local stadium. It was held there the so-called Xerém Center, an advanced technology center, with under graduation courses in Biophysics, Biotechnology and Nanotechnology, in addition to professional master's degree to educate teachers of local and national Biology and master's degree and Ph.D. in Biochemistry and Molecular Biology.



After ten years, the Advanced Technology Center of Xerém, nowadays called Duque de Caxias Campus has been in great shape and full of growth plans. Very soon, there will be a partnership with National Institute of Metrology, Quality and Technology (Inmetro), National Laboratory of Scientific Computer Science (LNCC) in Petrópolis and Oswaldo Cruz Foundation (Fiocruz/Bio-Manguinhos), will provide professional master's degree in Science and master's degree and Ph.D. in Nano and Biosystems. More than that, it will get a new place: UFRJ, Duque de Caxias Campus and its almost 550 students will move out to a new area at Santa Cruz da Serra, which will enable the creation, already pleaded, of under graduation courses in Physical Engineering and Pharmaceutical Sciences.

But such growth does not only happen at institutional level. Inside classrooms of Duque de Caxias, there is an extremely relevant movement, which has brought important results to the entire university community. The name of this movement is "Entrepreneurship in Bioeconomy". Yes, students of UFRJ, Duque de Caxias Campus have learned how to undertake, in a movement very well regarded and encouraged by the

direction of university, which can this way play its true and unquestionable social role: Generate knowledge applied to the market and used it to help the society.



“When we started our management, we were already concerned with entrepreneurship, something so distant from universities in general. The universities generate knowledge, we are specialists in it, but it is difficult to transfer such knowledge to society and, of course, to the market. Then, we decided to provide subjects related to entrepreneurship in our courses. The undergraduations in Biotechnology and Nanotechnology are focused on product development. Consequently, it is crucial to know how to undertake. The students started to ask for more subjects related to entrepreneurship and marketing, which encouraged us. Our view is based on the idea that we have to give room to creative skills of students. We are not the ones who have to define which projects they must develop. It is the students who need to think that and this is what is taking place at the campus”, tells professor Herbert Leonel de Matos Guedes, vice director of UFRJ, Duque de Caxias Campus.

All this movement towards entrepreneurship in Bioeconomy that took place in the institution also took place at the market of state of Rio de Janeiro. The Foundation to Support Research of State of Rio de Janeiro (Faperj), for instance, launched in 2016 a specific bid to biostartups, with the support of Sebrae/RJ, and Duque de Caxias Campus realized it was an excellent opportunity to deepen this movement. To professor Herbert, undertake in this area is crucial to the country, which is a traditional importer of technology in Bioeconomy.

“We approached Sebrae / RJ, which has expertise in entrepreneurship, so we could exchange ideas. The institution itself wanted to deepen discussions about biostartups, with broad participation of all agents of this area. The university could not be left out of this discussion. We have lots of contributions to provide. But we also know there is a lot to be learned. In our university campus we do not know about entrepreneurship and marketing. We are scientists. We do not know how to sell products, we were not trained to it. When one cannot do something, it is required to approach somebody who can, right? We had students with fantastic ideas, different projects taking place at the campus, and it was required to encourage them to provide means for them to develop within biostartup format. How to do it? Honestly, we do not know it in our campus. But Sebrae/RJ does and we approached the institution because it is competent to develop companies”, clarifies professor Herbert, pharmacist, with master`s degree and Ph.D. in Biophysics.

The Duque de Caxias Campus chose two professors Fernanda Damasceno and Bianca Ortiz- to follow up the detailed discussions about Bioeconomy held by Sebrae/RJ. The approximation between UFRJ and the institution was deepened and it generated a first great action: Due to bid by Faperj in Bioeconomy, Sebrae/RJ decided, together with UFRJ, to arrange a classroom of course Biostartup solely for students of university, from Duque de Caxias Campus.

“It was the first great action of a conversation that had already succeeded. I do not know if it was Sebrae/RJ that convinced us or vice versa, but the fact is that we decided to invest in projects of our students, providing a course Biostartups solely to them. The bid by Faperj was for those who had Ph.D. and Sebrae/RJ had also provided them the course Biostartup, but this class was solely for our students. It was something new and with excellent return. We would provide 20 vacancies to ten projects. We ended up broadening this offer to 34 students and 17 projects due to

great demand. Considering it was a first internal bid, without much disclosure, it was a very good result. It was rather encouraging to students and us, especially to them”, assures professor Herbert.



The vice director of UFRJ, Duque de Caxias Campus, states that this first classroom of Biostartup solely for students of technology center was a historical fact to the university. He believes that together, Sebrae/RJ and UFRJ, are handling an entrepreneurship movement inside an important Brazilian university and he claims that students are certainly the ones who are most benefited. Together with society, of course:

“The greatest benefit this course brought was certainly to the student. Although the university has a significant gain due to learning and effectiveness of entrepreneurship, it was the students those who benefited the most. He understood that he could produce his idea, create his company. And this is the most important to us. I repeat that Brazil is a great consumer of imported products of Bioeconomy. We need to have the capacity of creating and make companies feasible in this area, which is crucial to the development of our society. We need to unite company with market and it is exactly this that Sebrae / RJ was providing to us. We want a different horizon. This is exactly the role of university: To create products that can impact the society and make them available to the market”, he reports.

In May 2017, Sebrae/RJ took some students of UFRJ, Duque de Caxias campus who participated in its course Biostartup to Green Rio, the greatest fair of sustainability and Bioeconomy of Brazil, at Marina da Glória, in Rio de Janeiro. They had the opportunity to submit their projects and learn in practice how to contact the market, companies, providers and

public purchasers. In that same month, students also participated in Startup Day, a panel about biostartups. But the second greatest action of partnership between UFRJ, Duque de Caxias Campus and Sebrae/RJ took place from November 6th to 8th, 2017, when it was held the 1st HackathonNanoBio -an immersion seeking solutions to matters related to sustainability to the new campus of Santa Cruz da Serra (matter of food waste), solutions to New Steel metallurgic company (pioneer in dry separation of ore, without using water), solutions towards the field of bakeries and to gastronomic center. The student spent three days immersed, discussing the proposed themes and, finally, presenting the expected solutions.

“It was a new event that provided lots of visibility to the university. We obtained academic and market visibility. We have to thank Sebrae / RJ because, without its support it would have been very difficult to hold this event. The institution provided us consultants, specialists, infrastructure and expertise about the event itself. The students who stood out got the course Biostartup of Sebrae / RJ, which was given in the beginning of 2018. It was the second group. The winner project also got market consultancy”, tells the vice academic director.

In addition to the new classroom of course Biostartup solely to students of UFRJ, Duque de Caxias Campus, the university and Sebrae/RJ are already talking about holding a Biotechnology symposium, which will be held in August 2018 and it will be about the theme entrepreneurship and biostartup. According to Herbert, some students are also have consultancy by Sebrae/RJ to their projects. He tells that Hackathon NanoBio ended up identifying important and innovative projects and Sebrae/RJ decided to invest in them.

“In my opinion, the support that Sebrae / RJ provides, enable out students to develop their projects. The student receives a real consultancy, analyses with specialists, learn how to submit his project to prospective

investors or accelerators and this is fantastic. The work is totally related to the entrepreneur student. Sebrae / RJ is helping us to connect university and market and this is absolutely relevant”, believes professor Herbert.

The most important question that must be made is about the next steps of this partnership. What does the vice academic director of Duque de Caxias Campus expects from this work developed in partnership with Sebrae/RJ in the future?

With its express support, we will generate an entrepreneurship culture in Bioeconomy. This is absolutely new and very important to our country”, answers professor Herbert, emphasizing that due to all this work the university thanked Sebrae/RJ, paying tribute to the institution and its employees. “We want to seek more physical, structural conditions and instruments to create more and more biostartups. This work has already impacted the education of our students and will do even more. What I expect in the future is being able to generate more conditions to students develop projects”.

A QUESTION TO BE DISCUSSED IN CLASSROOM:

The vice director of UFRJ, Duque de Caxias, professor Herbert Guedes, acknowledges that the Brazilian universities have difficulty to connect with the market, providing innovative and sustainable products to the society. “We are scientists, we do not know how to sell”, he claims. How this problem can be solved



GLOSSARY

ABVCAP - Brazilian Association of Private Equity and Venture Capital
<http://www.abvcap.com.br>

AgeRio - State Agency of Foment
<http://www.agerio.com.br>

ANBio - National Association of Biosafety
<http://www.anbio.org.br/>

ANS - National Agency of Health
www.ans.gov.br/

BNDES -National Bank of Economic and Social Development
www.bndes.gov.br/wps/portal/site/home



CERTI - Foundation Reference Centers in Innovative Technologies
www.certi.org.br

CNPJ - National Register of Legal Entities
<http://idg.receita.fazenda.gov.br/orientacao/tributaria/cadastrros/cadastro-nacional-de-pessoas-juridicas-cnpj>

CNPq - National Council of Scientific and Technological Development
www.cnpq.br

Coppe - Institute Alberto Luiz Coimbra of Graduation and Research in Engineering (UFRJ)
www.coppe.ufrj.br

Embrapa - Brazilian Company of Agricultural-Livestock Research
<https://www.embrapa.br>

Embrapii - Brazilian Company of Industrial Research and Innovation
www.embrapii.org.br

Empretec - Seminar developed by United Nations (UN)
<http://www.sebrae.com.br/sites/PortalSebrae/ufs/rr/sebraeaz/empretec,e0cbf7f70ae70610VgnVCM1000004c00210aRCRD>

Faperj - Foundation to Support Research of State of Rio de Janeiro
www.faperj.br

FGV - Getulio Vargas Foundation

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<https://portal.fgv.br/>

FIAP – College of Computer Science and Administration of Sao Paulo
<https://www.fiap.com.br>

FIFA - International Federation of Football
<https://www.fifa.com>

Finep - Funder of Studies and Projects
www.finep.gov.br

Fiocruz - Oswaldo Cruz Foundation
<https://portal.fiocruz.br>

[National Foment](http://www.fomentanacional-sebrae.com.br/)
<http://fomentanacional-sebrae.com.br/>

Founder Institute
<https://fi.co>

Biominas Foundation
www.biominas.org.br

GSK - GlaxoSmithKline
<https://br.gsk.com>

Hackathon NanoBio
<http://www.rj.agenciasebrae.com.br/sites/asn/uf/RJ/hackathon->

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Clinics Hospital of São Paulo
www.hc.fm.usp.br

ICMBio - Institute Chico Mendes of Biodiversity Conservation
www.icmbio.gov.br

IME - Institute of Mathematics and Statistics
<http://www.ime.uerj.br/>

Inmetro - National Institute of Metrology, Quality and Technology
www.inmetro.gov.br

ISS - Tax over services
<http://www.crc.org.br/noticias/NoticiaIndividual/315b637f-cb85-4726-b2c1-8f5d9ed09451>

LaBIM - Laboratory of Microbian Biotechnology
<https://www.iq.ufrj.br/pt/laboratorios/labim>

LNCC - National Laboratory of Scientific Computer Science
www.lncc.br

MDIC - Ministry of Industry, Foreign Trade and Services
www.mdic.gov.br

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MMA - Ministry of Environment

www.mma.gov.br

MVP - Minimum Feasible Product

<https://www.significados.com.br/mvp/>

OECD - Organization to Economic Cooperation and Development

oecd.org

ONU - United Nations

<https://nacoesunidas.org>

Sebrae – Brazilian Service to Support Micro and Small Companies

<http://www.sebrae.com.br>

Sebrae/RJ - Support Service to Micro and Small Companies in

State of Rio de Janeiro

<http://www.rj.sebrae.com.br>

Sebraetec - Consultancy Services in Innovation and Technology

<http://www.sebrae.com.br/sites/PortalSebrae/>

[Programas/Sebraetec-inovar-no-seu-negocio-pode-ser-facil,c38a5415e6433410VgnVCM1000003b74010aRCRD](http://www.sebrae.com.br/sites/PortalSebrae/Programas/Sebraetec-inovar-no-seu-negocio-pode-ser-facil,c38a5415e6433410VgnVCM1000003b74010aRCRD)

Senac - National Service of Commercial Learning

<https://www.rj.senac.br>

Senai- National Service of Industrial Learning

<https://www.cursosenairio.com.br>

Senar- National Service of Countryside Learning

www.senar.org.br

SESI- Social Service of Industry

www.portaldaindustria.com.br/sesi

Sistema B

<https://sistemab.org.br/brasil/>

SUS- Single System of Health

<http://portalms.saude.gov.br/gestao-do-sus>

UBQ- Brazilian Union to Quality

<https://ubq.org.br/>

UERJ- University of State of Rio de Janeiro (UERJ)

www.uerj.br

UFRJ- Federal University of Rio de Janeiro (UFRJ)

<https://ufrj.br>

USP- University of São Paulo

<http://www5.usp.br/>

WSDC- World Skills Digital Challenger

<https://www.worldskills.org/what/international-cooperation/digital-challenge/>

WWF- World Wide Fund for Nature

<https://www.wwf.org.br>

VISIT THE PAGE OF BIOECONOMY IN

WEBSITE OF SEBRAE / RJ:

<https://bit.ly/2Bukkpr>



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