



Listening to the market

Startups supported by FAPESP receive training on how to prepare business plans

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DPR Engenharia, a startup founded in 2008 at the business incubator of the University of Campinas (Unicamp), needed to radically alter the business model of a new technology, or it would not be able to put it on the market. The change took place during the FAPESP-PIPE High-Tech Entrepreneurial Training Program, held between March and May 2016, with companies that participate in the Foundation's Innovative Research in Small Businesses Program (PIPE). Since the end of 2015, the company has been developing computer simulation software to evaluate the size of underwater petroleum pipes and prevent damage caused by the phenomenon of vortex induced motion. These are movements in water caused by ocean currents, which create tension capable of rupturing pipes. The owners believed that this tool would meet the demands of companies for drilling wells, but this

was not what happened. After consulting with potential customers, they found that the industry was not interested in their product. "It was frustrating," says engineer Denis Antonio Shiguemoto, one of the founders of DPR. According to the engineer, the justification given by some businesspeople was that the maintenance cost is very low when compared to the drill operating cost. "Therefore, it is less expensive for companies to continue to do regular maintenance, when necessary, than to use our system," he explains.

However, the frustration did not last long. Upon contacting other companies in the industry, Shiguemoto and his partner, engineer Raphael Issamu Tsukada saw an opportunity to apply the technology in another industry. "Unlike the case with the drilling of wells, petroleum production uses pipes for more than 20 years, which makes them more susceptible to long term wear and tear. In this case, petroleum producers could

be interested in our technology," explains Shiguemoto.

DPR is one of the 21 startups that participated in the first training offered by FAPESP in partnership with George Washington University (GWU), from the United States, for the purpose of finding an effective business model for technologies developed with support from the PIPE program. Over the course of seven weeks, the companies were encouraged to conduct interviews with potential customers, partners and competitors, in order to understand their needs, obstacles and problems. A total of 1,729 interviews were conducted. "We found that the principal difficulty faced by the startups is almost always knowing how to identify the type of customer for their technology and whether the product really meets a specific market need," says Fabio Kon, a professor at the Institute of Mathematics and Statistics (IME) of the University of São Paulo (USP) and a

member of the Adjunct Panel – Research for Innovation of FAPESP.

The program uses a methodology called Customer Development, developed by Steve Blank, a professor at the University of California, Berkeley and founder of several startups in Silicon Valley in the United States. According to Blank, many companies develop technologies and define a business model based only on assumptions about the market. “The purpose is to provide guidance to entrepreneurs and researchers to face real-world challenges,” affirms Daniel Kunitz, director of the GWU training program. Shiguemoto acknowledges that before the course, he was not in the habit of conducting interviews with potential customers. “We trusted our perception. We paid more attention to the technological development per se, and treated marketing as an afterthought,” he says.

BUSINESS MAP

After the selection made by the FAPESP innovation research area, each company formed a team composed of a principal investigator, a representative of the business area and an external mentor, chosen by the Foundation from a list of executives with experience in large companies and startups in the state of São Paulo. The teams prepared a Business Model Canvas, which is a map describing the

Conducting interviews with potential customers prevents companies from wasting time with errors in the formatting of a new project

principal elements of the business model for the innovative product that the company intends to sell. Afterwards, a three-day meeting was held at FAPESP headquarters, when the American instructors gave recommendations on how to conduct the interviews in a systematic manner and to incorporate the replies into the business models. After this stage, each startup conducted around 100 interviews with potential customers.

FAPESP provided R\$10,000 for each team. These funds were used for things like travel expenses to visit possible customers. DPR used some of the funds to participate in an international oil and gas trade fair in the city of Houston, in the United States. “It was important because some 2,800 companies participated in the event. We were able to speak with more than 50 people in just three days, and it was there that we realized the need to change the direction of our business plan,” says Shiguemoto.

Over the course of the weeks, the companies’ performance was closely monitored by three instructors from GWU and three adjunct instructors from FAPESP. They accessed an online platform with information on the interviews submitted by the program participants. In weekly videoconferences, it was possible to privately discuss each case and to point out what went right and what went wrong. “The instructors were strict. There was one week when we were not able to conduct many interviews and we were given a dressing-down,” says Silvia Mayumi Takey, a partner of DEV Tecnologia, a startup created in 2013 at the Center for Innovation, Entrepreneurship and Technology (Cietec), in São Paulo. Like DPR Engenharia, DEV also changed the focus of its business model after the training. The company developed a device that collects data on the operation of industrial machinery and makes it available on an online platform. This technology may facilitate real-time monitoring of industrial equipment to identify defects and flaws. “We believed that this system would be able to serve the machinery manufacturing market. However, when we interviewed representatives from these companies, we discovered that they were not interested in adopting the technology,” says Silvia Takey.

Following the advice of the instructors, DEV directed its product towards other possible customers. “When we spoke with the users of the machines,



Instructors from George Washington University at FAPESP headquarters: facing the difficulties



The startup DPR developed software for oil well drilling, but during the training they realized that the computer simulations developed by the company have a better chance of success on the oil and gas production market

such as industrial managers of mass production companies like foods and beverages, we learned that they were interested in obtaining our technology to access specific information about the production line in a faster and easier manner,” affirms Takey, who had little familiarity with the methodologies proposed in the training. “Holding interviews prevents companies from spending time on strategies that might not work later. It is a way to reduce the risks surrounding a new project,” she notes.

MARKET SIZE

In the opinion of Daniel Gordon, one of the American instructors in the program, holding the training in Brazil was a plus. “In spite of the recent economic problems faced by the country, Brazilian startups have a large domestic market available to them, which favors new undertakings,” he says. “The team from George Washington University has experience in helping businesspeople to

size up their business prospects. In my case, in the past 2 years, I have come into contact with more than 10,000 business plans,” says Gordon, explaining that the activity conducted in Brazil is similar to the I-Corps, a program that seeks to encourage the development of an innovative business ecosystem in the United States.

This initiative appeared four years ago, when the National Science Foundation (NSF), one of the principal U.S. research support agencies, verified that startups supported by the Small Business Innovation Research program (SBIR) were facing difficulties in preparing their business plans. I-Corps was created together with research institutions that offer training in this area, including GWU, the Massachusetts Institute of Technology (MIT) and Stanford University. The program was successful, and in 2015, it began to be exported to other countries, such as Mexico, South Korea and Japan. “PIPE was inspired by

the SBIR and we also faced the challenge of encouraging a market vision among startups. FAPESP contacted GWU and signed an agreement to bring the program to São Paulo. FAPESP is absorbing this knowledge and may be able to offer its own training in the future,” explains Fabio Kon.

The training does not only apply to startups facing difficulty in defining a business model. Even those with some experience in this matter can benefit from the courses. This is the case of SmarToys, a startup headquartered in Sorocaba (São Paulo), which produces smart toys. “We already had experience in conducting interviews to rapidly identify potential customers and to understand the market. But with this training, we were able to expand our scope, to speak with more partners and to have a broader vision of the market,” says Alexandre Alvaro, a researcher at the Federal University of São Carlos (UFSCar) and founder of the company. Based on research in the area of information technology (IT), SmarToys develops technological toys. One of them, now in the prototype phase, is a stuffed toy that is intended to facilitate communication between parents and children. It is connected to an interactive screen, like the screen on a tablet, on which the child can record sounds and exchange messages with his or her parents--who are connected to the toy through an app installed on their cell phones--and on which the child can also listen to music and watch educational videos. “The toy market is composed of several actors. For this reason, our interviews involved not only parents and children, but also the entire toy industry. It is a complex relationship, and this will be taken into account in our strategy from here on,” affirms Alvaro. ■

Projects

1. *Development of a software for the prediction of the Vortex Induced Motion (VIM) in submersible buoys using an empirical* (No. 2012/50440-4); **Grant Mechanism:** Innovative Research in Small Businesses (PIPE); **Principal Investigator:** Raphael Issamu Tsukada (DPR Engenharia); **Investment:** R\$42,498.89.
2. *Application of internet of things to enable Product Service Systems (PSS)* (No. 2014/50568-6); **Grant Mechanism:** Innovative Research in Small Businesses (PIPE); **Principal Investigator:** Silvia Mayumi Takey (DEV Tecnologia); **Investment:** R\$50,766.24.
3. *Smart connected toys* (No. 2015/01085-5); **Grant Mechanism:** Innovative Research in Small Businesses (PIPE); **Principal Investigator:** Paulo Tadeu Matheus de Camargo (SmarToys); **Investment:** R\$119,696.35.