

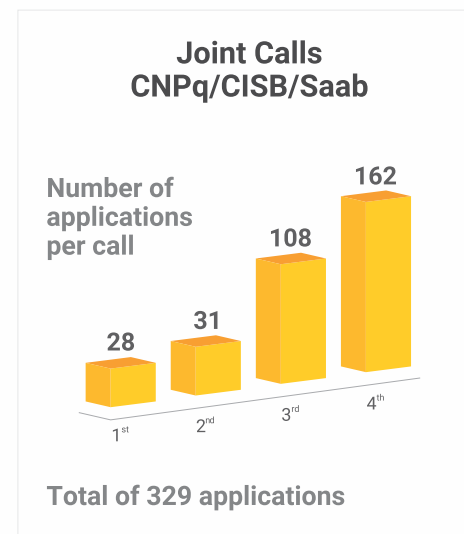
Opening the frontiers of knowledge

The highly successful cooperation between CISB, CNPq, and Saab reaches its 5th anniversary, reinforcing a solid relationship between Brazil and Sweden.

In around 2012, the Brazilian government envisioned students venturing into new countries. It created the Science without Borders programme for thousands of university students of all levels, from undergraduate to post-doctorate, to spend at least one year overseas with the aim of expanding their knowledge and bringing new knowledge to Brazil.

It was around this time that CISB began to take shape. It took advantage of the rising government initiative and established a strategic partnership between the CNPq (state research funding agency) and the Swedish Saab to promote the exchange of researchers. A success story was in the making.

Some data provide a clear picture of the accomplishments. In 2012, 28 projects were registered on the first call of the newly established partnership. In the last call, in 2016, that number jumped to 162. In all, 13 sandwich doctorate courses and 21 post-doctorate courses were completed, in addition to numerous continuity projects and developments.



Alessandra Holmo, managing director of CISB, celebrates the results by highlighting some of the challenges. "The USA and Germany are the most sought-after countries by researchers. In general, most students know little about Sweden, which is why it was so difficult to spark their interest at first," he recalls.

As the researchers started returning, they talked about their successful experience in the Scandinavian country. The

seriousness regarding research, the culture of optimising time to make work more assertive, and the high quality of academic knowledge have become major attractions for new students interested in signing up for the programme. Then, of course, there is the highly successful Swedish triple helix model, where cooperation between academia, industry, and government forms a solid platform for the promotion of innovation.

Results

Today, many of those who embarked on the exchange act as if they were true ambassadors of Sweden in Brazil. That is the case of Professor Emilia Villani, of the Technological Institute of Aeronautics (ITA). As a participant of the first call, she is currently involved in practically all activities between the Swedish universities. And the number of projects has been growing steadily every year, especially since 2013, when the Brazilian government announced the purchase of the Swedish fighter aircraft, Gripen, developed by Saab, which led the ITA to strengthen its relations with the European country.

Emilia says she organised the visit of an ITA delegation to some Swedish universities, in addition to workshops and support for the CISB disciplines and chairs of the institute. "Since the announcement of the purchase of the fighter planes, the volume of exchange has increased", she adds. According to Emilia, there are projects with Chalmers University of Technology (CTH), Linköping University (LiU) and the Royal Institute of Technology (KTH), each lasting three years.

The professor believes that "integration with other research groups helps students become better acquainted with the reality outside of Brazil and allows them to make self-assessments: what needs to improve, strengths of their work, etc.". "Internationalisation is essential to maintain the quality of research," she adds.

Professor Victor Juliano De Negri continues along the same lines. The full professor of the Federal University of Santa Catarina (UFSC) in the department of Mechanical Engineering has been working with CISB since the beginning of the activities of the institution. He says that the relationship between the two countries clearly improves the quality of research. "The main gain is reassuring people that they are doing something of quality in comparison with other countries," he adds.



De Negri states that one of the most tangible results of the exchanges is the assembly of a mathematical model demonstrator in the area of Aeronautics, proving the thesis proposed by researchers. "There was no demonstrator for this sector in Brazil," he explains. The whole project was carried out at the UFSC.

According to De Negri, contact with foreign institutions gives students, "the chance to have theses and dissertations in an interesting field (Aeronautics), with prospects of technological development in aircraft engineering". The professor also praises the triple helix model. "The experience abroad encourages students to pursue this practice in Brazil," he adds.

Another satisfactory result of this cooperation is that of Renato Machado, a professor at the Federal University of Santa Maria (UFSM), Rio Grande do Sul. He worked alongside Mats Pettersson, the creator of Saab's radar system, on a project that significantly increased the accuracy of monitoring with this type of equipment. "We proposed a solution in the area of detection of targets for SAR images that allows the detection of targets with a high

detection rate that is very high (close to 100%) and a very low false alarm rate, around 20%. The results were published in two journals," he says.

More important than the success with research, the relationship with Pettersson resulted in a friendship that has brought many benefits to Brazilians. Some students are going to Sweden to work with the expert, and he often visits Brazil to give lectures in congresses, creating an invaluable link for national research.

Alessandra Holmo cannot hide this satisfaction with the achievements so far. "CISB became an important facilitator and catalyser in projects between academia and the industry. The continuity that professors are giving to the initial work is critical, and serves as the catalyst we need for industrial innovation and to maintain relations between Brazil and Sweden," he says, foreseeing a promising future for the country.