

What will the future hold for EU-BR collaboration in ICT?

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Abstract: Brazil and Europe have already launched four joint calls for collaboration in different ICT areas in subjects such as Future Internet, Cloud Computing, Internet of Things, Big Data and 5G. Focusing on the fifth call in the near future, much experience has been gained in the last years, but there are some issues that may be improved. Also, fostering real and effective collaboration is the key reason for these calls to exist and various levels of openness may help us to achieve that goal. Important lessons have been learned that must be used for future calls, such as broadening the participation and lowering the barriers for new players. Future calls should focus on the use of information and communication technologies for large broad societal challenges of both continents, such as the impacts of climate changes, sustainability, circular economy, and urbanization.

1. Introduction

Target audience: This position paper is expected to broaden the understanding researchers have of the nature of EU-BR coordinated calls in TIC. Also, it will encourage researchers to form consortia and submit proposals for future calls by providing some hints and tips they may help them in creating competitive proposals. Policy makers will have the opportunity to be exposed to the lessons learned by researchers who participated in different EU-BR projects, as well served as evaluators of project proposals and project reviewers. SMEs will have the opportunity of how they can benefit from taking part in consortia for future calls.

Context: Brazil and Europe have been launching coordinated calls for the development of collaborative research projects in the area of Information and Communication Technologies (ICT), focusing on topics such as Future Internet, Cloud Computing, Smart Cities, Big Data, 5G Networks and Internet of Things. Since 2010, four coordinated calls have been launched resulting in 193 proposals submitted involving hundreds of institutions (universities, research institutes, companies, government agencies) of both continents. From those proposals, 20 were selected where each party funded 25 million euros.

In Brazil, these proposals are funded by the Ministry of Science, Technology, Innovation, and Communications (MCTIC) and run by RNP (the National Network of Research and Education), having the European Commission as its counterpart in Europe. The four calls were launched in 2010/2011 [1], 2012/2013 [2], 2014/2015 [3] and 2016/2017 [4]. Currently, projects selected in the first and second calls are already finished, projects selected in the third call are in progress and projects selected in the four calls started at the end of 2017. The outcomes in terms of research contributions and increased collaboration between Brazil and Europe have been positively assessed and therefore a fifth call is already being planned.

Challenges: However positive EU-BR research collaborations might have proven to be, there is always room to improve the legal and management frameworks in order to provide a better support for researchers to achieve their goals. Particularly, two key issues should be revisited as soon as possible. Firstly, even though the whole schedule is determined by an agreement between officers from both continents, one issue that always causes problems is the (lack of) synchronization of project start times due to the different legal frameworks in Brazil and Europe. For most Brazilian partners, the project officially starts and the financial resources are still not available, which in practice delays the real work to be done. Secondly, cooperation with other countries and regions requires additional flexibility in the existing legal and accounting frameworks. Both in Europe and in Brazil the documents, IT systems, and agreement templates were envisioned only for their local scope and when partners outside that scope participate, workarounds are necessarily that either are not true with the original proposal or merely adds administrative overhead that would be rather unnecessary otherwise. For example, the EU DoA does not include Brazilian partners and EU partners must take responsibility for work packages and deliverables that originally are assigned to BR partners in the proposal. The same is valid for BR paperwork.

2. Synergies via Collaboration and Openness

Collaboration: Increasing collaboration at an international level is the first and foremost purpose of coordinated calls between different countries and regions. At a policy-making level, there must be effective requirements and incentives to enforce international collaboration "for real" and not only "for show". There is no point in receiving public funds for encouraging collaborations for the local interactions being most important than the international ones. Unfortunately, if appropriate measures are not set up, there is a human propensity to preferentially interact with people who are physically closer where face to face meetings happen more frequently. In other words, international collaboration means that partners who are separated by hundreds or thousands of kilometers must interact on a weekly or even daily basis. And distance charges its prices. Therefore, there must be encouraged that partners spend more time together, not only in 2-day face to face meetings every six months, but researcher exchange for periods over one month is needed to improve collaboration. An appropriate budget must be reserved to support those medium and long-term research visiting positions. Even considering the limited existing human and budget resources, not only intra-project collaboration must be encouraged, but also inter-project collaboration must be promoted. Since the relevant hot research topics are similar and there are always multiple projects selected for a particular topic, there are plenty of projects (EU/BR, only EU, and only BR) with which to collaborate in order to develop even more the mindset, skills, and impact of research activities. Given the inherent difficulties, the promotion of joint events (e.g., conferences, workshops, and exposition) is particularly a very effective approach for inter-project collaboration to flourish. Researchers from different projects and countries should have a playing field for sharing results, expertise and lessons learned and promoting the reuse of solutions from other projects.

Openness: The challenge of promoting and supporting collaboration, both at intra- and inter-project level, may be dealt with by firmly relying on open solutions. Here we propose the creation of a true open research ecosystem, based on multiple levels of openness, such as a) open source software; b) open data; c) open access; d) open innovation; e) open prototypes; f) open experiences; g) open experiments. Whereas some of these levels of openness are widely known, others are still in development. The key challenge here is how to promote such open research ecosystem where openness is a pervasive value and stimulates collaboration. Everything should be considered open by design, except for some specific cases such as privacy or intellectual property management.

3. Lessons Learned

Lessons: Since 2010 many people have had the opportunity to be exposed to and learn from international cooperation provided by the EU-BR coordinated calls in ICT, involving researchers, students, professionals, reviewers, and policymakers. The experience so far tells us that this is a very successful model that provided a good deal of lessons learned and insights gained, such as:

- a) The effort made by the Brazilian government and the European Union for putting forward a public policy in a very strategic area that may contribute for the further development of Brazil and Europe is very important and should be publicized;
- b) Cooperation between Brazil and Europe should be maintained and expanded;
- c) New players should appear and be encouraged to submit proposals to next EU-BR coordinated calls in ICT;
- d) This experience should be extended to other fields of knowledge;
- e) Europe has been working with coordinated calls for a while but at least for Brazilian policy makers, it is advisable to extend this style of joint calls to other countries and continents (by the way, a coordinated call between Brazil and USA has already happened as a consequence of the successful cooperation with Europe);
- f) Potential barriers for new prospective researchers of both continents aiming to participate in new calls should be lowered and hints and tips should be provided on how to organize a consortium of Brazilian and European institutions.

4. Conclusions: The Future

Future: Future coordinated calls between Europe and Brazil should focus on the use of information and communication technologies for the big broad societal challenges of both continents, such as the impacts of climate changes, sustainability, circular economy, and urbanization. Specific applications or verticals to be addressed are water, energy, food, and air.

ICT technologies to be used to deal with those challenges applied to particular verticals are IoT, Big Data Analytics, 5G, Artificial Intelligence, Quantum Computing, and Blockchain.

References

- [1] European Commission and MCTIC/CNPq, "ICT EU-Brazil Coordinated Call 2011", FP7-ICT-2011-EU-Brazil, <https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/fp7/calls/fp7-ict-2011-eu-brazil.html>.
- [2] European Commission and MCTIC/CNPq, "ICT EU-Brazil Coordinated Call 2013", FP7-ICT-2013-EU-Brazil, <https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/fp7/calls/fp7-ict-2013-eu-brazil.html>.
- [3] European Commission and MCTIC/RNP, "EU-Brazil Research and Development Cooperation in Advanced Cyber Infrastructure 2015", H2020-EUB-2015, <https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/fp7/calls/fp7-ict-2013-eu-brazil.html>.
- [4] European Commission and MCTIC/RNP, "EU-Brazil Joint Call", H2020-EUB-2017, <https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-eub-2017.html>.