

1st German-Brazilian Innovation Forum – One Pager

Introduction

Innovation, i.e. the art of translating new technologies and approaches into a societal benefit, is high on the agenda of governments, academics and companies. For companies, innovation is the path to future growth and profit; for governments, it is a key lever to create employment and wealth. Modern innovation is characterized by accelerating innovation cycles, rapid disruption of established businesses and a growing recognition that technology is not the only source of innovation; novel processes or business models play a significant role as well. Innovation is increasingly driven by business and societal challenges, such as the adoption of digital technologies in industrial domains (“Industrie 4.0”) or the development of a viable bioeconomy as an alternative to fossil raw materials. Such societal challenges need multi-stakeholder, multi-national coalitions to be tackled successfully. In this regard, Brazil and Germany can play a major role, given the long-standing partnership between these countries.

The innovation collaboration between Brazil and Germany has been reviewed during the 3rd Innovation Forum on October 17, 2016 in Weimar (Thuringia), Germany. 60 participants from both countries, therein 20 speakers, analysed how to better leverage **intellectual property management** and **government research and technology funding** in order to foster this collaboration. More importantly, they explored two innovation fields, namely **Industrie 4.0** and **Bioeconomy**, for collaboration opportunities.

Intellectual property management

For the past decades, the patent offices of Brazil and Germany have been entertaining a close collaboration, codified in three successive memoranda of understanding, and addressing various challenges such as the qualification of patent examiners, staff training, patent examination processes, strategic planning and so forth. Various joint activities, such as best-practice exchanges and joint workshop in specific technology fields, have had significant impact. The most recent memorandum of understanding, which was concluded following the 2nd Innovation Dialogue in 2015, is an encouraging signal that the collaboration will continue.

Despite this success story, the efficient administration of patents continues to be a major challenge. Patent examiners need to familiarize themselves with rapidly emerging complex technologies, such as additive manufacturing or genetics, while coping with an increasing number of patent filings. The growing backlog at both patent offices is a clear symptom for these challenges. In the absence of counter-actions, these will adversely impact the ease of driving innovation in the two countries and limit the scope for future collaborative efforts. It is recommended that the two patent offices work closely together with innovation policy makers and business stakeholders in order to properly assess and these risks and propose remedies. A joint task force involving these stakeholders may be a suitable format.

Government funding for research, technology and innovation

Both countries have a variety of programs to support research, technology and innovation projects. Common themes include the target group (research consortia with both academic and business participants), the special attention paid to small and medium enterprises, the growing focus on innovation (as opposed to research), and the growing support of international collaborations. For the latter, a number of programs in both countries are open for cross-border project applications. Government agencies serve a single point of contact to inform about different funding programs.

Companies in Europe may receive a government funding of up to 50% for research projects. This share decreases for projects which are closer to commercial realization, in line with European competition laws.

For the sake of driving innovation fields such as Industrie 4.0 or Bioeconomy, it remains to be seen whether existing cross-border funding opportunities are sufficient. Initial signs are promising, and no immediate need for action can be identified at this point.

Digitalization of Industries / “Industrie 4.0”

Behind the catch word “Industrie 4.0” are a multitude of different implications, depending on the context and the stakeholder making use of the term. It is undisputed that the driver of “Industrie 4.0” is the wide-spread adoption of digital technologies in the industrial domain. These will lead to productivity gains, e.g. through a horizontal and/or vertical integration of value chains, which go well beyond the traditional approach of using automation to continuously increase output with constant or reduced input. However, “Industrie 4.0” is as much about flexibility as it is about productivity, with “lot size = 1” as a clear vision even for mass-produced goods. “Industrie 4.0” comes along with novel and potentially very profitable business models, such as data-driven services or platform-driven models. As of today, it is still open who will be most successful in developing and implementing these models; this question is closely related to the various contenders’ ability to access and use data produced by industrial machines, goods and processes.

In many aspects, “Industrie 4.0” is already a reality, but most parts of the “Industrie 4.0” scenario are still visionary. There is a huge gap between the front runners of “Industrie 4.0” and the numerous, mostly small and mid-sized companies in both countries who have yet to embrace the idea of using advanced digital technologies in an industrial context. Given the variety of flavors of “Industrie 4.0” – from advanced and ultra-flexible manufacturing processes to novel, data-driven business models – it becomes clear that there is no standard recipe for “Industrie 4.0”. Depending on their starting point and their core strengths, companies must discover their own way to “Industrie 4.0”.

This being said, a number of challenges related to “Industrie 4.0” are common to many or even all market players. In addition, Germany and Brazil have complimentary starting points in “Industrie 4.0”, with the former being a leading supplier of production and automation equipment, and the latter having a number of world-leading industries such as mining, oil & gas or avionics. A joint approach to tackle these challenges should therefore be considered. Specifically, the following challenges were discussed:

- How to increase the awareness among companies in an I2.0 or I3.0 stage, and disseminate I4.0-technologies e.g. through demonstration centers
- How to jointly digitalize core processes in selected industries such as agriculture, oil & gas, avionics
- How to develop new, data-driven or platform-driven business models, on top of (or instead of) riding the productivity wave caused by “Industrie 4.0”
- How to ensure an efficient and harmonized approach to standardization and (e.g. data) regulation, possibly including “safe heavens” to experiment with data-driven collaboration and business models
- How to develop human resources in order to master the transition to “Industrie 4.0”, and to avoid social hardship especially among low-skilled workers

These challenges should be addressed by individual task forces, which should be initiated and driven by interested companies while including all other relevant stakeholder groups. An initiative to raise awareness is already in preparation in collaboration with the AHK in Brazil.

Bioeconomy

The term “Bioeconomy” generically describes the use of biological feedstock for the production of everything from fuel to basic materials and drugs. It is a key lever to reduce mankind’s dependence on coal, oil and gas. As of today, the biggest challenge is the cost gap between bio-based and fossil-based raw materials, with the former still being up to three times more expensive than the latter. However, Germany’s industrial know-how, combined with Brazil’s



leadership in biotechnology, should provide a sound basis for research and business collaborations to tackle this and other barriers to further growth in the bioeconomy.

A number of collaborations are already ongoing between various partners from Brazil and Germany. Individually, they make significant contributions to the development of the bio-economy, but they fail to generate the critical mass required to bring the bioeconomy to the next level of competitiveness.

For this reason, the establishment of a Brazilian-German Innovation Hub for Bioeconomy is proposed to bundle the various activities, provide guidance and strategic direction to future collaborative efforts, and tap funding opportunities more effectively. The feasibility of such a center is already being assessed. If this assessment is positive, and if the required funding can be secured, the BioInnovationHub has a good chance of being realized. Current funding programs seem to offer sufficient opportunities to obtain this funding.