



THE ADVANCEMENT OF INNOVATION

Brazil is the 13th country with the greatest production of scientific knowledge, according to data from CAPES (Coordination for Enhancement of Higher Education Personnel). If on one hand, however, such ranking seems quite attractive, Brazil, the sixth largest economy in the world, is still way behind other nations in terms of “transforming knowledge into new industrial technologies capable of producing high-value added and innovative products”.

In order to change this scenario, the government has developed actions and created programs to foster innovation through the technological empowerment of Brazilian companies. Investments are expected to reach R\$30 billion by 2014. However, in order for this invested capital to produce a return in national innovation, it will be necessary to break a culture of conservatism among Brazil’s business community - this being one among other factors that can delay change.

To speak about the challenges that involve advancing innovation in the country, *O Papel* magazine interviewed **Álvaro Prata**, Technological Development and Innovation Secretary of the Ministry of Science, Technology and Innovation (MCTI). See what he has to say about these facts.

O Papel – What is Brazil's scenario as an innovative country and how has this context evolved over the years?

Álvaro Prata – We have a major imbalance. Today, we are the 13th country in the world in terms of scientific knowledge production, which positions us among the “main players”, but we are way behind in innovation. We do not add technology to the products we make which, in a certain way, is unexplainable. For this precise reason, the government is concerned about this matter. Today, most of the knowledge is in universities and academic institutions, differently than what occurs abroad, in developed countries. We want the industrial sector to utilize the knowledge produced in institutions, but also feel capable of developing innovations within its own sector.

O Papel – What is the perspective of changing this scenario?

Prata – Roughly speaking, the government has the responsibility of balancing and stimulating society. In countries that are developing quite well and generating wealth for society, the private sector invests a lot more in Research & Development (R&D) and innovation than Brazil's business community.

To have an idea, the Brazilian government invests 0.6% of Gross Domestic Product (GDP) in R&D, which corresponds to the same amount applied by the private sector in this area. The private sector should be investing more.

Globally, Sweden invests 3.5% of its GDP, of which 2.6% comes from industry and 0.9% from government. The country has a population of 9 million inhabitants and, due to need and a lack of natural resources, it must find ways to be technologically competitive. This occurs through engineering and the development of high-value added products.

We are the sixth economy in the world and one of the strongest, but we live off our natural resources and become dependent on commodities at low prices. We should focus on adding more technological value to our products.

O Papel – How has government contributed to make Brazil more innovative?

Prata – The government has focused on offering several instruments to make Brazil more innovative. We are creating bridges between institutions, private sector and government, funding new projects and products and also betting on new ideas.

For such, companies need to invest in academic qualification by hiring Masters and PhD's. The Human Resources in Strategic Areas (RAE) program created by the government, for example, pays the cost of sending these highly knowledgeable professionals to companies, helping them become more competitive. In addition to the benefits that can be obtained from these professionals,

resources invested in the technological development of companies can be deducted from income taxes. Another mean of how the government is contributing: to implement part of the business in technology parks. We have been offering good conditions and improved ties with research through a bold innovation strategy.

O Papel – What is a bold innovation strategy and how is it implemented (in terms of challenges)?

Prata – Having a bold innovation strategy is adding technological development to all sectors in a transversal manner. The government does not try to directly intervene in the sectors, but rather provide conditions for each of the production chains to add innovation to their business areas, be it in structuring business, in industrial processes and/or in the creation of products. We want to and already are doing this.

In our understanding, Brazil detains scientific knowledge, but has not been using it in the way it could be. There exists a gap between what we are doing and what we could really be doing in the sense of adding competitiveness. We have a mature industry and a country producing a large amount of scientific knowledge, but they are not interacting with each other.

O Papel – How are science, technology and innovation inserted in the government's proposals for 2013? How much of the budget will be earmarked for promoting projects in this area?

Prata – We are talking about R\$ 30 billion being allocated to strengthen innovation, not only by the MICT, but by the whole government. There exist several transversal areas that will be benefited by government policies, such as the country's energy area.

This, certainly, will be put to use by industries that consume a lot of energy in order to consequently become more competitive.

O Papel – The volume of resources has increased. What is your opinion about companies going after these governmental programs that encourage innovation in the short and long-term?

Prata – In the short term, companies have not looked to use these benefits for several reasons: unawareness, inertia, legal uncertainty, among other reasons. In terms of legislation, one of the uncertainties refers to how much of these resources to deduct from taxes paid.

Since it is not possible to utilize the assumed profit regime, some companies fear exposing themselves by reporting these discounts.

Last year, for example, for fiscal use, we analyzed documentation of roughly 1,000 companies only. I asked myself what is the reason for such a small number... Therefore, in the short-term, I believe that any sector should make more use of these instruments.

In the medium and long-term, I believe that this use will occur, since we saw that numbers begin to change. More important than speed is the direction things are headed. There exists a very positive perception that knowledge needs to be absorbed by all sectors. My message to business people in the pulp and paper sector is: do not waste time; invest in more transversal and more competitive partnerships, contract qualified people and look to open new horizons.

O Papel – Of all industrialized sectors in the country, which have been the most innovative?

Prata – We have four sectors in which we see good examples. The first is the banking sector: there is no country like Brazil with the security and facilities offered to users today. These innovations came in the midst of a major problem in the past: inflation and the need for an almost instantaneous monitoring of finances. The second is the oil sector: we became the first country to explore the pre-salt layer and today we are the global leaders in deep-water oil exploration. Agribusiness is the third sector: today we feed not only our people, but also the world population. We've created several technologies to improve cultivation, increase soybean production, develop first-generation ethanol – and we are headed now to second and third generation bioethanol produced from sugarcane bagasse or any other cellulosic fiber.

The fourth sector that I wanted to mention is aeronautics: we don't have Brazilian cars, but we have Brazilian aviation. Why are we capable of producing aircraft? At a certain time, the government trained people and put them to work on a project such as this. As such, the country has demonstrated its creativity and overcome its challenges over the years.

O Papel – In addition to issues that involve availability of financial resources, what are the characteristics and/or structural weaknesses in the business community's profile or Brazilian research institutes that need to be mastered in order to improve their innovation process?

Prata – People need to become accustomed at dealing with risk. In this area, Brazilians are still very conservative. If at a given moment a product is not well accepted, businesspeople need to draw lessons from the experience. We need to understand that every type of innovation is worthwhile.

In countries where the innovative process is more cultivated, risk – such as, for example, opening up a company and not being successful – is not perceived as a failure, but rather an entrepreneurial act of great initiative. In summary, the innovation process involves risk over its own nature. Therefore, the best thing to do is to see yourself as a building agent and not be let down for having tried and not achieved the success expected on the first try.

O Papel – Could the concept of open innovation also be mentioned here as a path to help in the innovation process?

Prata – It is an excellent means for innovation, and the government has been focusing considerably on this concept, particularly in three fields: biotechnology, nanotechnology and energy. While they are very specific, all sectors can utilize the benefits provided by their advancements – including the pulp and paper market.

Networks of the Brazilian Technology System (Sibratec), for example, provide technological support to all companies that desire it. We also have start-up companies, which amount to roughly 400, and technology parks. Whatever the industry, companies can establish themselves in these parks and favor technological growth.

We're not only talking about financial stimulus; these benefits have been made available through tax incentives, such as the Good Law, which allows amounts invested in R&D to be deducted from taxes.

More than that: if a company wishes to develop a process or a product, the government will help out with resources through financial subsidies. In other cases there also exist options of low-interest financing. There is no lack of incentive mechanisms for companies.

O Papel – How do you create synergy between companies and government in favor of innovation?

Prata – We need that sectors be willing to work in synergy and work more closely aligned. The industrial sector needs to believe that the development of innovation is already embedded as a country policy, aware that rules will be clear and controls will be created to protect, with the objective of reducing tax load - take a look at the latest taxes that were reduced by the government.

Therefore, the government's role is to establish this trust in order to minimize the risk factor of innovation. After all, there exists a major trend on the part of investors to not bet on countries that do not possess legal and governmental security. You just can't say "trust me".

The innovation process involves establishing networks, partnerships and a lot of trust. This process is built based on experimentation. I mentioned that rules need to be clear, free of mistrust and secure regarding the path to be trailed – which is particularly important when it comes to innovation. This way, the process will consolidate itself.

O Papel – What would you say is the greatest challenge today for an innovative Brazil?

Prata – To be able to do in all of our sectors what we did in the four sectors previously mentioned (banks, oil, agribusiness and aeronautics), without fearing risk, rolling up our sleeves, adding scientific knowledge to develop technologies and compete internationally. ■